



TSAAs in Policy Modelling

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TTRI Collaborative Projects

- TSA First Steps, English Regions - with Welsh Economic Research Unit
- Tourism Indicators, Forecasting and Scenario modelling: the Moffat Model – with VisitScotland
- Tourism policy modelling - DCMS
- Policy Modelling, CGE – with governments in Brazil, Cyprus, Malta, Canaries



TSA's and Policy Modelling

- TSA provides a rigorous data framework
 - Importance in evaluating tourism as a demand-side activity
- Modelling approaches
 - Take the TSA further
 - Effects of changes in tourism demand
 - Effects of changes in policy

What Types of Policy Modelling?

- Taxation
 - e.g. VAT, APD, tourism-specific taxes
- Tourism crisis management
 - Responses to specific crises
- Impact of tourism spending
 - 'return' on tourism promotion
- Macroeconomic policy impacts on tourism
 - Fiscal policy, exchange rates, ...

What is 'modelling' with a TSA?

Types of tourism consumption

Table

Domestic Tourism consumption by products and categories of visitors
(Visitor final consumption in cash: net valuation)

	Resident visitors travelling within the UK					Resident visitors travelling abroad				All resident visitors Total tourism consumption (d)
	Holiday	Business	VFR	Day Visitors	Total Visitors	Holiday	Business	VFR	Total Visitors	
<i>£million</i>	(2.1)	(2.2)	(2.3)	(2.4)	(2.5)=(2.1)+(2.2)+(2.3)+(2.4)	(2.6)	(2.7)	(2.8)	(2.9)=(2.6)+(2.7)+(2.8)	(2.10)=(2.9)+(2.9)
A Tourism Products	12,510.8	4,623.1	2,220.3	12,309.7	31,664.0	11,277.3	2,199.7	1,258.0	14,735.0	46,399.0
A1 Characteristic Products	12,131.8	4,415.0	2,160.3	11,520.3	30,227.3	11,277.3	2,199.7	1,258.0	14,735.0	44,962.3
1 Accommodation Services	3,871.1	1,497.3	261.7	0.0	5,630.0	0.0	0.0	0.0	0.0	5,630.0
1.1 Hotels and lodging services	3,871.1	1,497.3	261.7	0.0	5,630.0	0.0	0.0	0.0	0.0	5,630.0
1.2 Second homes services on own account	x	x	x	-	-	-	-	x	x	x
2 Restaurant, bar and catering services	4,731.7	1,661.8	897.1					0.0	0.0	14,858.0
3 Passenger transport services	2,090.9	1,063.7	629.3					1,185.5	12,890.0	17,416.5
3.1 Railway transport services	311.4	158.4	93.7					50.1	396.3	1,020.9
	1,080.4	549.6	325.2					104.1	823.7	2,914.6
	129.4	65.8	38.9					228.0	2,110.0	2,369.9
	373.7	190.1	112.5					806.3	9,560.0	10,412.3
	196.0	99.7	59.0					0.0	0.0	698.7
4 Travel agency and tour operator services (a)	98.4	17.2	4.5					69.5	1,845.0	2,079.8
5 Recreation, cultural and other entertainment services	1,329.7	175.0	367.6					0.0	0.0	4,978.0
6 Tourism connected products	379.1	208.2	60.1					0.0	0.0	1,436.6
6.1 Post & telecoms services	87.3	49.1	11.4					0.0	0.0	453.7
6.2 Financial and Insurance Services	109.4	61.6	14.4					0.0	0.0	554.3
6.3 Rental services	76.7	43.2	10.1					0.0	0.0	244.5
6.4 Health services	105.7	54.2	24.2	0.0	184.2	0.0	0.0	0.0	0.0	184.2
B Non Tourism Products										
B1 All other products	2,662.0	775.7	630.6	11,028.3	15,096.6	0.0	0.0	0.0	0.0	15,096.6
Distribution margins (c)	1,854.4	424.4	449.6	8,422.0	11,150.3	0.0	0.0	0.0	0.0	11,150.3
Total domestic Consumption	17,027.2	5,823.2	3,300.5	31,760.0	57,910.8	11,277.3	2,199.7	1,258.0	14,735.0	72,645.8

How do tourists allocate spending between commodities?

