

# **THE RELATIONSHIP BETWEEN SOUTH AFRICAN AVIATION POLICY IN AFRICA AND AIR PASSENGER TRAFFIC FLOWS**

by

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## DECLARATION

I declare that the Doctor's thesis, which I hereby submit for the degree DCom Tourism Management at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at another university.

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## ABSTRACT

International air transport has been one of the most highly regulated and restrictive industries in the world, governed by bilateral air services agreements (BASAs). More recently progressive liberalisation, through the gradual removal of regulatory restrictions, has taken place in major air markets of the world. In Africa, more than a decade ago, African leaders agreed to liberalise the intra-African aviation market through the Yamoussoukro Decision (YD) of 2000 but its full potential across the Continent has not yet been realised. Many studies worldwide have been done on air liberalisation and its impact on air traffic flows but very few include Africa. This study focuses on the impact on air passenger traffic flows of South Africa's aviation policy in Africa by investigating the link between South Africa's aviation policy, as reflected in the design of its BASAs, and air passenger traffic flows over an 11 year period (2000 to 2010). A mixed research methodology was followed. Qualitatively, a two-round Delphi technique was employed to determine the views of aviation experts from academia, the public and private sectors, on features of BASAs, as well as those unrelated to BASAs, that have an influence on air passenger traffic flows between country-pairs in Africa. Twenty-five BASA features and 48 non-BASA factors were identified from which a conceptual framework was formulated. The quantitative phase aimed at estimating and statistically quantifying the impact of the degree of restrictiveness or liberalisation of the respective BASAs, as measured by four variants of the Air Liberalisation Index (ALI): *STD*, *5th+*, *DES+* and *OWN+*. It also aimed at identifying which specific provisions of BASAs had the most significant impact on air passenger traffic flows. A fixed one-way panel regression technique was applied to the selected 11 year panel data set of 42 African countries, representing five markets: intra-African; the SADC; West African; East African and North African. A number of other predictors were also identified which meant that the impact of the aviation policy on air passenger traffic flows could not be tested in isolation: the degree of liberalisation of the policy as measured by the ALI; the number of years BASAs have been in place; GDP; the presence of a low-income country; the magnitude of services trade flows; and population size. The simultaneous impact of the six predictors was tested in each of the five markets with the various markets showing different predictors as being statistically significant. In the intra-African and SADC regional markets these were *Trade*, *ALI* and *GDP*; in the East African market *Low Income*, *Trade*, *ALI* and *Population* but in the North African market

only *GDP*. Where the impact of the aviation policy was found to be significant, individual provisions such as *fifth freedom traffic rights*, *capacity*, *designation* and *cooperative arrangements* were tested for their impact on air passenger traffic over two time periods: 2000 – 2010 and 2006 – 2010. These also proved to be significantly different for the various regions. The results of this research provide new insights into the relationship between air passenger traffic flows and aviation policy in the South African – intra-African and regional contexts. The research technique used in the South African – intra-African market expands on the established cross-sectional 2005 QUASAR database, laying a foundation for similar studies in other regions where impact of policy over time can be established.

## TABLE OF CONTENTS

1	CHAPTER 1 BACKGROUND TO THE STUDY.....	1
1.1	INTRODUCTION .....	1
1.2	PROBLEM STATEMENT .....	3
1.3	RESEARCH OBJECTIVES .....	8
1.4	THE RESEARCH METHODOLOGY .....	9
1.4.1	Qualitative methodology .....	9
1.4.2	Quantitative methodology .....	10
1.4.3	Empirical model .....	13
1.5	RESEARCH CONTRIBUTION .....	13
1.6	LAYOUT OF THE STUDY .....	15
2	CHAPTER 2 AN OVERVIEW OF REGULATION AND DEREGULATION IN THE GLOBAL AVIATION INDUSTRY .....	17
2.1	INTRODUCTION .....	17
2.2	INTERNATIONAL FRAMEWORK FOR AVIATION REGULATION.....	19
2.2.1	Paris Convention .....	19
2.2.2	Convention on International Civil Aviation (Chicago Convention).....	19
2.2.3	Bermuda type agreements .....	23
2.2.4	Deregulation and liberalisation from 1978 to 1991 .....	24
2.2.5	Movement towards “Open Skies” – from 1992 onwards.....	27
2.2.6	The single European market.....	30
2.2.7	Association of South-East Asian Nations (ASEAN) .....	33
2.2.8	Australia – New Zealand (Trans – Tasman) market .....	33
2.3	DEVELOPMENT OF THE MULTILATERAL AGREEMENTS.....	34
2.4	CONCLUSION.....	36
3	CHAPTER 3 DEREGULATING AFRICAN SKIES: THE YAMOUSOUKRO DECISION .....	38
3.1	INTRODUCTION .....	38
3.2	LIBERALISATION IN AFRICA.....	39
3.2.1	Yamoussoukro Declaration.....	39
3.2.2	Yamoussoukro Decision .....	42

