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Table 20.1 Countries By Continent/Subcontinent

Africa/Central Africa

Burundi, Central African Republic, Chad, Rwanda, Zaire

Africa/Eastern Africa

Djibouti, Ethiopia, Kenya, Seychelles, Somalia, Tanzania, Uganda

Africa/Northern Africa

Algeria, Egypt, Libya, Mauritania, Morocco, Sudan, Tunisia

Africa/Southern Africa

Angola, Botswana, Comoros, Lesotho, Madagascar, Malawi, Mauritius, Mayotte,
Mozambique, Namibia, Reunion, South Africa, Swaziland, Zambia, Zimbabwe

Africa/Western Africa

Benin, Burkina Faso, Cameroon, Cape Verde, Congo, Cote D'Ivoire, Equatorial Guinea,
Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria,
Sao Tome & Principe, Senegal, Sierra Leone, Togo

America/Caribbean

Antigua And Barbuda, Aruba, Bahamas, Barbados, Cuba, Dominica,
Dominican Republic, Grenada, Guadeloupe, Haiti, Jamaica, Martinique,

Continued

Netherlands Antilles, Puerto Rico, Saint Kitts And Nevis, Saint Lucia,
St. Vincent & Grenadines, Trinidad And Tobago, Virgin Islands (U.S.)

America/Central South America

Bolivia, Paraguay

America/Eastern South America

Brazil

America/Middle America

Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama

America/North America

Bermuda, United States

America/Northern North America

Canada, Greenland

America/Northern South America

Columbia, Guiana, Guyana, Suriname, Venezuela

America/Southern South America

Continued

Argentina, Chile, Uruguay

America/Western South America

Ecuador, Peru

Asia/Central Asia

Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan

Asia/Eastern Asia

China, DPR Korea, Hong Kong, Japan, Korea (Rep. Of), Macau, Taiwan

Asia/Middle East

Bahrain, Cyprus, Iran (Islamic Rep. Of), Iraq, Israel, Jordan, Kuwait, Lebanon, Oman,

Qatar, Saudi Arabia, Syria, United Arab Emirates, Yemen

Asia/Northern Asia

Mongolia, Russia

Asia/Southeastern Asia

Brunei Darussalam, Cambodia, Indonesia, Lao P.D.R., Malaysia, Myanmar,

Papua New Guinea, Philippines, Singapore, Thailand, Viet Nam

Asia/Southern Asia

Continued

Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka

Asia/Southwestern Asia

Armenia, Azerbaijan, Georgia, Turkey

Europe/Central Europe

Austria, Czech Republic, Germany, Hungary, Liechtenstein, Poland, Slovak Republic,
Switzerland

Europe/Eastern Europe

Belarus, Estonia, Latvia, Lithuania, Moldova, Ukraine

Europe/Northern Europe

Denmark, Faroe Islands, Finland, Iceland, Norway, Sweden

Europe/Southeastern Europe

Albania, Bosnia And Herzogovina, Bulgaria, Croatia, Romania, Slovenia,
T.F.Y.R. Macedonia, Yugoslavia

Europe/Southern Europe

Greece, Italy, Malta

Continued

Europe/Southwestern Europe

Andorra, Gibraltar, Portugal, Spain

Europe/Western Europe

Belgium, France, Ireland, Luxembourg, Netherlands, United Kingdom

Oceania

American Samoa, Australia, Fiji, French Polynesia, Guam, Kiribati, Marshall Islands,

Micronesia (Fed. States), New Caledonia, New Zealand, Solomon Islands, Tonga,

Vanuatu, Western Samoa

Note: The number of originating and terminating links for each country are provided on this book's web page, at <http://www.csiss.org/best-practices/>.