commodities

Production accounts of tourism industries

€ million	Tourism industries											Total Tourism Industries	Total Non-tourism	Domestic Output (basic prices)	
	1 Hotels & accommodation	2 Second home & caravan ownership (imputed)	3 Restaurants & bars	4 Railways	5 Other land transport	6 Water Transport	7 Air Transport	8 Other transport services	9 Travel agency and tour operators	10 Recreation services	11 Renting of moveables				
A Tourism Products	15,151.4	890.7	31,638.7	8,800.8	34,210.3	4,684.4	14,049.0	35,517.1	3,540.0	43,219.2	15,529.0	207,230.7	280,480.9	487,711.6	
A1 Characteristic Products	15,151.4	890.7	31,638.7	8,800.8	34,210.3	4,684.4	14,049.0	35,517.1	2,054.4	43,219.2	0.0	190,216.1	5,618.3	195,834.4	
1 Accommodation Services	10,250.3	890.7	1,167.0	0.0	0.0	0.0	0.0	0.0	0.0	55.4	0.0	12,363.4	197.0	12,560.4	
1.1 Hotels and lodging services	10,250.3	x	1,167.0	x	x	x	x	x	x	55.4	x	11,472.7	197.0	11,669.7	
1.2 Second homes services on own account	x	890.7	x	x	x	x	x	x	x	x	x	890.7	0.0	890.7	
2 Restaurant, bar and catering services (excl. canteens)	3,899.0	x	30,471.8	x	x	x	x	x	x	571.3	x	34,852.1	3,237.6	38,089.7	
3 Passenger transport services	0.0	0.0	0.0	8,800.8	34,210.3	4,684.4	14,049.0	35,517.1	0.0	0.0	0.0	97,261.6	2,183.6	99,445.3	
3.1 Railway transport services	x	x	x	8,800.8	x	x	x	x	x	x	x	8,800.8	0.0	8,800.8	
3.2 Other land transport services	x	x	x	x	34,210.3	x	x	x	x	x	x	34,210.3	2,183.6	36,393.9	
3.3 Water transport services	x	x	x	x	x	4,684.4	x	x	x	x	x	4,684.4	0.0	4,684.4	
3.4 Air transport services	x	x	x	x	x	x	14,049.0	x	x	x	x	14,049.0	0.0	14,049.0	
	x	x	x	x	x	x	x	35,517.1	x	x	x	35,517.1	0.0	35,517.1	
	x	x	x	x	x	x	x	x	2,054.4	x	x	2,054.4	0.0	2,054.4	
	1,092.1	x	x	x	x	x	x	x	2,054.4	x	x	43,684.6	0.0	43,684.6	
	x	0.0	x	x	x	x	x	x	1,485.6	x	x	17,014.6	15,529.0	32,543.6	
	x	x	x	x	x	x	x	x	x	x	x	0.0	274,862.7	291,877.2	
	x	x	x	x	x	x	x	x	x	x	x	0.0	45,288.4	45,288.4	
	x	x	x	x	x	x	x	x	x	x	x	114,410.7	115,896.2	229,306.9	
	x	x	x	x	x	x	x	x	x	x	x	15,529.0	5,170.8	20,699.8	
	x	x	x	x	x	x	x	x	x	x	x	0.0	109,992.8	109,992.8	
B Non Tourism Products															
B1 All other products	154.4	x	3,322.1	21.2								0.0	10,753.6	1,107,231.9	1,117,985.5
Distribution margins (c)	782.8	x	699.2	8.0								0.0	3,325.6	214,303.3	217,718.9
Value of imported goods and services*	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Total Domestic Industry Output (basic prices)	15,305.8	890.7	34,960.8	9,012.0								529.0	217,984.3	1,387,712.8	1,605,697.1
Total Intermediate consumption at purchaser prices															
	288.6	0.0	805.7	0.6								0.0	1,290.0	1,290.0	
	1,819.8	5.3	5,080.4	61.6								129.8	24,421.6	26,441.4	
	88.4	0.3	246.8	1.2								125.4	1,168.8	1,294.2	
	55.5	72.6	154.9	1.6	177.0	12.8	70.3	116.2	5.1	184.0		38.6	1,463.5	1,648.1	
	783.6	6.2	2,188.1	31.2	5,058.4	1,704.7	3,174.8	12,813.0	557.8	1,757.0	1,808.8	33,594.7	69,596.7	103,191.4	
	1,435.0	32.2	4,008.9	1,733.9	4,889.2	596.5	2,645.6	6,708.9	292.0	7,344.2	3,222.0	32,929.4	69,596.7	102,526.1	
	268.0	1.5	748.3	99.9	370.3	39.7	269.8	668.2	29.1	11,488.7	196.3	14,180.0	30,770.0	44,950.0	
Total Intermediate consumption at purchaser prices	4,740.0	118.1	13,233.2	6,451.0	17,174.0	3,194.0	8,551.0	23,073.3	1,004.4	24,988.0	6,521.0	109,048.0	109,048.0	109,048.0	
	418.0	-5.4	984.7	25.0	448.0	15.0	151.0	564.1	34.2	623.0	227.0	3,484.7	3,484.7	3,484.7	
	6,235.4	29.2	14,850.3	2,174.0	11,938.0	1,248.0	3,107.0	9,160.9	2,148.9	13,853.0	4,992.0	69,596.7	69,596.7	69,596.7	
	3,912.3	748.8	5,892.6	382.0	5,063.0	373.0	2,340.0	4,075.6	352.5	9,086.0	3,789.0	35,914.9	35,914.9	35,914.9	
	10,565.8	772.6	21,727.6	2,581.0	17,440.0	1,636.0	5,408.0	13,800.7	2,535.6	23,262.0	9,008.0	108,936.3	108,936.3	108,936.3	

Output commodities

Input commodities

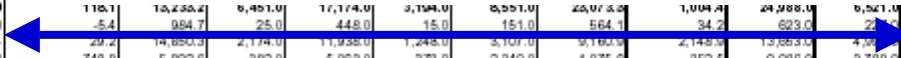
Value added

How do industries use inputs to produce outputs?

Table 5
Production accounts of tourism industries and other industries
(net valuation)

EmWise	Tourism industries											Total Tourism Industries	Total Non-tourism	Domestic Output (basic prices)
	1 Hotels & accommodation	2 Second home & caravan ownership (imputed)	3 Restaurants & bars	4 Railways	5 Other land transport	6 Water Transport	7 Air Transport	8 Other transport services	9 Travel agency and tour operators	10 Recreation services	11 Renting of moveables			
A Tourism Products	15,151.4	800.7	31,638.7	8,800.8	34,210.3	4,684.4	14,049.0	35,517.1	3,540.0	43,219.2	15,529.0	207,230.7	280,480.9	487,711.6
A1 Characteristic Products	15,151.4	800.7	31,638.7	8,800.8	34,210.3	4,684.4	14,049.0	35,517.1	2,054.4	43,219.2	0.0	190,216.1	5,618.3	195,834.4
1 Accommodation Services	10,250.3	800.7	1,167.0	0.0	0.0	0.0	0.0	0.0	0.0	55.4	0.0	12,363.4	107.0	12,560.4
1.1 Hotels and lodging services	10,250.3	x	1,167.0	x	x	x	x	x	x	55.4	x	11,472.7	107.0	11,669.7
1.2 Second homes services on own account	x	800.7	x	x	x	x	x	x	x	x	x	890.7	0.0	890.7
2 Restaurant, bar and catering services (excl. canteens)	3,809.0	x	30,471.8	x	x	x	x	x	x	571.3	x	34,852.1	3,237.6	38,089.7
3 Passenger transport services	0.0	0.0	0.0	8,800.8	34,210.3	4,684.4	14,049.0	35,517.1	0.0	0.0	0.0	97,261.6	2,183.6	99,445.3
3.1 Railway transport services	x	x	x	8,800.8	x	x	x	x	x	x	x	8,800.8	0.0	8,800.8
3.2 Other land transport services	x	x	x	x	34,210.3	x	x	x	x	x	x	34,210.3	2,183.6	36,393.9
3.3 Water transport services	x	x	x	x	x	4,684.4	x	x	x	x	x	4,684.4	0.0	4,684.4
3.4 Air transport services	x	x	x	x	x	x	14,049.0	x	x	x	x	14,049.0	0.0	14,049.0
3.5 Ancillary transport services	x	x	x	x	x	x	x	x	x	x	x	35,517.1	0.0	35,517.1
4 Travel agency and tour operator services (a)	x	x	x	x	x	x	x	x	2,054.4	x	x	43,684.6	0.0	43,684.6
5 Recreation, cultural and other entertainment services (b)	1,002.1	x	x	x	x	x	x	x	x	42,592.5	x	17,014.6	274,862.7	291,877.2
6 Tourism connected products	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,485.6	0.0	15,529.0	0.0	45,288.4	45,288.4
6.1 Post & telecoms services	x	x	x	x	x	x	x	x	x	x	x	0.0	45,288.4	45,288.4
6.2 Financial and Insurance Services	x	x	x	x	x	x	x	x	x	x	x	1,485.6	114,410.7	115,896.2
6.3 Rental services	x	x	x	x	x	x	x	x	x	x	x	15,529.0	5,170.8	20,699.8
6.4 Health services	x	x	x	x	x	x	x	x	x	x	x	0.0	109,992.8	109,992.8
B Non Tourism Products	154.4	x	3,322.1	231.2	412.7	145.6	0.0	1,356.9	0.0	5,130.8	0.0	10,753.6	1,107,231.9	1,117,985.5
B1 All other products	154.4	x	3,322.1	231.2	412.7	145.6	0.0	1,356.9	0.0	5,130.8	0.0	10,753.6	1,107,231.9	1,117,985.5
Distribution margins (c)	782.8	x	600.2	88.0	15.0	0.0	0.0	0.0	0.0	1,740.6	0.0	3,325.6	214,303.3	217,718.0
Value of imported goods and services*	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Total Domestic Industry Output (basic prices)	15,305.8	x	32,038.9	8,888.8	34,623.0	4,830.0	14,049.0	36,874.1	3,540.0	44,959.8	15,529.0	217,984.3	1,387,712.8	1,605,697.1
(net of distribution margins)														
Inputs to the production process														
1 Agriculture & Extraction	288.6													1,290.0
2 Manufacturing in food processing	1,819.8													24,421.6
3 Energy & Water	88.4													1,168.8
4 Construction	55.5													1,463.5
5 Hotels, Transport & communication services	783.6													33,594.7
6 Business Services	1,435.0													32,920.4
7 Community, Social and personal services	268.0													14,180.0
Total Intermediate consumption at purchaser prices	4,740.0	118.1	10,438.4	9,451.0	17,174.0	3,794.0	14,049.0	35,517.1	2,054.4	44,959.8	15,529.0	100,048.0	24,888.0	124,936.0
Taxes less subsidies on production	418.0	-5.4	984.7	25.0	448.0	15.0	151.0	564.1	34.2	623.0	27.2	3,484.7	27.2	3,484.7
Compensation of employees	6,235.4	29.2	14,880.9	2,174.0	11,938.0	1,248.0	3,107.0	9,160.0	2,148.0	13,353.0	4,000.0	69,536.7	4,000.0	73,536.7
Gross Operating surplus (inc mixed income)	3,912.3	748.8	5,802.6	382.0	5,063.0	373.0	2,340.0	4,075.6	352.6	9,086.0	3,789.0	35,914.0	3,789.0	39,703.0
Total Gross Value Added at basic prices	10,565.8	772.6	21,727.6	2,581.0	17,440.0	1,636.0	5,408.0	13,800.7	2,535.6	23,262.0	9,008.0	108,936.3	108,936.3	108,936.3

