Evaluating Africa's comparative advantage in travel service exports

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ABSTRACT

This paper tests the hypothesis that African countries reveal a comparative advantage in travel service exports empirically. The UNCTAD 2007 Handbook of Statistics (2008) is used to calculate revealed comparative advantage for 186 countries over 10 tradable service sectors using three different measures of the Balassa index. The results indicate that many African countries reveal a strong comparative advantage in travel service exports. Particularly, a band of countries with a vertical axis from South Africa to Ethiopia and a band of countries with a horizontal axis in the Sahel reveal promising results. If African countries are to benefit from the growth in world service exports, researchers and policy makers should note the massive potential for African travel exports, especially in the smaller destinations. Policies – including regional initiatives – to promote sustained growth in travel service exports are therefore of critical importance.

Introduction

World service exports have grown at a rapid rate over the last decade. While African countries were not able to benefit during the early phase of service export growth, service exports from these countries have exceeded growth rates of all other regions since the turn of the century.

Growth in African service exports has predominantly been caused by the significant increases in travel service exports. Unlike other traded service industries, travel services are defined by the *user* of the service and not the type of good or service sold: The consumer (user or traveller) moves to a different country to obtain goods and services. Travel services, therefore, entail all goods and services that are acquired by travellers in an economy during visits of less than one year (except patients and students who may exceed the one-year limit) (UN 2002). Tourism, often thought to be a synonym, is not equivalent to travel services. Travel service exports encompass tourism – which only consists of Mode 2 trade – but also includes trade in the other three modes.[1] However, because Mode 2 comprises the bulk of travel service exports, tourism is often taken as a proxy for travel service exports.

In applying the Heckscher-Ohlin theorem of international trade to service exports, it is argued that sub-Saharan countries have a unique comparative advantage in exporting travel services. The paper tests this hypothesis. The UNCTAD 2007 Handbook of Statistics (2008) is used to calculate revealed comparative advantage for 186 countries over 10 tradable service sectors using three different measures of the Balassa index (1965). The results indicate that many African countries reveal a significant comparative advantage in travel service exports. Caveats are pointed out: UN peacekeeping work, for example, is classified as travel service exports and should be discounted. Yet, if African countries are to benefit from the growth in world service exports, researchers and policy makers should note the potential for African travel exports. Policies to promote sustained growth in travel service exports are therefore of critical importance.

Travel service exports from Africa

There is broad consensus that travel services are a fast-growing and important component of economic growth (Sinclair 1998). This is no less true for Africa (Christie and Crompton 2001; Mitchell and Ashley 2006; World Bank 2006; Rogerson 2007). Between 1995 and 2005, tourist numbers to the continent has nearly doubled, climbing from 22.5 million to more than 44 million (UNCTAD 2008). According to the World Travel & Tourism Council (WTTC 2008), predicted growth in personal travel and tourism expenditure grew 5.7% in 2008 in Africa, and 5.9% in Africa south of the Sahara. This compares favourably to the 3.0% growth attained worldwide.

A clearer picture emerges if the four top tourist destinations in Africa are considered. These four countries, Egypt (24.96%), Morocco (16.80%), South Africa (26.73%) and Tunisia (7.74%)

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[1] The WTO classifies four modes of service trade: Mode 1 is defined as the supply of a service from the territory of one member (country) into the territory of another member (also known as cross-border supply); Mode 2 is the supply of a service in the territory of one member to the service consumer of any other member (consumption abroad); Mode 3 is the supply of a service by a service supplier of one member, through commercial presence in the territory of any other member (commercial presence); and Mode 4 is the supply of a service by a service supplier of one member, through the presence of natural persons of a member in the territory of any other member (presence of natural persons) (UN 2002).

comprise 76.23% of the measured tourist expenditure in Africa in 2005.[2] Figure 1 shows the rise in tourist expenditure in these countries at current prices from 1980 to 2005. Note the rapid growth in tourist expenditure during the first years of the millennium. A second group of seven countries, Botswana (2.05%), Ghana (2.90%), Kenya (2.11%), Mauritius (3.17%), Namibia (1.27%), Tanzania (3%) and Uganda (1.39%), comprise another 15.89 per cent. Added to the top four, more than 92 per cent of African tourist arrivals are limited to these eleven countries. This highlights the fact that the distribution of tourists to Africa is highly skewed.[3]