3.2.3	The Abuja Treaty as the legal basis of the YD.....	45
3.2.4	South Africa’s position on the implementation of the YD .....	46
3.2.5	Progress achieved .....	46
3.2.6	Hindrances to implementation .....	48
3.2.7	Measures to help accelerate African air services liberalisation.....	52
3.3	ORGANISATIONS INVOLVED IN IMPLEMENTING THE YD WITHIN AFRICA.....	58
3.4	REGIONAL IMPLEMENTATION OF THE DECISION.....	62
3.4.1	West Africa’s progress in implementing the Decision .....	62
3.4.1.1	Economic Community of West African States .....	62
3.4.1.2	West African Economic and Monetary Union.....	64
3.4.1.3	Banjul Accord Group .....	65
3.4.2	Central Africa’s progress in implementing the Decision.....	66
3.4.3	Southern and East Africa’s progress in implementing the Decision.....	67
3.4.3.1	COMESA .....	68
3.4.3.2	EAC.....	70
3.4.3.3	SADC.....	73
3.4.4	North Africa’s progress in implementing the Decision .....	75
3.4.4.1	The AMU .....	76
3.4.4.2	The League of Arab States.....	76
3.4.5	Summary overview of the regional progress achieved in the implementation of the YD.....	77
3.5	IMPACT OF LIBERALISATION .....	81
3.5.1	General traffic analysis .....	81
3.5.2	Development in West Africa .....	82
3.5.3	Development in Central Africa .....	84
3.5.4	Development in East Africa .....	86
3.5.5	Development in Southern Africa .....	87
3.5.6	Development in North Africa.....	89
3.6	CONCLUSION.....	91
4	CHAPTER 4 THE RELATIONSHIP BETWEEN AVIATION POLICY AND AIR PASSENGER TRAFFIC FLOWS .....	95
4.1	INTRODUCTION .....	95
4.2	CIVIL AVIATION POLICY AS PART OF THE CIVIL AVIATION SYSTEM ..	97
4.3	CIVIL AVIATION POLICY.....	100
4.3.1	Background .....	100



4.3.2	Institutional arrangements of the South African aviation policy.....	101
4.4	CIVIL AVIATION POLICY AND AIR PASSENGER TRAFFIC FLOWS ....	103
4.4.1	Introduction.....	103
4.4.2	Overview of the African air transport market.....	104
4.4.3	The impact of air services liberalisation on air passenger traffic flows .....	105
4.4.4	Air passenger traffic flows in the South African – intra-African context.....	109
4.4.5	South African – intra-African air passenger traffic flows .....	110
4.5	SOUTH AFRICAN CIVIL AVIATION POLICY DEVELOPMENT SINCE 1990 .....	112
4.5.1	White Paper on National Transport Policy .....	115
4.5.2	The Airlift Strategy .....	116
4.5.3	The Airlift Implementation Plan.....	123
4.5.4	Draft White Paper on National Civil Aviation Policy of 2008 .....	127
4.5.5	The Airlift Strategy progress overview .....	130
4.6	THE TOURISM GROWTH STRATEGY .....	133
4.7	CONCLUSION.....	138
5	CHAPTER 5 QUALITATIVE METHODOLOGY .....	140
5.1	INTRODUCTION .....	140
5.2	QUALITATIVE RESEARCH .....	143
5.2.1	Introduction.....	143
5.2.2	The Delphi method .....	144
5.2.2.1	Background and areas of application .....	144
5.2.2.2	Characteristics of the Delphi.....	146
5.2.2.3	Strengths.....	147
5.2.2.4	Limitations and weaknesses.....	149
5.2.2.5	Classical Delphi process .....	150
5.2.2.6	Expert panel .....	152
5.3	DATA COLLECTION .....	156
5.3.1	Introduction.....	156
5.3.2	The Delphi process in this study.....	156
5.3.3	Validity and reliability of content analysis in the Delphi technique .....	159
5.4	QUALITATIVE DATA ANALYSIS .....	161
5.5	ETHICAL CONSIDERATIONS .....	162
5.6	DELPHI RESULTS .....	162
5.6.1	Results from the qualitative Delphi .....	163

5.6.2	Discussion of the identified Delphi factors, impacting air passenger traffic flows in relation to secondary literature .....	175
5.7	CONCLUSION.....	182
6	CHAPTER 6 QUANTITATIVE RESEARCH.....	183
6.1	INTRODUCTION .....	183
6.2	AIR LIBERALISATION INDEX.....	184
6.2.1	ALI in the context of QUASAR.....	185
6.2.2	Market access provisions of the ALI .....	186
6.2.3	Overview of South African – intra-African BASA provisions in relation to ALI .....	188
6.2.4	The current South African – intra-African air bilateral scene.....	190
6.2.5	Variants of the ALI weighting system.....	193
6.2.6	Evaluating the YD agreement with the ALI .....	196
6.3	DEGREE OF AIR SERVICES LIBERALISATION IN THE SOUTH AFRICAN – INTRA-AFRICAN AND THE REGIONAL MARKETS .....	197
6.3.1	The depth of air services liberalisation in the four African regions.....	200
6.3.2	The impact of a country’s level of income on the South African – intra-African air services liberalisation .....	205
6.3.3	Services liberalisation based on regional grouping and level of income...206	
6.4	AIR SERVICES LIBERALISATION AND AIR PASSENGER TRAFFIC....	207
6.4.1	The study’s contribution to existing literature.....	210
6.5	SAMPLING .....	211
6.5.1	Target population.....	211
6.5.2	Sampling method.....	212
6.6	DATA ANALYSIS .....	213
6.6.1	Introduction.....	213
6.6.2	Panel data set for this research .....	214
6.6.3	Fixed effect regression methods.....	216
6.6.4	The gravity model and its use in studying air services regulation .....	217
6.6.5	The empirical model .....	220
6.6.6	Data availability and limitations: traffic variable .....	223
6.7	HYPOTHESES .....	225
6.7.1	The null and the alternative hypotheses in this study .....	225