**How do factor markets
(labour and capital)
operate?**



* - Import only

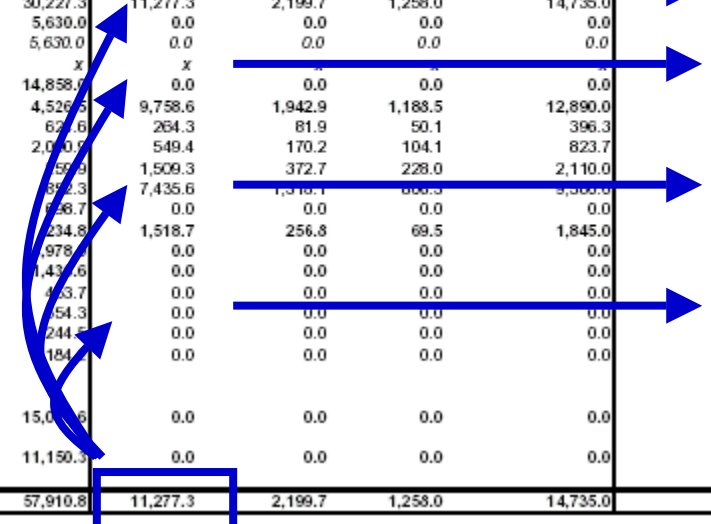
Increased total tourism demand for commodities

Table 2

Domestic Tourism consumption by products and categories
(Visitor final consumption in cash: net value added)

	Resident visitors travelling within the UK					Resident visitors travelling abroad				All resident visitors Total tourism consumption (d)
	Holiday	Business	VFR	Day Visitors	Total Visitors	Holiday	Business	VFR	Total Visitors	
Emotion	(2.1)	(2.2)	(2.3)	(2.4)	(2.5)=(2.1)+(2.2)+(2.3)+(2.4)	(2.6)	(2.7)	(2.8)	(2.9)=(2.6)+(2.7)+(2.8)	(2.10)=(2.9)+(2.5)
A Tourism Products	12,510.8	4,623.1	2,220.3	12,309.7	31,664.0	11,277.3	2,199.7	1,258.0	14,735.0	46,399.0
A1 Characteristic Products	12,131.8	4,415.0	2,160.3	11,520.3	30,227.3	11,277.3	2,199.7	1,258.0	14,735.0	44,962.3
1 Accommodation Services	3,871.1	1,497.3	261.7	0.0	5,630.0	0.0	0.0	0.0	0.0	5,630.0
1.1 Hotels and lodging services	3,871.1	1,497.3	261.7	0.0	5,630.0	0.0	0.0	0.0	0.0	5,630.0
1.2 Second homes services on own account	x	x	x	x	x	x	x	x	x	x
2 Restaurant, bar and catering service	x	x	x	x	14,858.0	0.0	0.0	0.0	0.0	14,858.0
3 Passenger transport services	x	x	x	x	4,526.5	9,758.6	1,942.9	1,188.5	12,890.0	17,416.5
3.1 Railway transport services	x	x	x	x	62.6	264.3	81.9	50.1	396.3	1,020.9
3.2 Other land transport services	x	x	x	x	2,000.0	549.4	170.2	104.1	823.7	2,914.6
3.3 Water transport services	x	x	x	x	59.9	1,509.3	372.7	228.0	2,110.0	2,369.9
3.4 Air transport services	x	x	x	x	822.3	7,435.6	1,318.1	605.3	9,300.0	10,412.3
3.5 Ancillary transport services	x	x	x	x	698.7	0.0	0.0	0.0	0.0	698.7
4 Travel agency and tour operator services (a)	98.4	17.2	4.5	114.7	234.8	1,518.7	256.8	69.5	1,845.0	2,079.8
5 Recreation, cultural and other entertainment services	1,339.7	175.0	367.6	3,095.7	4,978.0	0.0	0.0	0.0	0.0	4,978.0
6 Tourism connected products	379.1	208.2	60.1	789.3	1,436.6	0.0	0.0	0.0	0.0	1,436.6
6.1 Post & telecoms services	87.3	49.1	11.4	305.8	453.7	0.0	0.0	0.0	0.0	453.7
6.2 Financial and Insurance Services	109.4	61.6	14.4	368.9	554.3	0.0	0.0	0.0	0.0	554.3
6.3 Rental services	76.7	43.2	10.1	114.7	244.5	0.0	0.0	0.0	0.0	244.5
6.4 Health services	105.7	54.2	24.2	0.0	184.1	0.0	0.0	0.0	0.0	184.1
B Non Tourism Products										
B1 All other products	2,662.0	775.7	630.6	11,028.3	15,096.6	0.0	0.0	0.0	0.0	15,096.6
Distribution margins (c)	1,854.4	424.4	449.6	8,422.0	11,150.3	0.0	0.0	0.0	0.0	11,150.3
Total domestic Consumption	17,027.2	5,823.2	3,300.5	31,760.0	57,910.8	11,277.3	2,199.7	1,258.0	14,735.0	72,645.8