Figure 1: Tourist arrivals in Egypt, Morocco, South Africa and Tunisia, 1980-2005 (in thousands)
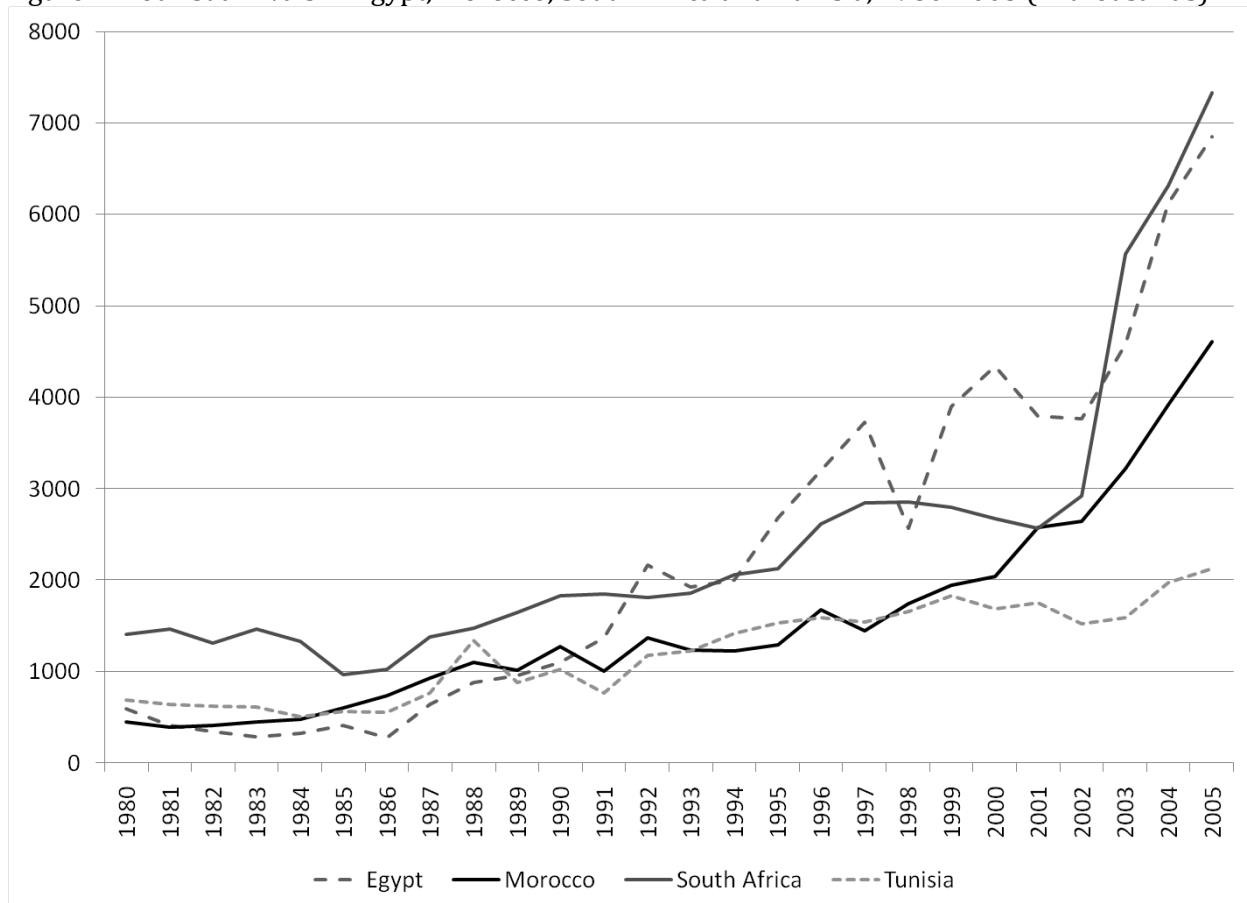
Source: (UNCTAD 2008)

Yet, while tourist arrivals in the top destinations have grown rapidly, tourism has also experienced a boom in some of the lesser-known African destinations. Tourism expenditure in Botswana (13.25%), Cape Verde (28.79%), Ethiopia (26.3%), Ghana (53.44%), Libya (59.14%), Mali (19.31%), Niger (15.96%), Rwanda (35.73%), Sudan (27.42%) and Uganda (17.18%) grew at

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[2] Data for 17 African countries are not available.