6.7.2	Hypotheses' assumptions.....	226
6.8	CHAPTER SUMMARY .....	228
7	CHAPTER 7 RESULTS.....	230
7.1	INTRODUCTION .....	230
7.2	THE RESULTS OF THE PANEL REGRESSION MODEL.....	230
7.2.1	The null and the alternative hypotheses formulated for the South African – intra-African market .....	230
7.2.2	The panel regression models .....	231
7.2.3	The fit and the significance of the panel regression models .....	232
7.2.4	Test for a significant difference between the countries and the reference country Zambia.....	233
7.3	THE IMPACT OF THE SIX PREDICTORS ON AIR PASSENGER TRAFFIC FLOWS .....	235
7.3.1	The South African – intra-African market.....	235
7.3.2	The South African – SADC regional market .....	237
7.3.3	The South African – West African regional market.....	239
7.3.4	The South African – East African regional market .....	240
7.3.5	The South African – North African regional market .....	242
7.4	OVERVIEW OF THE SIGNIFICANT PREDICTORS .....	244
7.5	THE IMPACT OF THE <i>ALI</i> FEATURES ON AIR PASSENGER TRAFFIC FLOWS .....	246
7.5.1	Introduction.....	246
7.5.2	Panel regression results for the two time periods .....	246
7.5.3	The South African – intra-African market.....	249
7.5.4	The South African – SADC regional market .....	251
7.5.5	The South African – East African regional market .....	253
7.5.6	The South African – North African regional market .....	254
7.6	OVERVIEW OF THE SIGNIFICANT <i>ALI</i> FEATURES .....	254
7.7	CONCLUSION.....	255
8	CHAPTER 8 CONCLUSIONS AND RECOMMENDATIONS.....	257
8.1	INTRODUCTION .....	257
8.2	SUMMARY OF THE SIGNIFICANT PREDICTORS IN THE FIVE MARKETS .....	260

8.2.1	Discussion of the significant predictors in the South African – intra-African air transport market .....	263
8.2.2	Discussion of the significant predictors in the South African – SADC regional air transport market.....	266
8.2.3	The significant predictors in the South African – West African regional air transport market .....	270
8.2.4	Discussion of the significant predictors in the South African – East African regional air transport market.....	271
8.2.5	Discussion of the significant predictors in the South African – North African regional air transport market.....	274
8.2.6	Summarised overview of the significant predictors in the respective markets .....	275
8.2.7	Significant <i>ALI</i> features in the four air transport markets .....	276
8.3	MANAGERIAL IMPLICATIONS AND OVERALL RECOMMENDATIONS	281
8.4	LIMITATIONS .....	284
8.5	CONTRIBUTION OF THE THESIS .....	285
8.6	DIRECTIONS FOR FURTHER RESEARCH.....	287
8.7	CONCLUDING REMARKS.....	288
9	9. REFERENCES .....	289

## LIST OF FIGURES

Figure 1.1: The research process roadmap .....	9
Figure 2.1: First Freedom .....	20
Figure 2.2: Second Freedom .....	21
Figure 2.3: Third Freedom .....	21
Figure 2.4: Fourth Freedom .....	21
Figure 2.5: Fifth Freedom .....	22
Figure 2.6: Sixth Freedom .....	22
Figure 3.1: YD in the context of existing plurilateral agreements .....	43
Figure 3.2: Institutions and organisations linked to the YD .....	59
Figure 3.3: ECOWAS member states .....	62
Figure 3.4: COMESA member states.....	69
Figure 3.5: EAC member states.....	71
Figure 3.6: SADC member states .....	74
Figure 4.1: Civil aviation system .....	98
Figure 4.2: The functional components of air transport in the South African context .....	102
Figure 4.3: African traffic growth by regional flow - RPKs (in billions).....	105
Figure 4.4: Causal relationship between air services liberalisation and economic growth .....	106
Figure 4.5: Passenger volumes on the Nairobi-Johannesburg route, 1998 - 2005 .....	106
Figure 4.6: Growth of the United States – Canada traffic, 1999 - 2004 .....	107
Figure 4.7: Capacity and traffic growth for Europe, 1990 - 2002.....	108
Figure 4.8: Number of foreign and South African travellers by year, 1991 - 2010 .....	110
Figure 4.9: South African – intra-African air passenger traffic flows, 2000 - 2010 .....	111
Figure 4.10: Key milestones in the South African civil aviation policy development .....	114
Figure 4.11: Country portfolios as per the TGS 2002 - 2004 .....	135
Figure 4.12: The South African Tourism portfolio countries, 2005 to 2007 .....	136
Figure 4.13: The South African Tourism portfolio countries, 2008 to 2010 .....	137