Increased demand for commodities



Increased demand by foreign holiday tourism

Notes:

Table 5
Production accounts of tourism industries and other
(net valuation)

Increased demand →
increased supply

EmW/e	Tourism industries											Total Tourism Industries	Total Non-tourism	Domestic Output (basic prices)
	1 Hotels & accommodation	2 Second home & caravan ownership (imputed)	3 Restaurants & bars	4 Railways	5 Other land transport	6 Water Transport	7 Air Transport	8 Other transport services	9 Travel agency and tour operators	10 Recreation services	11 Renting of moveables			
A Tourism Products	15,151.4	800.7	31,638.7	8,800.8	34,210.3	4,684.4	14,049.0	35,517.1	3,540.0	43,219.2	15,529.0	207,230.7	280,480.9	487,711.6
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1 Accommodation Services	10,250.3	800.7	1,167.0	0.0	0.0	0.0	0.0	0.0	0.0	55.4	0.0	12,363.4	107.0	12,560.4
1.1 Hotels and lodging services	10,250.3	x	1,167.0	x	x	x	x	x	x	55.4	x	11,473.7	107.0	11,680.7
1.2 Second homes services on own account	x	800.7	x	x	x	x	x	x	x	x	x	800.7	0.0	800.7
2 Restaurant, bar and catering services (excl. canteens)	809.0	x	30,471.8	x	x	x	x	x	x	571.3	x	34,852.1	3,237.6	38,089.7
3 Passenger transport services	0.0	0.0	0.0	8,800.8	34,210.3	4,684.4	14,049.0	35,517.1	0.0	0.0	0.0	97,261.6	2,183.6	99,445.3
3.1 Railway transport services	x	x	x	8,800.8	x	x	x	x	x	x	x	8,800.8	0.0	8,800.8
3.2 Other land transport services	x	x	x	x	34,210.3	x	x	x	x	x	x	34,210.3	0.0	36,393.9
3.3 Water transport services	x	x	x	x	x	4,684.4	x	x	x	x	x	4,684.4	0.0	4,684.4
3.4 Air transport services	x	x	x	x	x	x	14,049.0	x	x	x	x	14,049.0	0.0	14,049.0
3.5 Ancillary transport services	x	x	x	x	x	x	x	x	x	x	x	35,517.1	0.0	35,517.1
4 Travel agency and tour operator services (a)	x	x	x	x	x	x	x	35,517.1	2,054.4	x	x	35,517.1	0.0	2,054.4
5 Recreation, cultural and other entertainment services (b)	1,002.1	x	x	x	x	x	x	x	2,054.4	42,592.5	x	43,684.6	0.0	43,684.6
6 Tourism connected products	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,485.6	0.0	15,529.0	17,014.6	274,862.7	291,877.2
6.1 Post & telecoms services	x	x	x	x	x	x	x	x	1,485.6	x	x	0.0	45,288.4	45,288.4
6.2 Financial and Insurance Services	x	x	x	x	x	x	x	x	1,485.6	x	x	114,410.7	115,896.2	115,896.2
6.3 Rental services	x	x	x	x	x	x	x	x	1,485.6	x	x	15,529.0	5,170.8	20,699.8
6.4 Health services	x	x	x	x	x	x	x	x	1,485.6	x	x	0.0	109,992.8	109,992.8
B Non Tourism Products														
B1 All other products	154.4	x	3,322.1	231.2	412.7	145.6	0.0	1,356.9	0.0	5,130.8	0.0	10,753.6	1,107,231.9	1,117,985.5
Distribution margins (c)	782.8	x	600.2	88.0	15.0	0.0	0.0	0.0	0.0	1,740.6	0.0	3,325.6	214,303.3	217,718.0
Value of imported goods and services*	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Total Domestic Industry Output (basic prices) (net of distribution margins)	15,305.8	800.7	34,960.8	9,032.0	34,623.0	4,830.0	14,049.0	36,874.0	3,540.0	48,360.0	15,529.0	217,984.3	1,387,712.8	1,605,697.1
Inputs to the production process (net of distribution margins)														
1 Agriculture & Extraction	288.6									53.6	0.0	1,290.0		
2 Manufacturing in food processing	1,819.8									3,869.4	1,129.8	24,421.6		
3 Energy & Water	88.4									184.0	125.4	1,168.8		
4 Construction	55.5									291.1	38.6	1,463.5		
5 Hotels, Transport & communication services	783.6									1,757.0	1,808.8	33,594.7		
6 Business Services	1,435.9									7,344.2	3,222.0	32,920.4		
7 Community, Social and personal services	268.0									11,488.7	196.3	14,180.0		
Total Intermediate consumption at purchaser prices	4,740.0									24,988.0	6,521.0	109,048.0		
Taxes less subsidies on production	418.0									623.0	227.0	3,484.7		
Compensation of employees	6,235.4									13,853.0	4,992.0	69,536.7		
Gross Operating surplus (inc mixed income)	3,912.3									9,086.0	3,789.0	35,914.9		
Total Gross Value Added at basic prices	10,565.8	772.6	21,727.6	2,581.0	17,440.0	1,636.0	5,408.0	13,800.7	2,535.6	23,262.0	9,008.0	108,936.3		

Increased supply →
increased use of
inputs

Table 5
Production accounts of tourism industries and other industries
(net valuation)