[3] Many studies, in fact, exclude the tourist havens of North Africa as it is argued that due to their proximity to Europe, tourist patterns are different to countries south of the Sahara. While this argument may be valid, Rogerson (2007:363) notes that this may pose problems with interpretation of data released by tourism agencies.

higher rates than the average growth of the four leading countries, but arguably from a very low base.[4]

The growth of tourism in Africa is not surprising. Already in 1990, Ankomah and Crompton noted the unrealised tourism potential of sub-Saharan African countries, claiming that "the natural and cultural diversity of sub-Saharan Africa represents a substantial resource for attracting tourists" (Ankomah and Crompton 1990:16). This includes the "beautiful and varied scenary, mountains, lakes, beaches, wildlife and sunshine, and numerous other special features" that are "unmatched in any part of the world" (Filani 1975:7). Given this diverse history, culture and bio-diversity, African countries are able to offer visitors a variety of attractions and experiences, sometimes within close proximity (Kester 2003).

Yet, the new focus on Africa in the tourism literature has been sparked by considerable growth in the number of tourist arrivals, as the growth in tourism numbers and expenditure reported above reflects. This has paved the way for governments (with the support of development agencies) to seize on the immense benefits to be derived from promoting tourism as a sustainable industry (Ashley 2006; Mitchell and Ashley 2006). Policies to these effects have been proposed in several African countries, primarily focusing on the contribution of tourism to poverty reduction and pro-poor growth (Ashley and Roe 2002; Binns and Nel 2002; Rogerson 2006).

Comparative advantage and travel service exports

But why do African countries have a comparative advantage in exporting travel services? The theory of comparative advantage derives from David Ricardo's insight that trade will benefit countries that specialise in the production of goods and services with the lowest opportunity costs, thus using supply-side factors to determine international trade flows. Ricardo use technology as base for comparative advantage while the Heckscher-Ohlin theory predicts that a country will export the good which intensively uses its relatively abundant factor of production. Therefore, in a two good, two factors of production and two countries model (the 2x2x2-model), a capital intensive country will export manufactures (assuming that its production is capital intensive), while a labour intensive country will export food (assuming that its production is labour intensive).

The relevance of the Heckscher-Ohlin theory has not gone uncontested. In fact, as international trade has become more complex, the simplicity of the H-O model has proven its downfall; many of the assumptions – including no trade barriers (zero transport costs), constant returns to scale and capital immobility between countries – are found implausible. The Leontief paradox, and similar empirical exercises since, had shown that the application of the H-O model to real world data may be problematic. Given the inability of the early theories to explain international trade (in goods), the new trade theory relaxed the strict assumptions of the earlier models to incorporate imperfect competition and trade costs. In particular, the new trade theory emphasised increasing returns to scale as an important reason for explaining trade flows (Krugman 1979). This included multinational enterprises, agglomeration economies and innovation-driven industries in explaining the rise of technological leadership in specific sectors where countries enjoyed a competitive advantage.

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[4] While data for most of the countries reflect long-run growth trends, the volatility in tourist expenditure in a number of countries may reflect poor data collection and growth from a very low base. For example, between 2001 and 2002, tourist expenditure in Sudan increased by an astounding 10400% while falling the following year by 9160%. Between 2004 and 2006, tourism expenditure again increased, this time by 144% per annum.

Furthermore, demand-side theories arose, most particularly by Linder (1961), which attempted to explain trade patterns by referring to consumer demand rather than supply-side factors. These demand-side theories have developed into the standard approach to explain international tourism flows, with the added benefit of acting as short-term forecasting tools (Lim 1997). Moreover, while tourism has grown considerably in Africa, there are relatively few studies to explain this phenomenon from the demand-side perspective (Naudé and Saayman 2005; Saayman and Saayman 2008).

While new trade theories arguably explain international trade in goods more accurately than earlier trade theories, there have been relatively few attempts over the years to find an encompassing trade theory to explain tourism flows from the supply side. More recently, the new trade theory has moved from comparative advantage to focus on competitive advantage, although the latter is not always clearly defined (Neary 2003). This same trend has been witnessed in the tourism literature, with a focus on the 'destination competitiveness' of countries (Melián-González and García-Falcón 2003; Ritchie and Crouch 2003; Beerli and Martín 2004; Crouch and Ritchie 2006; Sahli 2006; Zhang and Jensen 2007). While the results are interesting, the empirical tests have mostly occurred outside of a theoretic framework. This paper returns to the framework of the Heckscher-Ohlin model to explain patterns of trade in travel services, particularly for African countries.