Figure 4.14: An outline of the subsequent chapters.....	138
Figure 5.1: Steps in the Delphi method.....	152
Figure 5.2: Procedure for selecting the experts in this study .....	154
Figure 5.3: Consensus level for BASA features .....	170
Figure 5.4: Consensus level for non-related BASA factors .....	171
Figure 6.1: Histograms of the degree of air services liberalisation of the South African – intra-African aviation market .....	197
Figure 6.2: Histograms of the degree of air services liberalisation of the South African – North African aviation market.....	201
Figure 6.3: Histograms of the degree of air services liberalisation of the South African – SADC aviation market.....	202
Figure 6.4: Histograms of the degree of air services liberalisation of the South African – West African aviation market .....	203
Figure 6.5: Histograms of the degree of air services liberalisation of the South African – East African aviation market .....	204
Figure 6.6: South African – intra-African air services liberalisation by income level .....	206
Figure 6.7: Causal relationship between air services liberalisation and economic growth .....	227

## LIST OF TABLES

Table 2.1: Main features of US pre-1978 and post-1978 bilateral agreements.....	25
Table 2.2: Traditional and post-1985 open market European bilaterals.....	26
Table 2.3: United States’ “open skies” air services agreements .....	29
Table 2.4: US open market and post-1991 “open skies” air services agreements.....	29
Table 2.5: Multilateral air services agreements and arrangements.....	35
Table 3.1: Traffic relations of the individual members of the YD agreement.....	55
Table 3.2: Traffic covered by the YD agreement in the context of international traffic .....	57
Table 3.3: Matrix of African countries in the context of regional groupings .....	60
Table 3.4: Grading of RECs on their liberalisation of air services .....	80
Table 3.5: Estimated number of seats on international flights within and between the RECs .....	82
Table 3.6: West Africa fleet analysis, 1997 to 2007 .....	83
Table 3.7: Central Africa fleet analysis, 1997 to 2007 .....	85
Table 3.8: East Africa fleet analysis, 1997 to 2007 .....	86
Table 3.9: Southern Africa fleet analysis, 1997 to 2007.....	88
Table 3.10: North Africa fleet analysis, 1997 to 2007 .....	89
Table 4.1: Annual foreign air tourist arrivals to South Africa, 2000 - 2010 .....	112
Table 4.2: South African international civil aviation policy of 1996.....	115
Table 4.3: Legal mandates for the regulation of air transport services .....	118
Table 4.4: Challenges identified by the Airlift Strategy of 2006.....	119
Table 4.5: Strategic interventions .....	120
Table 4.6: Summary of Vula Sky - South Africa’s international air services framework ...	124
Table 4.7: Airlift Implementation Plan for SADC and intra-Africa.....	126
Table 4.8: International transport policy .....	128
Table 4.9: Summarised total of the bilateral air service agreements, 2006 to 2010.....	131
Table 4.10: Summary changes to the African bilaterals.....	131
Table 5.1: Examples of listing of expert statements, derived in round 1 .....	164

Table 5.2: Examples of assigning a numerical code to statements .....	165
Table 5.3: Results of round two of the Delphi .....	166
Table 5.4: Factors impacting air passenger traffic flows in the context of the Delphi .....	173
Table 6.1: Number of agreements by feature, based on 2010 data .....	190
Table 6.2: South African – intra-African types of BASAs based on 2010 data .....	192
Table 6.3: ALI weighting system .....	194
Table 6.4: Relative importance of the market access features in the ALI standard system .....	195
Table 6.5: Scoring the YD agreement .....	196
Table 6.6: Distribution of the ALI scores based on the ALI standard weighting system ...	198
Table 6.7: Country grouping based on the level of income, 2010 data .....	205
Table 6.8: The most liberal bilaterals in the South African – intra-African context .....	207
Table 6.9: Secondary literature review pertaining to the ALI and liberalisation indices ....	208
Table 6.10: Quantitative census .....	212
Table 6.11: Types of data set .....	213
Table 6.12: Overview of the secondary literature and variables utilised in gravity-type models .....	218
Table 6.13: Description of variables and the data sources utilised .....	220
Table 6.14: Traffic data collection .....	223
Table 7.1: Model fitting statistics based on the four variants of the ALI weighting system .....	232
Table 7.2: F test for the panel regression model for all markets and all ALI variants .....	233
Table 7.3: Summary of the p-value of the t-test for a significant difference between a country and the reference country Zambia.....	234
Table 7.4: Panel regression results for the four variants of the ALI weighting system in the South African – intra-African market .....	236
Table 7.5: Panel regression results for the four variants of the ALI in the South African – SADC regional market .....	238
Table 7.6: Panel regression results for the four variants of the ALI in the South African – West African regional market.....	240



Table 7.7: Panel regression results for the four variants of the ALI weighting system in the South African – East African regional market.....	241
Table 7.8: Panel regression results for the four variants of the ALI weighting system in the South African – North African regional market .....	243
Table 7.9: Significant predictors and the respective partial regression coefficients .....	244
Table 7.10: Summarised panel regression results of impact of the ALI features on air passenger traffic flows .....	248
Table 7.11: Summary of the significant ALI features for the selected time periods.....	255
Table 8.1: Summary of the significant ALI features for the selected time periods.....	277