EmWise	Tourism industries											Total Tourism Industries	Total Non-tourism	Domestic Output (basic prices)
	1 Hotels & accommodation	2 Second home & caravan ownership (imputed)	3 Restaurants & bars	4 Railways	5 Other land transport	6 Water Transport	7 Air Transport	8 Other transport services	9 Travel agency and tour operators	10 Recreation services	11 Renting of moveables			
A Tourism Products	15,151.4	800.7	31,638.7	8,800.8	34,210.3	4,684.4	14,049.0	35,517.1	3,540.0	43,219.2	15,529.0	207,230.7	280,480.9	487,711.6
A1 Characteristic Products	15,151.4	800.7	31,638.7	8,800.8	34,210.3	4,684.4	14,049.0	35,517.1	2,054.4	43,219.2	0.0	190,216.1	5,618.3	195,834.4
1 Accommodation Services	10,250.3	800.7	1,167.0	0.0	0.0	0.0	0.0	0.0	0.0	55.4	0.0	12,363.4	107.0	12,560.4
1.1 Hotels and lodging services	10,250.3	x	1,167.0	x	x	x	x	x	x	55.4	x	11,472.7	107.0	11,669.7
1.2 Second homes services on own account	x	800.7	x	x	x	x	x	x	x	x	x	890.7	0.0	890.7
2 Restaurant, bar and catering services (excl. canteens)	3,809.0	x	30,471.8	x	x	x	x	x	x	x	x	34,852.1	3,237.6	38,089.7
3 Passenger transport services	0.0	0.0	0.0	8,800.8	34,210.3	4,684.4	14,049.0	35,517.1	0.0	0.0	0.0	97,261.6	2,183.6	99,445.3
3.1 Railway transport services	x	x	x	8,800.8	x	x	x	x	x	x	x	8,800.8	0.0	8,800.8
3.2 Other land transport services	x	x	x	x	34,210.3	x	x	x	x	x	x	34,210.3	2,183.6	36,393.9
3.3 Water transport services	x	x	x	x	x	4,684.4	x	x	x	x	x	4,684.4	0.0	4,684.4
3.4 Air transport services	x	x	x	x	x	x	14,049.0	x	x	x	x	14,049.0	0.0	14,049.0
3.5 Ancillary transport services	x	x	x	x	x	x	x	35,517.1	x	x	x	35,517.1	0.0	35,517.1
4 Travel agency and tour operator services (a)	x	x	x	x	x	x	x	x	2,054.4	x	x	43,684.6	0.0	2,054.4
5 Recreation, cultural and other entertainment services (b)	x	x	x	x	x	x	x	x	1,485.6	42,592.5	x	43,684.6	0.0	43,684.6
6 Tourism connected products	x	x	x	x	x	x	x	x	1,485.6	x	15,529.0	17,014.6	274,862.7	291,877.2
6.1 Post & telecoms services	x	x	x	x	x	x	x	x	x	x	x	0.0	45,288.4	45,288.4
6.2 Financial and Insurance Services	x	x	x	x	x	x	x	x	x	x	x	1,485.6	114,410.7	115,896.2
6.3 Rental services	x	x	x	x	x	x	x	x	x	x	x	15,529.0	5,170.8	20,699.8
6.4 Health services	x	x	x	x	x	x	x	x	x	x	x	0.0	109,992.8	109,992.8
B Non Tourism Products	x	x	x	x	x	x	x	x	3.9	0.0	5,130.8	10,753.6	1,107,231.9	1,117,985.5
B1 All other products	x	x	x	x	x	x	x	x	3.9	0.0	5,130.8	10,753.6	1,107,231.9	1,117,985.5
Distribution margins (c)	x	x	x	x	x	x	x	x	1.0	0.0	1,740.6	0.0	3,325.6	214,303.3
Value of imported goods and services*	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Total Domestic Industry Output (basic prices) (net of distribution margins)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	3,540.0	48,350.0	15,529.0	217,984.3	1,387,712.8	1,605,697.1
Inputs to the production process	288.6	0.0	805.7	10.6	0.5	33.6	0.4	92.9	4.0	53.6	0.0	1,290.0	0.0	1,290.0
1 Agriculture & Extraction	288.6	0.0	805.7	10.6	0.5	33.6	0.4	92.9	4.0	53.6	0.0	1,290.0	0.0	1,290.0
2 Manufacturing in food processing	1,819.8	5.3	5,080.4	681.6	6,640.0	800.4	2,372.6	1,938.0	84.4	3,869.4	1,129.8	24,421.6	0.0	24,421.6
3 Energy & Water	88.4	0.3	246.8	142.3	177.0	12.8	70.3	116.2	5.1	184.0	125.4	1,168.0	0.0	1,168.0
4 Construction	55.5	72.6	154.0	20.5	39.5	6.2	17.5	78.4	32.0	201.4	38.6	1,483.2	0.0	1,483.2
5 Hotels, Transport & communication services	783.6	6.2	2,188.1	3,742.2	5,058.4	1,704.7	3,174.8	12,813.0	557.8	1,757.0	1,808.8	33,594.1	0.0	33,594.1
6 Business Services	1,435.0	32.2	4,008.9	1,753.9	4,889.2	596.5	2,645.6	6,708.9	292.0	7,344.2	3,222.0	32,929.4	0.0	32,929.4
7 Community, Social and personal services	268.0	1.5	748.3	99.9	370.3	39.7	259.8	668.2	29.1	11,488.7	0.0	11,488.7	0.0	11,488.7
Total Intermediate consumption at purchaser prices	4,740.0	118.1	13,233.2	6,451.0	17,174.0	3,194.0	8,551.0	23,073.3	1,004.4	24,988.0	0.0	24,988.0	0.0	24,988.0
Taxes less subsidies on production	418.0	-5.4	984.7	25.0	448.0	15.0	151.0	564.1	34.2	623.0	0.0	623.0	0.0	623.0
Compensation of employees	6,235.4	29.2	14,850.3	2,174.0	11,938.0	1,248.0	3,107.0	9,160.9	2,148.9	13,653.0	0.0	32,929.4	0.0	32,929.4
Gross Operating surplus (inc mixed income)	3,912.3	748.8	5,892.6	382.0	5,063.0	373.0	2,340.0	4,075.6	352.5	9,086.0	0.0	9,086.0	0.0	9,086.0
Total Gross Value Added at basic prices	10,565.8	772.6	21,727.6	2,581.0	17,440.0	1,636.0	5,408.0	13,800.7	2,535.6	23,262.0	0.0	23,262.0	0.0	23,262.0

Price and quantity adjustments
(demand = supply)

Including rest of the economy

Table 5
Production accounts of tourism industries and other industries
(net valuation)