Intuitively, the H-O model can expand to include natural resources. Natural resources are here defined in the broadest sense to include scenic landscapes, diverse fauna and flora, sea, sand and sun and historical and cultural heritage. Additionally, while the Heckscher-Ohlin theory assumes transport costs to be zero, we include transport costs, differentiating between sea transport (for goods) and air transport (for services).[5]

Accordingly, African countries, with an abundance of natural resources and labour, should export labour- and natural resource-intensive goods and services. In fact, Africa's current export basket comprises predominantly goods that use these factors of production most intensively. However, high transport costs are a known limitation of African merchandise exports. Costs of air transport are relatively lower than the high costs of sea transport, especially in comparison with other labour-intensive countries in the East. In fact, given the lower opportunity costs of air transport, Africa may aim to export goods and services that make use of air transport costs (Oxford Economic Forecasting 2003; Richman and Lyle 2005; Chang and Ying 2008). Travel service exports – which are both natural resource- and labour-intensive (Ankomah 1991) and make use of air transport – constitute a theoretical comparative advantage. The hypothesis, therefore, is that African countries will yield a strong comparative advantage in exporting travel services, or tourism. This hypothesis is tested in the following section.

Methodology and data

Building on the concept of comparative advantage, revealed comparative advantage reflects a country's production specialisation given differing opportunity costs in production of two trading countries (Peterson 1988). The greater the difference between the opportunity costs in production of the two countries, the greater the comparative advantage for that product or service where the relative cost is the lowest. It is expected that a country's ex post trade structure will therefore *reveal* its comparative advantage.

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[5] Digital (or cable) transport costs are obviously an additional means of transport in the services trade (for IT services, for example), but are not considered here.

Revealed comparative advantage (RCA), first defined by (Balassa 1965), is measured as:

$$RCA_{ij} = \frac{X_{ij}/\sum_i X_{ij}}{\sum_j X_{ij} / \sum_i \sum_j X_{ij}},$$

where X_{ij} are exports of sector *i* from country *j.* In our analysis, the numerator thus represents the percentage share of a given services sector in national exports. The denominator represents the percentage share of a given services sector in world exports. Where the RCA is above one, the country is said to show specialisation in that sector, i.e. reveal its comparative advantage. Where RCA falls below one, the opposite is true.

To account for the diverse nature of a country's export basket as well as the size of exports in the whole economy, three different RCA's are calculated. The first measure (RCA1) calculates the percentage share of travel services exports in national exports, over the share of world travel services exports in world exports. This is the standard measure of revealed comparative advantage, where the comparative advantage of the country is revealed within the country's whole export bundle. The second measure (RCA2) calculates the percentage share of travel services exports in national services exports and the denominator represents the percentage share of world travel services exports in world services exports. RCA2 calculates the sector within the basket of service industries in which the country reveals a comparative advantage.[6] Thirdly, the RCA3 calculates the share of travel services exports in national GDP, over the share of world travel services exports in world GDP. This measure may be interpreted as the relative impact of the travel industry on the country's GDP.

Data is obtained from the UNCTAD Handbook of Statistics 2007, available electronically (UNCTAD 2008). The dataset provides exports of eleven services categories: transportation; travel; communications; construction; insurance; financial services; computer and information; royalties and license fees; other business services; personal, cultural and recreational services; and government services. The dataset covers 188 countries between 1980 and 2006. A number of countries miss data entries, although this is mostly towards the beginning of the period under investigation. The UNCTAD dataset allows for a comparative analysis of 147 countries for which travel service exports data is available in 2005.

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[6] There are ten such service sectors included in the dataset. These are transport, travel, communications, construction, insurance, financial, computer and information, royalties and license fees, other business services, and personal, cultural and recreation services.

Results

Figure 1 provides an overview of the performance of 49 African countries according to RCA1. The full results (with the relevant GDP size and applicable year of the data) are provided in Table 1 and 2 in the Appendix. The darker the countries in Figure 2 are, the higher their revealed comparative advantage. White signifies that the country has no revealed comparative advantage. It should be noted that a number of countries lack 2005 data. Data from 1995 or 1985 has been substituted for these, which would probably underestimate the comparative advantage in these countries today.