## APPENDICES

APPENDIX A: AFRICAN COUNTRIES' OVERVIEW OF AIR TRANSPORT AND THE YAMO USSOUKRO DECISION.....	313
APPENDIX B: INSTITUTIONS AND ORGANISATIONS LINKED TO THE IMPLEMENTATION OF THE YAMO USSOUKRO DECISION.....	318
APPENDIX C: SUMMARY OF WAEMU'S MOST SIGNIFICANT AIR TRANSPORT PROGRAMME REGULATIONS.....	322
APPENDIX D: MAIN COMPONENTS OF THE MULTILATERAL AIR SERVICES AGREEMENT.....	324
APPENDIX E: CEMAC AGREEMENT ON AIR TRANSPORT AND CIVIL AVIATION CODE.....	326
APPENDIX F: PHASE II COMESA AIR TRANSPORT LIBERALISATION .....	328
APPENDIX G: LIBERALISATION TARGETS.....	330
APPENDIX H: LIST OF PARTICIPANTS IN THE DELPHI .....	332
APPENDIX I: THE DELPHI .....	336
APPENDIX J: HISTOGRAMS OF THE DEGREE OF AIR SERVICES LIBERALISATION OF THE SOUTH AFRICAN – INTRA-AFRICAN AVIATION MARKET ...	344
APPENDIX K: STATISTICAL SUMMARIES OF LOG TRANSFORMATIONS .....	347

## ACRONYMS

ACAC	Arab Civil Aviation Commission agreement
ACSA	Airports Company of South Africa
AFCAC	African Civil Aviation Commission
AFRAA	African Airlines Association
ALI	Air Liberalisation Index
AMU	Arab Maghreb Union
ANZCERTA	Australia-New Zealand Closer Economic Relations Free Trade Agreement
AOC	Air Operator Certificate
APEC	Asia Pacific Economic Cooperation
ASA	Air Services Agreement
ASEAN	Association of South-East Asian Nations
ASGI-SA	Accelerated and Shared Growth Initiative of South Africa
ASLC	Air Services Licensing Council
AU	African Union
BAG	Banjul Accord Group
BASA	Bilateral Air Services Agreement
BEE	Broad-Based Black Economic Empowerment
CAB	Civil Aeronautics Board
CAGR	Compound Annual Growth Rate
CARICOM	Caribbean Community air services agreement
CEMAC	Economic and Monetary Community of Central Africa
CLMV	Cambodia, Laos, Myanmar, Vietnam agreement
COMESA	Common Market for Eastern and Southern Africa
CRS	Central Reservation System
DES+	Designation-plus (ALI weighting system)
DHA	Department of Home Affairs
DOT	Department of Transport
EAC	East African Community
ECA	Economic Commission for Africa
ECAA	European Common Aviation Area
ECOSOC	Economic and Social Council

ECOWAS	Economic Community of West African States
EU	European Union
FE	Fixed Effects regression method
GATS	General Agreement on Trade in Services
GDP	Gross Domestic Product
GEAR	Growth Employment and Redistribution
IASC	International Air Services Council
IATA	International Air Transport Association
IATA44	International Air Transport Agreement (1944)
ICAO	International Civil Aviation Organisation
L	Low income countries
LAM	Linhas Aéreas de Moçambique
LM	Lower Middle income countries
MALIAT	Multilateral Agreement on the Liberalization of International Air Transportation
MASA	Multilateral Air Services Agreement
MCS	Movement Control System
MIDT	Marketing Information Data Transfer
MOU	Memorandum of Understanding
NEPAD	New Partnership for Africa's Development
OAU	Organisation of African Unity
OLS	Ordinary Least Squares
OWN+	Ownership-plus (ALI weighting system)
PPOB	Principal Place of Business
QUASAR	Quantitative Air Services Agreements Review
REC	Regional Economic Community
RDP	Reconstruction and Development Programme
RPK	Revenue Passenger Kilometre
SA	South Africa
SAA	South African Airways
SACAA	South African Civil Aviation Authority
SADC	Southern African Development Community
SAM	Single Aviation Market
SAT	South African Tourism

SATCC-TU	Southern African Transport and Telecommunication Commission
SCP	Structure-Conduct-Performance
SITA	State Information Technology Agency
SOEC	Substantial Ownership and Effective Control
STD	Standard (ALI weighting system)
TAAG	Transportes Aéreos Angolanos
TGS	Tourism Growth Strategy
UAE	United Arab Emirates
UK	United Kingdom
UM	Upper Middle income countries
UN	United Nations
UNWTO	United Nations World Tourism Organisation
USA	United States of America
WAEMU	West African Economic and Monetary Union
WASA	World Air Services Agreements Database
WDI	World Bank Development Indicators
WTO	World Trade Organisation
WTTC	World Travel and Tourism Council
YD	Yamoussoukro Decision
5 <sup>th</sup>	Fifth freedom-plus (ALI weighting system)

## **GLOSSARY OF TERMS**

### **Accelerated and Shared Growth Initiative of South Africa**

The Initiative was launched in February 2006 and was a result of the South African government's commitment to halve unemployment and poverty by 2014.