EmWise	Tourism industries											Total Tourism Industries	Total Non-tourism	Domestic Output (basic prices)
	1 Hotels & accommodation	2 Second home & caravan ownership (imputed)	3 Restaurants & bars	4 Railways	5 Other land transport	6 Water Transport	7 Air Transport	8 Other transport services	9 Travel agency and tour operators	10 Recreation services	11 Renting of moveables			
A Tourism Products	15,151.4	800.7	31,638.7	8,800.8	34,210.3	4,684.4	14,049.0	35,517.1	3,540.0	43,219.2	15,529.0	207,230.7	280,480.9	487,711.6
A1 Characteristic Products	15,151.4	800.7	31,638.7	8,800.8	34,210.3	4,684.4	14,049.0	35,517.1	2,054.4	43,219.2	0.0	190,216.1	5,618.3	195,834.4
1 Accommodation Services	10,250.3	800.7	1,167.0	0.0	0.0	0.0	0.0	0.0	0.0	55.4	0.0	12,363.4	107.0	12,960.4
1.1 Hotels and lodging services	10,250.3	x	1,167.0	x	x	x	x	x	x	55.4	x	11,472.7	107.0	11,669.7
1.2 Second homes services on own account	x	800.7	x	x	x	x	x	x	x	x	x	890.7	0.0	890.7
2 Restaurant, bar and catering services (excl. canteens)	3,809.0	x	30,471.8	x	x	x	x	x	x	571.3	x	34,852.1	3,237.6	38,089.7
3 Passenger transport services	0.0	0.0	0.0	8,800.8	34,210.3	4,684.4	14,049.0	35,517.1	0.0	0.0	0.0	97,261.6	2,183.6	99,445.3
3.1 Railway transport services	x	x	x	8,800.8	x	x	x	x	x	x	x	8,800.8	0.0	8,800.8
3.2 Other land transport services	x	x	x	x	34,210.3	x	x	x	x	x	x	34,210.3	2,183.6	36,393.9
3.3 Water transport services	x	x	x	x	x	4,684.4	x	x	x	x	x	4,684.4	0.0	4,684.4
3.4 Air transport services	x	x	x	x	x	x	14,049.0	x	x	x	x	14,049.0	0.0	14,049.0
3.5 Ancillary transport services	x	x	x	x	x	x	x	35,517.1	x	x	x	35,517.1	0.0	35,517.1
4 Travel agency and tour operator services (a)	x	x	x	x	x	x	x	x	2,054.4	x	x	43,684.6	0.0	2,054.4
5 Recreation, cultural and other entertainment services (b)	x	x	x	x	x	x	x	x	1,485.6	x	x	43,684.6	0.0	43,684.6
6 Tourism connected products	x	x	x	x	x	x	x	x	1,485.6	x	x	17,014.6	274,862.7	291,877.2
6.1 Post & telecoms services	x	x	x	x	x	x	x	x	1,485.6	x	x	0.0	45,288.4	45,288.4
6.2 Financial and Insurance Services	x	x	x	x	x	x	x	x	x	x	x	114,410.7	115,896.2	115,896.2
6.3 Rental services	x	x	x	x	x	x	x	x	x	x	x	15,529.0	5,170.8	20,699.8
6.4 Health services	x	x	x	x	x	x	x	x	x	x	x	0.0	109,992.8	109,992.8
B Non Tourism Products	x	x	x	x	x	x	x	x	3.9	0.0	5,130.8	10,753.6	1,107,231.9	1,117,085.5
B1 All other products	x	x	x	x	x	x	x	x	3.9	0.0	5,130.8	10,753.6	1,107,231.9	1,117,085.5
Distribution margins (c)	x	x	x	x	x	x	x	x	1.0	0.0	1,740.6	3,325.6	214,303.3	217,718.0
Value of imported goods and services*	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Total Domestic Industry Output (basic prices) (net of distribution margins)	15,305.8	800.7	34,960.8	9,032.0	34,623.0	4,830.0	14,049.0	36,874.0	3,540.0	48,360.0	15,529.0	217,984.3	1,387,712.8	1,605,697.1
Inputs to the production process	288.6	0.0	805.7	10.6	0.5	33.6	0.4	92.9	4.0	53.6	0.0	1,290.0	0.0	1,290.0
1 Agriculture & Extraction	288.6	0.0	805.7	10.6	0.5	33.6	0.4	92.9	4.0	53.6	0.0	1,290.0	0.0	1,290.0
2 Manufacturing in food processing	1,819.8	5.3	5,080.4	681.6	6,640.0	800.4	2,372.6	1,938.0	84.4	3,869.4	1,129.8	24,421.6	24,421.6	24,421.6
3 Energy & Water	88.4	0.3	246.8	142.3	177.0	12.8	70.3	116.2	5.1	184.0	125.4	1,168.8	1,168.8	1,168.8
4 Construction	55.5	72.6	154.9	20.5	38.5	6.2	17.5	798.1	32.0	291.1	38.6	1,463.5	1,463.5	1,463.5
5 Hotels, Transport & communication services	783.6	6.2	2,188.1	3,742.2	5,058.4	1,704.7	3,174.8	12,813.0	557.8	1,757.0	1,808.8	33,594.7	33,594.7	33,594.7
6 Business Services	1,435.0	32.2	4,008.9	1,753.9	4,889.2	596.5	2,645.6	6,708.9	292.0	7,344.2	3,222.0	32,920.4	32,920.4	32,920.4
7 Community, Social and personal services	268.0	1.5	748.3	99.9	370.3	39.7	259.8	668.2	29.1	11,488.7	196.3	14,180.0	14,180.0	14,180.0
Total Intermediate consumption at purchaser prices	4,740.0	118.1	13,233.2	6,451.0	17,174.0	3,194.0	8,551.0	23,073.3	1,004.4	24,988.0	6,521.0	109,048.0	109,048.0	109,048.0
Taxes less subsidies on production	418.0	-5.4	984.7	25.0	448.0	15.0	151.0	564.1	34.2	623.0	227.0	3,487.7	3,487.7	3,487.7
Compensation of employees	6,230.0	29.2	14,880.0	2,174.0	11,938.0	1,248.0	3,107.0	9,160.0	2,148.0	13,863.0	4,992.0	69,590.0	69,590.0	69,590.0
Gross Operating surplus (inc mixed income)	3,912.3	748.8	5,892.6	382.0	5,063.0	373.0	2,340.0	4,075.6	352.5	9,086.0	3,789.0	35,914.0	35,914.0	35,914.0
Total Gross Value Added at basic prices	10,565.8	772.6	21,727.6	2,581.0	17,440.0	1,636.0	5,408.0	13,800.7	2,535.6	23,262.0	15,529.0	217,984.3	1,387,712.8	1,605,697.1

Wage adjustments
(demand = supply)

Including rest of the economy

Table 5
Production accounts of tourism industries and other industries
(net valuation)