Figure 2: African countries' revealed comparative advantage (RCA1) in travel service exports
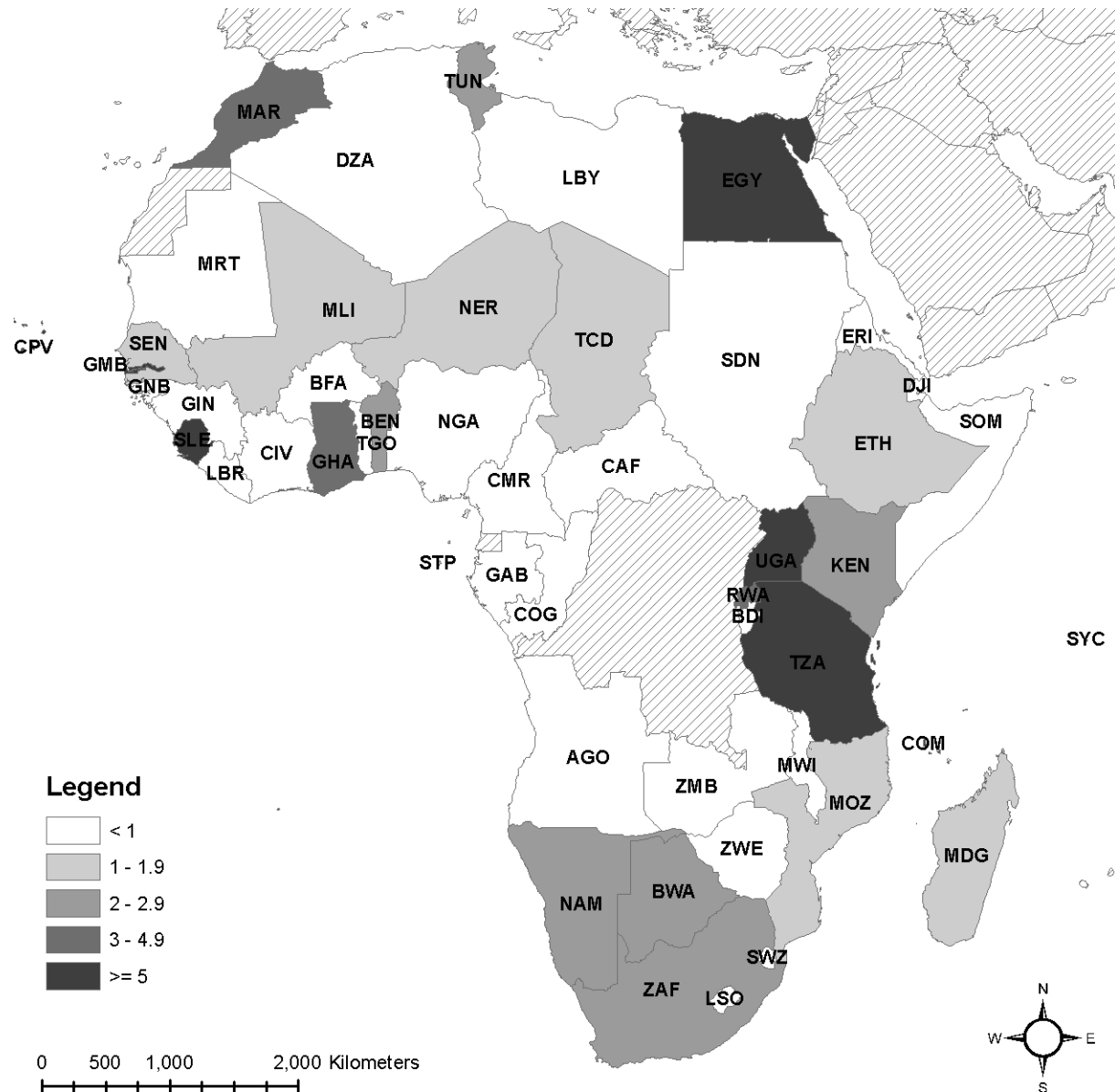
The results support the notion that several African countries have a comparative advantage in travel service exports. The following trends can be observed: Firstly, three of the five North African countries, Egypt, Morocco and Tunisia, reveal a high comparative advantage for tourism. This result

is confirmed by the literature and may be explained by the relatively inexpensive transport costs from Europe (Youngstedt 2003; Mansfield and Winckler 2004).