### **Aircraft operations**

The provision and maintenance of aircraft, their operation and other support services.

### **Air services agreement**

See **bilateral air services agreement** below.

### **Air transport regulatory function and requirements**

These are policies, legislations and requirements to enable air transport and to satisfy air transport needs, such as infrastructure planning, licensing of air services, allocation of traffic rights internationally, economic considerations and monitoring of the financial performance of air carriers.

### **Air transport services**

A system for the conveyance of people and goods in an orderly, safe and effective manner both domestically and internationally, while using the aviation infrastructure and aircraft provided for that purpose.

### **Air transport support stakeholders**

These are stakeholders that facilitate the operational aspects of the civil aviation system, such as travel agents, insurance companies, banks and shippers of cargo.

### **Aviation Infrastructure**

Aviation infrastructure includes facilities for take-off and landing of aircraft, the loading and unloading of passengers and cargo, arranging sufficient space for aircraft movement, including required navigation, air traffic services and information services needed for completing flights safely.

## **Bermuda agreement**

In 1946, the United States and the United Kingdom negotiated one of the first air services agreements under the Chicago Convention. The agreement, signed in Bermuda, included capacity and pricing controls. The Bermuda I agreement served as a prototype for many subsequent agreements. In 1977, the Bermuda II agreement, involving the United States and the United Kingdom, was similar to its predecessor in most respects, but included restrictions on multiple designation and provisions for capacity and all-cargo services.

## **Bilateral air services agreement**

A basic document, most often used by states to jointly regulate their international air services relationships, which is likely to consist of a textual body (preamble, articles and signatures), an annex or annexes, possible attachments and any agreed amendments. Such an agreement is often referred to as a “*bilateral*”.

## **Bilateral regulation**

Regulation undertaken jointly by two parties, most typically by two states, although one or both parties might also be a group of states, a supra-state (a community or other union of states acting as a single body under authority granted to it by its member states), a regional governmental body or even two airlines.

## **Break of gauge**

Break of gauge is used in air services agreements to allow an airline that has traffic rights from its own country (A) to country (B) and then 5th freedom rights on to country (C), to operate one type aircraft from A to B and then a different type (usually smaller) from B to C and beyond. This normally involves basing aircraft and crew in country B.

## **Capacity clause**

This clause identifies the regime which determines the capacity (in terms of volume of traffic, frequency or regularity of service and/or aircraft type(s)) that may be carried out on the agreed services. The most commonly used capacity clauses are: predetermination, Bermuda I and free determination. *Predetermination* is the most restrictive capacity clause and requires that the capacity is agreed prior to service commencement. *Bermuda I* gives a limited right to the airlines to set their capacities without prior government approval while *free determination* leaves the capacity out of regulatory control.

### **Code-sharing**

The use of the flight designator code of one air carrier on a service performed by a second air carrier, whose service is usually also identified (and may be required to be identified) as a service of and being performed by the second air carrier.

### **Commercial stakeholders**

These are stakeholders, which are normally associated with buying goods and services, such as aircraft, maintenance and fuel among others. This group includes all air carriers, general aviation enterprises, airport, air traffic and navigational services, aviation training academies, aircraft maintenance organisations and aircraft manufacturers.

### **Community of interest**

ICAO defines this as being present whenever “a party would accept a foreign designated airline to operate the agreed services under the condition that substantial ownership and effective control is vested: a) in one or more countries that are parties to the agreement or by any one or more of the parties themselves, entailing a joint operating organisation or a multinational carrier created by intergovernmental agreement, or b) in one or more countries that are not necessarily party to the agreement but are within a predefined group with a “community of interest”.

### **Compound Annual Growth Rate**

Compound annual growth rate is the rate of increase in the value of quantity, in this study referring to foreign air tourist arrivals, compounded over several years.

$CAGR = (Ending\ Value / Beginning\ Value)^{(1/n) - 1}$ , where  $n$  is the number of years.

### **Content analysis**

Content analysis is a detailed and systematic examination of material for the purpose of identifying patterns, themes or biases.

### **Cooperative arrangements**

Define the right for the designated airline to enter into cooperative marketing agreements, such as code-sharing and alliances. More liberal agreements tend to allow cooperative arrangements between the designated airlines, such as code-sharing. The possibility of



entering into cooperative arrangements confers a number of commercial advantages to the carriers concerned and is considered as an indicator of relative openness in bilaterals.

### **Core markets**

These are markets, which present the greatest opportunity from a Tourism Growth Strategy's perspective.

### **Cross-sectional data**

Employing this type of data, observations on individual units at a point in time are made.

### **Delphi technique**

The Delphi technique or the Delphi is a series of sequential questionnaires or "rounds", interspersed by controlled feedback, that seek to gain the most reliable consensus of opinion in a group of experts.

### **Designation**

This is the right to designate one (*single designation*) or more than one (*multiple designation*) airline to operate a service between two countries. In restrictive agreements each government allows a single airline as national carrier. In more liberal agreements, multiple airlines are designated to operate services between partner countries.