EmW/e	Tourism industries											Total Tourism Industries	Total Non-tourism	Domestic Output (basic prices)
	1 Hotels & accommodation	2 Second home & caravan ownership (imputed)	3 Restaurants & bars	4 Railways	5 Other land transport	6 Water Transport	7 Air Transport	8 Other transport services	9 Travel agency and tour operators	10 Recreation services	11 Renting of moveables			
A Tourism Products	15,151.4	890.7	31,638.7	8,800.8	34,210.3	4,684.4	14,049.0	35,517.1	3,540.0	43,219.2	15,529.0	207,230.7	280,480.9	487,711.6
A1 Characteristic Products	15,151.4	890.7	31,638.7	8,800.8	34,210.3	4,684.4	14,049.0	35,517.1	2,054.4	43,219.2	0.0	190,216.1	5,618.3	195,834.4
1 Accommodation Services	10,250.3	890.7	1,167.0	0.0	0.0	0.0	0.0	0.0	0.0	55.4	0.0	12,363.4	107.0	12,569.7
1.1 Hotels and lodging services	10,250.3	x	1,167.0	x	x	x	x	x	x	55.4	x	11,473.7	107.0	11,669.7
1.2 Second homes services on own account	x	890.7	x	x	x	x	x	x	x	x	x	890.7	0.0	890.7
2 Restaurant, bar and catering services (excl. canteens)	2,809.0	x	2,471.7	x	x	x	x	x	x	x	x	2,471.7	0.0	2,471.7
3 Passenger transport services	0.0	0.0	0.0	8,800.8	34,210.3	4,684.4	14,049.0	35,517.1	0.0	0.0	0.0	97,261.6	2,183.6	99,445.3
3.1 Railway transport services	x	x	x	8,800.8	x	x	x	x	x	x	x	8,800.8	0.0	8,800.8
3.2 Other land transport services	x	x	x	x	34,210.3	x	x	x	x	x	x	34,210.3	2,183.6	36,393.9
3.3 Water transport services	x	x	x	x	x	4,684.4	x	x	x	x	x	4,684.4	0.0	4,684.4
3.4 Air transport services	x	x	x	x	x	x	14,049.0	x	x	x	x	14,049.0	0.0	14,049.0
3.5 Ancillary transport services	x	x	x	x	x	x	x	35,517.1	x	x	x	35,517.1	0.0	35,517.1
4 Travel agency and tour operator services (a)	x	x	x	x	x	x	x	x	2,054.4	x	x	2,054.4	0.0	2,054.4
5 Recreation, cultural and other entertainment services (b)	1,002.1	x	x	x	x	x	x	x	x	x	42,592.5	43,684.6	0.0	43,684.6
6 Tourism connected products	x	x	x	x	x	x	x	x	x	x	x	0.0	45,288.4	45,288.4
6.1 Post & telecoms services	x	x	x	x	x	x	x	x	x	x	x	0.0	45,288.4	45,288.4
6.2 Financial and Insurance Services	x	x	x	x	x	x	x	x	1,485.6	x	x	1,485.6	114,410.7	115,896.2
6.3 Rental services	x	x	x	x	x	x	x	x	x	x	15,529.0	15,529.0	5,170.8	20,699.8
6.4 Health services	x	x	x	x	x	x	x	x	x	x	0.0	109,992.8	109,992.8	
B Non Tourism Products														
B1 All other products	54.4	x	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,117,085.5
Distribution margins (c)	x	x	690.2	88.0	15.0	0.0	0.0	0.0	0.0	1,740.6	0.0	3,325.6	214,393.3	217,718.9
Value of imported goods and services*	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Total Domestic Industry Output (basic prices) (net of distribution margins)	15,151.4	890.7	34,960.8	9,032.0	34,623.0	4,830.0	14,049.0	36,874.0	3,540.0	48,360.0	15,529.0	217,984.3	1,387,712.8	1,605,697.1
Inputs to the production process														
1 Agriculture & Extraction	28.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,290.0	1,290.0
2 Manufacturing in food processing	11.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	129.8	24,421.6	24,551.4
3 Energy & Water	8.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	125.4	1,168.8	1,294.2
4 Construction	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38.6	1,463.5	1,502.1
5 Hotels, Transport & communication services	8.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	308.8	33,594.7	34,403.5
6 Business Services	9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	222.0	32,929.4	33,151.4
7 Community, Social and personal services	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	196.3	14,180.0	14,376.3
Total Intermediate consumption at purchaser prices	1740.0	118.1	13,233.2	6,451.0	17,174.0	3,194.0	8,551.0	23,073.3	1,004.4	24,988.0	6,521.0	109,048.0	1,009,480.0	1,018,428.0
Taxes less subsidies on production	418.0	-5.4	984.7	25.0	448.0	15.0	151.0	564.1	34.2	623.0	227.0	3,487.7	3,487.7	3,487.7
Compensation of employees	6,223.0	29.2	14,880.0	2,174.0	11,938.0	1,248.0	3,107.0	9,160.0	2,148.0	13,863.0	4,992.0	69,597.0	69,597.0	69,597.0
Gross Operating surplus (inc mixed income)	3,912.3	748.8	5,892.6	382.0	5,063.0	373.0	2,340.0	4,075.6	352.5	9,086.0	3,789.0	35,914.0	35,914.0	35,914.0
Total Gross Value Added at basic prices	10,565.8	772.6	21,727.6	2,581.0	17,440.0	1,636.0	5,498.0	13,800.7	2,535.6	23,262.0	8,808.0	108,936.3	1,387,712.8	1,605,697.1