Secondly, the four small island economies, namely the Seychelles, Mauritius, Comoros and the Cape Verde islands reveal a strong comparative advantage. This result accords with the international experience of 'sea, sand and sun' in small, island economies (McElroy 2006; Giannoni and Maupertuis 2007). These economies, to a large extent, are dependent on the contribution of tourist earnings to economic development, as indicated by the high RCA3 scores in Table 1. Note the decline in the relative contribution to GDP in the Seychelles, while the contribution of tourism has increased in the other three economies (Carlsen and Jaufeerally 2003; Durbarry 2004).[7]

Thirdly, there is a clear indication that Southern and Eastern African countries have middle to high levels of comparative advantage in travel service exports. In fact, a dark band running from South Africa to Ethiopia is clearly observable in Figure 1. Tanzania, Uganda and Rwanda, particularly, reveal a strong comparative advantage. Strangely, the literature is largely silent on the development of tourism in these countries, with the exception of a few sources that investigate micro-level impacts of tourism (Victurine 2000). Added to these are the moderate to strong comparative advantage of South Africa (Rogerson and Visser 2004; Cornelissen 2005), Namibia, Botswana (Mbaiwa 2005), Mozambique (Kiambo 2005; FIAS and OECD 2006), Madagascar, Kenya (Dieke 1991; Sindiga 1999; Ondimu 2002; Mayaka and Akama 2007) and Ethiopia (World Bank 2006) in travel services. Data for Zambia and Zimbabwe, two countries with a large tourism potential, are only available for 1985, a time when these countries had not yet attracted the numbers of tourists that would arrive during the 1990s and early 2000s. The escalating political crisis in Zimbabwe, however, would have had a severe impact on tourist arrivals and earnings over the last few years.

Fourthly, and more interestingly, a horizontal band of countries in West Africa around the Sahel (but including Ghana (Koandu-Agyemang 2001) and Benin) reveal a weak comparative advantage. Gambia has the highest revealed comparative advantage in travel services in Africa, with 11.99. This result is supported by the substantial literature on the topic for this tiny West African country (Dieke 1994; Bah and Goodwin 2003; Mitchell and Faal 2006) . The strong comparative advantage of Sierra Leone is more difficult to explain and may reflect the expenditures of UN Peacekeeping forces in the country and may thus not be a true reflection of tourism, although this assumption is open for debate.

The RCA2 measures also provide interesting results. For four countries, Angola, Lesotho, Libya and Sudan, travel services reveal a strong comparative advantage within the services export basket. This could suggest that the tourism sector may be relatively important, but that within the total trade basket (where RCA1 is measured), it is dwarfed by a major good export – oil in the case of Angola, Libya (Jwaili, Thomas et al. 2005) and Sudan, and textiles in the case of Lesotho.

Predictably, tourism has a major impact on the GDP of the small, island economies. Yet, the RCA3 measure suggests that tourism also plays a relatively more important role in the economies of the African countries, compared to other countries in the world (i.e. RCA3 > RCA 1 in Africa, while this is not true for most other countries around the world). Additionally, while two of the small economies in southern Africa, Lesotho and Swaziland (Harrison 1995), may not yield a comparative advantage as measured by RCA1, the relative impact of tourism on their respective economies is greater than the world average.

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[7] Data for the Comoros are unfortunately not available for 2005.

The results suggest that a clear longitudinal Southeastern band and latitudinal Sahel band of countries with moderate to strong comparative advantage in travel service exports, which may provide justification for the promotion of regional tourism initiatives in Africa. While this has been investigated to some extent for Southern African countries (Rogerson and Kiambo 2007), there is little evidence that cooperation between countries has had meaningful and lasting outcomes. Such initiatives may yield significant positive externalities in the form of better infrastructure (Fourie 2006), lower trade costs across borders (Fourie 2008) and, ultimately, closer economic integration.

Conclusions

Worldwide growth in travel service exports, or tourism, has increased rapidly over the last two decades. In African countries, the growth in the number of tourists and tourism expenditure has been even more pronounced, nearly doubling between 1995 and 2005. The surge in tourism suggests that African countries may have a comparative advantage in travel service exports. A possible theoretical explanation within an adjusted Heckscher-Ohlin framework is posited for such a comparative advantage.

Using the Balassa index to measure revealed comparative advantage, the results suggest that a number of African countries reveal a moderate to strong comparative advantage in travel service exports. These countries can be divided into four groups: the three North African countries with close ties (or low relative transport costs) to Europe (Egypt, Morocco and Tunisia), the four island economies (Cape Verde, Comoros, Mauritius and Seychelles), the Southern and East African countries (South Africa, Namibia, Botswana, Mozambique, Madagascar, Tanzania, Kenya, Rwanda and Ethiopia) and the West African, Sahel countries (The Gambia, Senegal, Mali, Niger, Chad, Ghana and Sierra Leone). Additionally, alternative measures of revealed comparative advantage suggest that tourism may be an important service sector in a number of other countries, notably Angola, Lesotho, Libya, Sudan and Swaziland, especially if the impact of commodity exports – mostly oil – is discounted. Measurement and data limitations may overestimate tourism in conflict areas, such as Sierra Leone and Sudan.