Table 20.2. Independent Variable Name and Definition

Name	Definition
Telecommunication Equipment	
MTLA	Number of main access lines in country A
MTLB	Number of main access lines in country B
INTHSA	Number of Internet hosts in country A
INTHSB	Number of Internet hosts in country B
ISDNA	Number of ISDN subscribers in country A
ISDNB	Number of ISDN subscribers in country B
Economic Development	
INCA	Gross Domestic Product (GDP) per capita in country A
INCB	Gross Domestic Product (GDP) per capita in country B
PBMLA	Percentage of business access lines in country A
PBMLB	Percentage of business access lines in country B
ADEC	Dummy variable = 1 if countries A and B belong to the Advanced Economies Group (IMF definition)
International Trade	
EXP	Exports from country A to country B
IMP	Imports by country A from country B
ANDEAN	=1 if A and B belong to the Andean Community of Nations
APEC	=1 if A and B belong to the Asia-Pacific Economic Cooperation
ASEAN	=1 if A and B belong to the Association of Southeast Asian Nations
CACM	=1 if A and B belong to the Central America Common Market
CAEU	=1 if A and B belong to the Council of Arab Economic Unity
ECWAS	=1 if A and B belong to the Economic Community of West African States
EFTA	=1 if A and B belong to the European Free Trade Association
EU	=1 if A and B belong to the European Union
LAIA	=1 if A and B belong to the Latin American Integration Association
MERCOS	=1 if A and B belong to the Southern Cone Common Market
NAFTA	=1 if A and B belong to the North American Free Trade Association
International Tourism	
TOURA	Number of international tourists visiting country A
TOURB	Number of international tourists visiting country B
Cultural Relationships	
LANG	=1 if A and B speak the same main language
RELIG	=1 if A and B have the same major religion
ACCT	=1 if A and B belong to the Agency for the French Speaking Community

Table 20.2. Independent Variable Name and Definition (continued)

Name	Definition
Political and Former Colonial Relationships	
CMWTH	=1 if A and B belong to the Commonwealth of Nations
CBSS	=1 if A and B belong to the Council of Baltic Sea States
FSU	=1 if A and B belong to the Former Soviet Union
FZ	=1 if A and B belong to the Franc Zone
OPEC	=1 if A and B belong to the Organization of Petroleum Exporting Countries
Geographical Separation	
DIS	Great-circle distance between the capitals of countries A and B
Δ TIME	Time zone difference between countries A and B (hours)
ADJ	=1 if countries A and B share a common border
ISLA	=1 if neither country A nor country B is an island
Continent/Subcontinent Memberships	
CONT	=1 if countries A and B belong to continent CONT
SCONT	=1 if countries A and B belong to subcontinent SCONT
Spatial Structure	
SSCA	Spatial structure variable associated to country A and computed over all countries in the world (except A)
SSCB	Spatial structure variable associated to country B and computed over all countries in the world (except B)
SSLA	Spatial structure variable associated to country A and computed over all countries with the same language as A (except A)
SSLB	Spatial structure variable associated to country B and computed over all countries with the same language as B (except B)

Table 20.3: Basic Statistics – Telephone Flows and Related Variables

Variable	Number of Observations	Mean	Minimum	Maximum
<u>Origin – Destination</u>				
Telephone Flow (minutes)	4137	12,642,770	1	3,046,125,000
Exports (\$ million)	4137	877	0	152,896
Imports (\$ million)	4137	893	0	148,304
Distance (kilometers)	4137	2,880.5	39.9	11,784
Time Zone Difference (hrs.)	4137	2.46	0	12
<u>Origin Country</u>				
Number of Main Lines	103	5,779,647	2,503	164,624,400
Number of Internet Hosts	103	88,766	0	6,054,959
Number of ISDN	103	23,112	0	961,610
Subscribers	103	30.90	9	70
Percentage of Business	103	8,730	591	27,575
Lines	103	4,972	2	60,033
Income Per Capita (\$)				
International Tourists				
<u>Destination Country</u>				
Number of Main Lines	204	3,399,471	2025	164,624,400
Number of Internet Hosts	204	46,514	0	6,054,959
Number of ISDN	204	14,371	0	961,610
Subscribers	204	30.87	7.05	77
Percentage of Business	204	6,827	374	29,045
Lines	204	2,777	1	60,033
Income Per Capita (\$)				
International Tourists				