### **Domestic cabotage**

Eighth freedom or "domestic cabotage" is the right of an airline of one country to carry traffic between two points within the territory of a foreign country. Such rights have on occasion been granted when a country has a shortage of aircraft capacity.

### **Effective control**

Defining "effective control" has generally been more difficult than defining "substantial ownership" because, while ownership is usually transparent and can often be determined by public or other records of shareholders, effective control may be exercised in a variety of ways, many of which may not be readily apparent. Moreover, effective control may be exercised by different entities, depending on the activity of the air carrier. The evidence of effective regulatory control may be predicated upon, but is not limited to the following: the airline holds a valid operating licence or permit issued by the licensing authority such as an

air operator certificate (AOC), meets the criteria of the designating party for the operation of international air services, such as proof of financial health, ability to meet public interest requirements, obligations regarding assurance of service; while the designating party has and maintains safety and security oversight programmes in compliance with ICAO standards.

### **Fixed effects regression method**

Fixed effects regression method was used in this study to analyse the relationship between a dependent variable (*traffic*) and predictors, such as the *GDP*, *population*, *trade*, *ALI*, *Low income* and *ASA age* within an African state in the panel data set. It has the attractive feature of controlling for all stable characteristics of the states, whether measured or not. This is accomplished by using only within-state variation to estimate the regression coefficients.

### **Freedoms of the sky**

The concept of “*freedoms of the skies*” or “*the degrees of freedom*” or “*freedoms of the air*” was initiated at the Chicago Convention, and essentially means air traffic rights, which is a set of commercial aviation rights granting a country’s airline(s) the privilege of entering and landing in another country’s airspace. The degrees of freedom have since been the basis of the amount of freedom a country has in operating over another country’s airspace, encompassing eight different freedoms which may be negotiated.

### **Governance stakeholders**

These are the stakeholders, responsible for policy, enabling and regulatory legal instruments, as well as carrying out the requirements of the Chicago Convention.

### **Gross Domestic Product**

The “Gross Domestic Product” (“GDP”) measures the total value of goods and services produced in a country during a specific period of time. It includes exports and dividends paid to foreigners, but excludes imports and dividends or interest received from outside the entity. The GDP is the most common measure of the level of economic activity within a particular area.

### **Inter-coder reliability**

Inter-coder reliability or reproducibility refers to the levels of agreement among independent coders who code the same content using the same coding instrument. If the results fail to achieve reliability, this implies that something is amiss with the coders, the coding instructions, the category definitions, the unit of analysis, or some combination of these.

### **Intra-coder reliability**

Intra-coder reliability or stability refers to the level of replication that can be expected if similar studies are undertaken, basically answering the question: “can the same coder achieve the same results try after try?” The procedure can therefore be repeated and similar groupings of statements into themes or concepts can be expected.

### **Investment markets**

These are markets, where some investment is made for returns in future from the Tourism Growth Strategy’s perspective.

### **Memorandum of Understanding**

Two states with an effective bilateral air services agreement may wish to make incremental modifications to the regime. Such changes could include allowing additional capacity, resolving an ongoing dispute, clarifying any ambiguities or definitions, *inter alia*. A total renegotiation of the agreement could be procedurally difficult for either party or both states might be satisfied with the overall framework. Under such circumstances the countries would agree to retain the original agreement but amend it as necessary. The results of the negotiations would be summarised in a Memorandum of Understanding, Record of Consultations, Exchange of Notes or similar mechanisms. A Memorandum of Understanding is a less formal type of agreement, which, notwithstanding the lesser formality, may be as binding as a formal agreement.

### **Millennium Development Goals**

In September 2000 world leaders came together at the United Nations Headquarters in New York to adopt the United Nations Millennium Declaration, committing their nations to a new global partnership to reduce extreme poverty and setting out a series of time-bound targets with a deadline of 2015. These targets have become known as the Millennium

Development Goals. They are: 1) to end poverty and hunger; 2) universal education; 3) gender equality; 4) child health; 5) maternal health; 6) combat HIV/AIDS; 7) environmental sustainability; and 8) global partnership.

### **Multilateral agreement**

An agreement undertaken jointly by three or more States, within the framework of an international organisation and/or multilateral treaty.

### **New Partnership for Africa's Development**

This is an African Union strategic framework for pan-African socio-economic development and is both a vision and a policy framework for Africa in the twenty-first century. In particular, the New Partnership for Africa's Development addresses critical challenges facing the Continent, namely poverty, development and Africa's marginalisation internationally.

### **Non-scheduled international air service**

A transport service other than a scheduled service and which is normally associated with a specific flight or series of flights. Such flights are not listed in a published timetable and passenger and cargo capacity may only be offered and sold to a charterer in respect of services on routes currently serviced by scheduled services or directly to the public or through a third party under a series of prescribed conditions.

### **Open Skies**

An "open skies" air services agreement creates a very liberal market between the two signatory nations. It allows any number of airlines from either nation unlimited rights to fly between any city-pair involving the two countries. The airline can carry revenue traffic to and from any third countries, subject to the appropriate provisions in the other agreements. This type of agreement places no restrictions on capacity, tariffs or code-sharing. Most such agreements do not allow a cabotage right, in which one airline of the signatory nation could carry wholly domestic traffic of the other country. The aeronautical and aero political definition relates to the USA liberal capacity BASA programme called "open skies agreements". It is important to note that the international aviation community does not uniformly define the term "open skies"; differences in opinions regarding the level of

freedom allowed by air services agreements will hence result in different categorisations of such agreements.