A longitudinal band of countries from South Africa to Ethiopia (Southern and East Africa), and a latitudinal band of Sahel countries suggest that there is significant scope for regional tourism initiatives. Greater emphasis on tourism promotion and tourism infrastructure (du Toit and Fourie 2009) are required if tourism is to take its rightful place as a mechanism to promote faster and closer economic integration across Africa.

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Appendix

Table 1: Ranking of African countries' revealed comparative advantage (RCA1) in travel service exports

Countries	GDP 2005 US$ (billion)	2005			1995			1985		
		RCA1	RCA2	RCA3	RCA1	RCA2	RCA3	RCA1	RCA2	RCA3
Gambia	461	11.99	2.63	8.34	6.41	1.61	5.83	5.47	2.75	7.88
Cape Verde	983	7.70	1.64	8.46	2.03	0.45	1.55	0.60	0.13	0.76
Tanzania	12937	5.22	2.41	4.35	6.30	2.65	7.30	1.11	0.67	0.30
Uganda	9190	5.19	2.79	2.83	2.20	2.31	1.02	-	-	-
Sierra Leone	1523	5.06	3.05	2.87	7.06	2.03	3.57	0.67	0.78	0.43
Seychelles	723	5.06	1.94	18.15	6.19	1.43	19.99	6.52	1.49	31.87
Egypt	101382	5.05	1.74	4.62	3.54	0.96	3.06	1.22	0.50	1.93
Morocco	58956	4.61	2.12	5.34	2.28	1.84	2.77	3.80	2.22	4.90
Mauritius	6288	4.33	2.00	9.46	2.95	1.70	8.36	1.92	1.62	5.84
Ghana	10695	3.84	2.78	5.08	0.09	0.23	0.13	0.05	0.15	0.05
Rwanda	2085	3.58	1.40	1.60	0.52	0.40	0.14	0.80	0.69	0.41
Tunisia	28758	2.73	1.97	5.05	3.05	1.88	6.67	4.07	2.08	7.72
Namibia	6130	2.71	3.14	3.89	-	2.72	6.24	-	-	-
Benin	4358	2.50	1.98	1.62	2.19	1.35	3.07	0.98	0.89	1.03
South Africa	242046	2.18	2.44	2.07	1.04	1.42	1.11	1.06	2.01	1.97
Kenya	18730	2.09	1.14	2.11	2.66	1.46	3.27	3.19	1.55	3.65
Botswana	8935	2.00	2.44	4.30	-	1.92	2.88	-	1.12	2.88
Mali	5487	1.96	2.01	1.85	0.76	0.89	0.73	2.72	1.57	2.51
Madagascar	5276	1.76	1.37	2.37	1.22	0.73	1.44	0.06	0.06	0.04
Senegal	8594	1.71*	1.13*	1.79*	1.77	1.01	2.76	1.99	1.10	3.58
Ethiopia	11354	1.64	0.62	1.01	0.34	0.15	0.17	-	-	-
Mozambique	6636	1.16	1.41	1.33	-	-	-	-	-	-
Niger	3245	1.04*	1.20*	0.75*	0.35	0.66	0.33	0.41	0.58	0.50
Lesotho	1457	0.80	2.03	1.42	-	2.17	2.31	-	1.39	3.24
Swaziland	2730	0.56	0.91	1.74	-	0.98	2.78	-	1.72	4.23
Togo	2105	0.48	0.43	0.66	0.43	0.45	0.65	1.78	1.03	3.93
Djibouti	705	0.46	0.11	0.69	0.49	0.10	0.83	-	-	-
Sudan	24917	0.34	2.91	0.24	0.18	0.19	0.06	1.64	0.60	0.98
Burundi	797	0.30	0.16	0.13	0.18	0.26	0.11	-	-	-
Guinea-Bissau	301	0.21*	0.46*	0.25*	-	-	-	1.70	0.88	1.28
Côte d'Ivoire	16960	0.19	0.37	0.34	0.33	0.52	0.63	0.21	0.33	0.60
Libya	38738	0.16	1.74	0.44	0.00	0.24	0.01	0.00	0.14	0.01
Congo	5794	0.12	0.53	0.40	0.17	0.48	0.51	0.11	0.30	0.34
Angola	32811	0.07	1.86	0.18	-	-	-	-	-	-
Gabon	8711	0.05*	0.22*	0.09*	0.09	0.25	0.27	0.08	0.22	0.23