Table 20.4: Frequency Distributions of Dummy Variables

DUMMY VARIABLE	# Cases = 1 (out of 4137)	Percentage
A. <u>Geographic Separation</u>	279	6.74
Contiguity (ADJ)	2741	66.26
No Island (ISLA)		
B. <u>Language/Religion</u>		
Main Language (LANG)	814	19.68
Agency for the French Speaking Community (ACCT)	388	9.38
Religion (RELIG)	906	21.90
C. <u>Trade/Cultural Groups</u>		
Advanced Economies (IMF Definition –ADEC)	410	9.91
Asia-Pacific Economic Cooperation (APEC)	195	4.71
Economic Community of West African States (ECWAS)	59	1.43
Latin American Integration Association (LAIA)	78	1.89
Franc Zone (FZ)	92	2.22
Former Soviet Union (FSU)	58	1.40
Commonwealth of Nations (CMWTH)	241	5.83
Southern Cone Common Market MERCOSUR	16	0.39
(MERCOS)	2	0.05
European Free Trade Association (EFTA)	14	0.34
Andean Community of Nations (ANDEAN)	30	0.73
Association of Southeast Asian Nations (ASEAN)	5	0.12
Central America Common Market (CACM)	6	0.15
North American Free Trade Association (NAFTA)	38	0.92
Organization of Petroleum Exporting Countries (OPEC)	172	4.16
European Union (EU)	64	1.55
Council of Arab Economic Unity (CAEU)	75	1.81
Council of Baltic Sea States (CBSS)		
D. <u>Continents</u>		
America	493	11.92
Europe	677	16.36
Africa	693	16.75
Asia	459	11.09
Oceania	39	0.94

Table 20.4: Frequency Distributions of Dummy Variables (Continued)

DUMMY VARIABLE	# Cases = 1 out of 4137	Percentage
E. <u>Subcontinents</u>		
Caribbean	35	0.85
Central South America	0	0
Eastern South America	0	0
Middle America	16	0.39
North America	1	0.02
Northern North America	0	0
Northern South America	9	0.22
Southern South America	6	0.15
Western South America	1	0.02
Northern Europe	15	0.36
Central Europe	23	0.56
Eastern Europe	19	0.46
Southeastern Europe	30	0.73
Southern Europe	6	0.15
Southwestern Europe	3	0.07
Western Europe	27	0.65
Northern Africa	24	0.58
Central Africa	12	0.29
Eastern Africa	9	0.22
Western Africa	99	2.39
Southern Africa	36	0.87
Central Asia	4	0.10
Eastern Asia	27	0.65
Middle East	93	2.25
Northern Asia	1	0.02
Southeastern Asia	33	0.80
Southern Asia	7	0.17
Southwestern Asia	2	0.05

Table 20.5: Regression Models of International Telephone Flows

Variable	Model 1 Benchmark	Model 2 Spatial Structure Whole World	Model 3 Spatial Structure Language Commonality	Model 4 Combination of Models 2 and 3
<i>Intercept</i>	3.242 (4.08) ¹	5.188 (6.25)	2.954 (3.75)	4.193 (5.25)
<i>In MTLA</i>	0.633 (31.75)	0.609 (30.29)	0.642 (32.50)	0.607 (30.11)
<i>In MTLB</i>	0.685 (45.94)	0.694 (46.59)	0.687 (46.48)	0.689 (47.10)
<i>In INTHTSA</i>	-0.00028 (3.71)	-0.00031 (4.10)	-0.00020 (2.67)	-0.00021 (2.79)
<i>In INTHTSB</i>	0.00026 (3.80)	0.00028 (4.09)	0.00027 (3.92)	0.00030 (4.36)
<i>In ISDNA</i>	0.00013 (1.89)	0.00010 (1.47)	0.00016 (2.41)	0.00016 (2.32)
<i>In ISDNB</i>	0.00016 (2.63)	0.00018 (3.05)	0.00014 (2.38)	0.00022 (3.67)
<i>In PBMLA</i>	0.996 (12.35)	0.755 (8.66)	0.920 (11.45)	0.674 (7.65)
<i>In PBMLB</i>	0.512 (6.39)	0.490 (6.12)	0.482 (6.06)	0.413 (5.19)
<i>In INCA</i>	0.591 (14.26)	0.627 (15.11)	0.564 (13.59)	0.600 (14.52)
<i>ADEC</i>	0.349 (3.66)	0.413 (4.34)	0.229 (2.40)	0.258 (2.74)
<i>In EXP</i>	0.000372 (4.92)	0.000380 (5.05)	0.000378 (5.05)	0.000392 (5.28)
<i>In IMP</i>	0.000742 (9.65)	0.000717 (9.37)	0.000737 (9.68)	0.000717 (9.51)
<i>APEC</i>	0.814 (7.24)	0.649 (5.68)	0.829 (7.46)	0.656 (5.88)
<i>ECWAS</i>	0.800 (3.97)	0.764 (3.81)	0.760 (3.81)	0.774 (3.91)
<i>LAIA</i>	-0.505 (2.50)	-0.646 (3.20)	-0.418 (2.09)	-0.612 (3.07)
<i>MERCOS</i>	1.124 (2.83)	1.077 (2.73)	1.049 (2.67)	1.057 (2.72)
<i>TOURA</i>	0.176 (7.38)	0.220 (8.98)	0.152 (6.42)	0.195 (7.98)
<i>In DIS</i>	-1.059 (22.70) ¹	-1.131 (23.91)	-1.099 (23.70)	-1.173 (25.13)
<i>ΔTIME</i>	-0.047 (3.44)	-0.046 (3.40)	-0.043 (3.21)	-0.046 (3.42)
<i>ADJ</i>	0.376 (3.62)	0.279 (2.68)	0.377 (3.67)	0.288 (2.81)
<i>ISLA</i>	0.133 (2.45)	0.220 (3.97)	0.124 (2.31)	0.227 (4.17)
<i>LANG</i>	1.470 (21.36)	1.480 (21.65)	1.359 (19.66)	1.350 (19.71)