### **Panel data**

Data are termed “panel data” or “true longitudinal data” when the same units of analysis are studied over different points in time. In addition to capturing aggregate changes over time, panel data enable inferences to be drawn pertaining to changes in individual behaviour.

### **Passenger air service**

A passenger air service is an air service performed primarily for the transport of passengers.

### **Plurilateral agreement**

This is an air services agreement that could initially be bilateral but be capable of being expanded to involve additional parties, or could from the start involve three or more parties; in all cases parties that share similar regulatory objectives, which are not so widely held as to make feasible a typical multilateral negotiation. It would most likely be open to other states which wish to join.

### **Principal place of business**

In relationship to an airline, this denotes an airline that has been established in the territory of the designated party in accordance with relevant national laws and regulation, has a substantial amount of its operations and capital investment in physical facilities in the territory of the designating party, pays income tax, registers and bases its aircraft there and employs a significant number of nationals in managerial, technical and operational positions.

### **Quantitative Air Services Agreements Review**

This is a database developed by the WTO Secretariat which includes 1) regulatory information on bilateral air services agreements and 2) scheduled air passenger traffic data. The regulatory information on bilaterals is drawn from the ICAO’s World Air Services Agreements Database that contains codified summaries of the provisions of around 2 000 bilaterals and covers 184 ICAO contracting States. Scheduled air passenger traffic data by

city-pair were provided by IATA for 2005 on the understanding that exact passenger numbers would remain confidential and that only traffic ranges would be disclosed.

### **Reciprocity**

The granting of a right or a benefit by a state to a foreign entity such as an air carrier when it has no international obligation to do so, on the condition that the same treatment will be accorded to its comparable entity (entities) by the home state of that foreign entity.

### **Revenue Passenger-Kilometre**

One revenue passenger-kilometre is defined as one fare-paying passenger transported one kilometre. This is a measure of an airline's passenger traffic.

### **Safety and security regulatory functions and requirements**

These are policies, legislation and requirements to achieve an appropriate level of safety and security in air transport systems both on the ground and in flight.

### **Scheduled international air service**

This is a series of flights that possesses all of the following characteristics: 1) it passes through the airspace over the territory of more than one state; 2) it is performed by aircraft for the transport of passengers, mail or cargo for remuneration, in such a manner that each flight is open to use by members of the public; and 3) it is operated so as to serve traffic between the same two or more points, either according to a published timetable or with flights so regular or frequent that they constitute a recognisable systematic series.

### **Society stakeholders**

These are stakeholders, which comprise groups outside the civil aviation system, but have a direct interest in what goes on inside the system and what the system produces. This group includes passengers, enterprises which use freight services, environmental groups and residents near airport, organised labour and the news media.

### **Substantial ownership**

In the context of a) South African air carriers, means at least 51% of voting rights (in terms of shares) in respect of such an air carrier to be held by the South African government and/or South African residents, and of b) foreign air carriers, means at least 51% of voting

rights (in terms of shares) in respect of such an air carrier to be held by the government and/or residents of the relevant country.

### **Tactical markets**

These are markets, which should be considered for specific, tactical opportunities from a Tourism Growth Strategy's perspective.

### **Tariff approval**

This refers to the regime which governs the approval of the pricing of air services between two countries. The most restrictive regime is *dual approval*, whereby both parties have to approve the tariff before it can become effective. Semi-liberal regimes are *country of origin* (tariffs may only be disapproved by the country of origin), *dual disapproval* (tariffs have to be disapproved by both countries to make them ineffective) and *zone pricing* (parties agree to approve prices falling within a specific range and meeting certain characteristics). *Free pricing* is the most liberal regime, whereby tariffs shall not be subject to approval by any party.

### **Time-series data**

Employing this type of data, different units of analysis are studied over different points in time.

### **Tourism**

According to the World Tourism Organisation's definition, tourism encompasses the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes.

### **Tourist**

A tourist or overnight visitor is a visitor who stays at least one night in collective or private accommodation in the place visited.

### **Traveller**

A traveller is somebody who moves between different geographic locations for any purpose and any duration.

## **UNIVISA**

This refers to the proposed single visa for SADC.

## **Watch-list markets**

These are markets that need to be watched for value segments from Tourism Growth Strategy's perspective.

## **Withholding or ownership of airline**

This defines the conditions required for the designated airline of the other party to have the right to operate. Restrictive conditions stipulate that the designated airlines have to be "*substantially owned and effectively controlled*" by nationals, entailing that the designated airline is the "flag carrier" of the foreign country. More liberal regimes are those of *community of interest* and *principal place of business*.

## **Yamoussoukro Decision**

Yamoussoukro Decision or Decision means the "Decision Relating to the Implementation of the Yamoussoukro Declaration concerning the Liberalisation of Access to Air Transport Markets in Africa", which entered into force on 12 August 2000 and was ratified by 44 African states. The Decision became fully binding on 12 August 2002.