Country										
Nigeria	113461	0.01	0.02	0.01	0.02	0.08	0.03	0.05	0.38	0.02
Algeria	102334	-	-	-	-	-	-	0.13	0.62	0.18
Burkina Faso	5397	-	-	-	-	-	-	0.62	0.41	0.24
Cameroon	16985	-	-	-	0.29	0.36	0.31	1.08	0.48	0.75
CAR	1320	-	-	-	-	-	-	0.31	0.17	0.34
Chad	5885	-	-	-	-	-	-	1.42	0.75	0.86
Comoros	382	-	-	-	7.30	1.87	7.09	1.76	1.54	1.84
DRC	7102	-	-	-	-	-	-	-	-	-
Equatorial Guinea	7295	-	-	-	-	-	-	-	-	-
Eritrea	969	-	-	-	0.18	0.10	0.20	-	-	-
Guinea	2927	-	-	-	0.02	0.02	0.02	-	-	-
Liberia	548	-	-	-	-	-	-	0.21	0.52	0.55
Malawi	2077	-	-	-	0.65	2.23	0.97	0.52	1.00	0.75
Mauritania	1872	-	-	-	0.35	1.24	0.62	0.26	0.69	0.89
Sao Tome and Principe	71	-	-	-	-	-	-	1.46	1.03	1.34
Somalia	2316	-	-	-	-	-	-	0.90	0.58	0.81
Zambia	7315	-	-	-	-	-	-	0.18	0.40	0.39
Zimbabwe	2227	-	-	-	-	-	-	0.38	0.33	0.56

* indicates 2004 values

Table 2: RCA included in Map 4, including GDP in 2005

Country	Code	GDP 2005 (billion US$)	RCA1	Data year
Algeria	DZA	102334	0.13	1985
Angola	AGO	32811	0.07	2005
Benin	BEN	4358	2.50	2005
Botswana	BWA	8935	2.00	2005
Burkina Faso	BFA	5397	0.62	1985
Burundi	BDI	797	0.30	2005
Cameroon	CMR	16985	0.29	1995
Cape Verde	CPV	983	7.70	2005
Central African Republic	CAF	1320	0.31	1985
Chad	TCD	5885	1.42	1985
Comoros	COM	382	7.30	1995
Congo	COG	5794	0.12	2005
Côte d'Ivoire	CIV	16960	0.19	2005
Djibouti	DJI	705	0.46	2005
Egypt	EGY	101382	5.05	2005
Eritrea	ERI	969	0.18	1995
Ethiopia	ETH	11354	1.64	2005
Gabon	GAB	8711	0.05	2005

Gambia	GMB	461	11.99	2005
Ghana	GHA	10695	3.84	2005
Guinea	GIN	2927	0.02	1995
Guinea-Bissau	GNB	301	0.21	2005
Kenya	KEN	18730	2.09	2005
Lesotho	LSO	1457	0.80	2005
Liberia	LBR	548	0.21	1985
Libya	LBY	38738	0.16	2005
Madagascar	MDG	5276	1.76	2005
Malawi	MWI	2077	0.65	1995
Mali	MLI	5487	1.96	2005
Mauritania	MRT	1872	0.35	1995
Mauritius	MUS	6288	4.33	2005
Morocco	MAR	58956	4.61	2005
Mozambique	MOZ	6636	1.16	2005
Namibia	NAM	6130	2.71	2005
Niger	NER	3245	1.04	2005
Nigeria	NGA	113461	0.01	2005
Rwanda	RWA	2085	3.58	2005
Sao Tome and Principe	STP	71	1.46	1985
Senegal	SEN	8594	1.71	2005
Seychelles	SYC	723	5.06	2005
Sierra Leone	SLE	1523	5.06	2005
Somalia	SOM	2316	0.90	1985
South Africa	ZAF	242046	2.18	2005
Sudan	SDN	24917	0.34	2005
Swaziland	SWZ	2730	0.56	2005
Tanzania	TZA	12937	5.22	2005
Togo	TGO	2105	0.48	2005
Tunisia	TUN	28758	2.73	2005
Uganda	UGA	9190	5.19	2005
Zambia	ZMB	7315	0.18	1985
Zimbabwe	ZWE	2227	0.38	1985