Table 20.5: Regression Models of International Telephone Flows (continued)

Variable	Model 1 Benchmark	Model 2 Spatial Structure Whole World	Model 3 Spatial Structure Language Commonality	Model 4 Combination of Models 2 and 3
<i>ACCT</i>	0.716 (7.57)	0.761 (8.06)	0.664 (7.09)	0.700 (7.54)
<i>RELIG</i>	0.186 (3.08)	0.157 (2.62)	0.178 (2.99)	0.136 (2.30)
<i>CMWTH</i>	0.765 (7.12)	0.656 (6.10)	0.762 (7.18)	0.658 (6.22)
<i>FSU</i>	1.336 (6.77)	1.518 (7.67)	1.706 (8.57)	1.949 (9.78)
<i>FZ</i>	1.204 (6.77)	1.213 (6.87)	1.311 (7.44)	1.289 (7.39)
<i>AMERICA</i>	-0.311 (3.35)	-0.418 (4.49)	-0.527 (5.57)	-0.643 (6.80)
<i>CARIBBEAN</i>	1.637 (6.39)	1.664 (6.54)	1.617 (6.39)	1.688 (6.73)
<i>EUROPE</i>	-0.706 (7.47)	-0.550 (5.72)	-0.539 (5.66)	-0.408 (4.29)
<i>NORTHERN EUROPE</i>	0.970 (2.58)	0.893 (2.39)	1.332 (3.56)	1.346 (3.64)
<i>WESTERN EUROPE</i>	0.608 (2.10)	-0.444 (1.54)	-1.020 (3.53)	-0.955 (3.33)
<i>SOUTHEAST EUROPE</i>	1.643 (6.00)	1.590 (5.84)	1.586 (5.84)	1.547 (5.75)
<i>AFRICA</i>	0.494 (5.10) ¹	0.402 (4.10)	0.389 (4.04)	0.291 (3.01)
<i>NORTHERN AFRICA</i>	-1.543 (5.09)	-1.437 (4.77)	-1.518 (5.06)	-1.487 (5.01)
<i>EASTERN AFRICA</i>	1.221 (2.57)	1.118 (2.37)	1.281 (2.73)	1.103 (2.37)
<i>MIDDLE EAST</i>	0.630 (3.74)	0.578 (3.46)	0.436 (2.60)	0.350 (2.10)
<i>SOUTHERN ASIA</i>	1.728 (3.20)	1.494 (2.78)	1.927 (3.60)	1.729 (3.26)
<i>OCEANIA</i>	2.015 (8.45)	1.594 (6.52)	2.006 (8.50)	1.487 (6.16)
<i>SSCA</i>	—	-0.1381 (7.18)	—	-0.0831 (7.33)
<i>SSCB</i>	—	-0.0506 (3.46)	—	-0.0605 (6.50)
<i>SSLA</i>	—	—	0.0240 (7.73)	0.0303 (8.70)
<i>SSLB</i>	—	—	0.0149 (5.93)	0.0247 (8.03)
R²	0.863	0.865	0.866	0.869
<i>Optimal Distance Exponent λ</i>	N.A.	2.6	3.2	3.8

¹ The t-statistics are in parentheses.