Prices adjust throughout the economy

Including rest of the economy

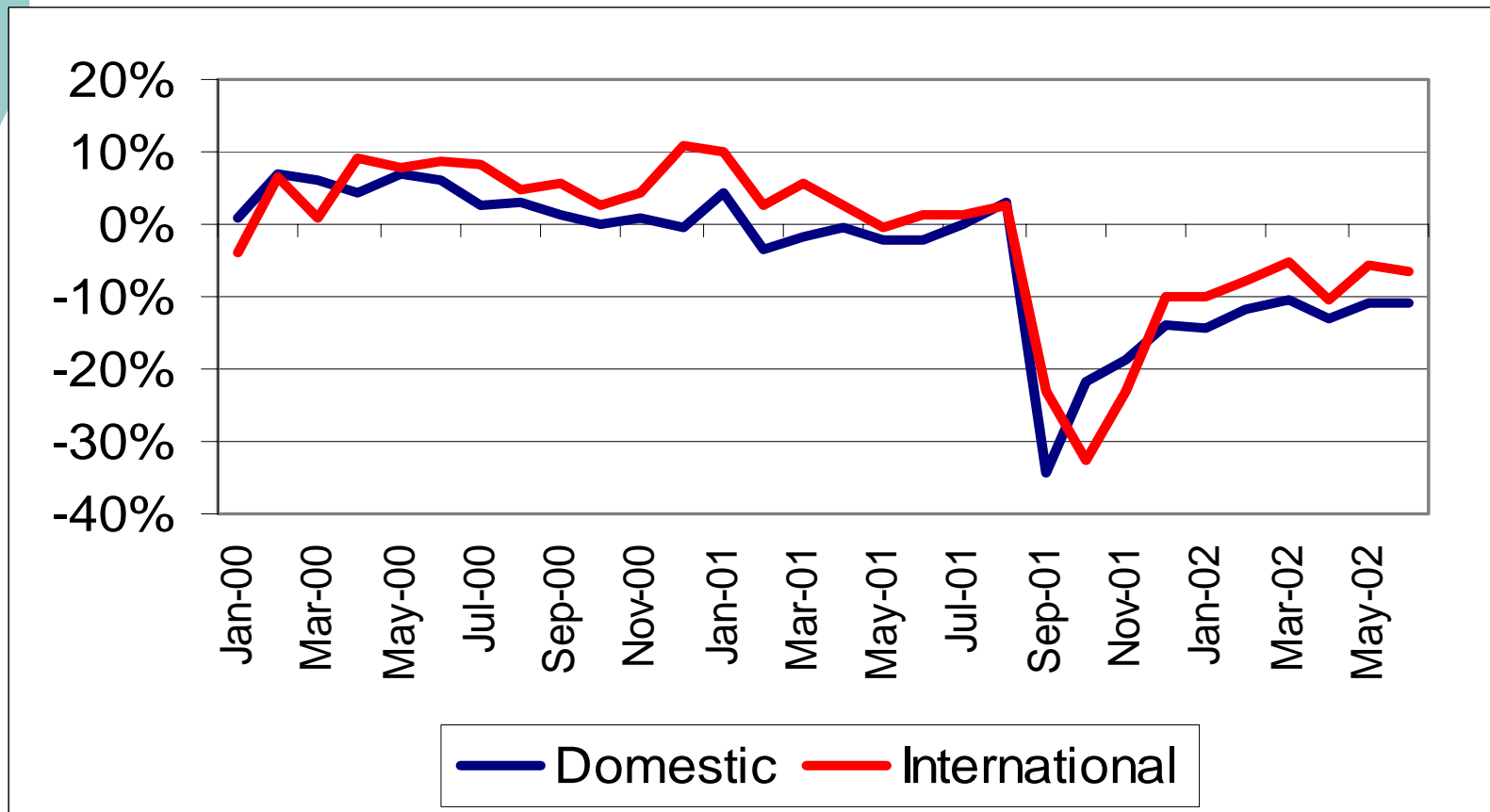
Types of Policy Impacts

- Macroeconomic
 - GDP, economic welfare, employment
- Industry-level
 - Output, GVA, employment, prices, competition, profits, input demands
- By type of tourist
 - Spending, prices paid, volume, commodity demand

Example

- Tourism Crisis Management
Responding to September 11
Annals of Tourism Research, 30(4):813-832.
- CGE Model of the U.S.
- Uses the U.S. provisional TSA
- Modelled:
 - The effects of changes in tourism demand post-September 11th
 - Federal government policies
 - Alternative policies

Annual Growth Rates of Passenger Enplanements in the US



Effects of Reductions in Tourism Demand following September 11

	Effects of September 11, without policy responses	Effects of reduced demand by non- residents	Effects of reduced demand for domestic air travel and tourism
Total change in tourist spending (\$bn)	-50.69	-15.89	-40.88
Constant dollar GDP (\$bn change from base)	-27.27	-10.54	-17.97
Net effect on government budget (\$bn change from base)	-7.27	-2.60	-4.94
Constant dollar factor adjustment (\$bn)	30.93	12.88	21.44
Relative factor adjustment (%)	0.75	0.32	0.49
Constant dollar employment (\$bn)	-13.57	-5.96	-7.85
FTE Employment ('000)	-383	-155	-248
FTE Jobs lost ('000)	559	198	414
FTE Jobs lost in airlines ('000)	203	42	160
FTE Jobs lost in hotels and other accommodation establishments ('000)	174	42	146

Effects of September 11 without and with ATSSSA and ATSA Measures

	Effects of September 11, without ATSSSA and ATSA policy responses	Effects of September 11, including ATSSSA and ATSA policy responses
Total change in tourist spending (\$bn)	-50.68	-37.47
Constant dollar GDP (\$bn change from base)	-27.27	-9.34
Net effect on government budget (\$bn change from base)	-7.27	-11.14
Constant dollar factor adjustment (\$bn)	30.93	17.42
Relative factor adjustment (%)	0.75	0.49
Constant dollar employment (\$bn)	-13.57	-3.65
FTE Employment ('000)	-383	-144
FTE Jobs lost ('000)	559	335
FTE Jobs lost in airlines ('000)	203	93
FTE Jobs lost in hotels and other accommodation establishments ('000)	174	141

Fall in Constant-Dollar Factor Employment by Industry (\$bn change from base)

	Effects of September 11, without ATSSSA and ATSA policy responses	Effects of September 11, including ATSSSA and ATSA policy responses
Hotels	-7.3	-5.9
Air transportation	-11.0	-5.0
Eating and drinking places	-1.9	-1.2
Food and kindred products	-1.2	-0.9
Arrangement of passenger transportation	-1.5	-0.7
Construction	-1.1	-0.6
Other accommodation establishments	-0.7	-0.6
Fitness, sport and recreation clubs	-0.7	-0.6
Drugs and cleaning preparations	-0.4	-0.3
Theatres and entertainers	-0.3	-0.2

Policy Alternatives...

- What policy alternatives were/could have been implemented?
 - Private businesses lobbied for
 - tax credits on all domestic travel,
 - employment tax credits in all tourism sectors
- Federal government later announced
 - General tax cuts (costing \$62bn in 2002)
 - Extra military and security spending (\$27bn)



Assessment of alternatives

- The CGE model is used to assess these alternatives
 - Tax rates on production, consumption, employment, profits and income; plus additional military spending
 - A marginal fall in revenue (\$1m) on each instrument

Production subsidies

	GDP (\$m)	Net budget effect (\$m)	Factor adjustment saved (\$m)	Total jobs saved	Airline jobs saved	Accommodation jobs saved
per \$1m production subsidy to:						
Airlines	3.1	-0.02	1.6	27.8	20.7	0.1
Hotels	2.0	-0.4	0.6	11.9	-0.1	12.4
Other accommodation	1.8	-0.1	1.6	23.7	-1.5	24.2
Eating & drinking places	0.7	-0.8	0.7	22.8	0.2	-1.0
Other entertainment industries	-0.1	-1.1	-0.2	0.6	-0.2	-4.0
Airlines, hotels and other accommodation	2.5	-0.2	1.1	20.2	10.2	6.5

- Airline subsidies perform 'better' in terms of GDP and factor adjustment

Consumption tax breaks

	GDP (\$m)	Net budget effect (\$m)	Factor adjustment saved (\$m)	Total jobs saved	Airline jobs saved	Accommodation jobs saved
Per \$1m consumption subsidy on:						
Business air travel trips	2.7	-0.3	0.5	7.8	1.3	0.4
All business trips	2.4	-0.3	0.4	6.7	0.8	0.3
Non-resident trips	2.0	-0.04	1.1	19.4	5.1	4.9
All air trips	1.6	-0.4	0.7	12.5	4.7	2.1
Domestic air trips	1.4	-0.6	0.5	9.0	4.5	0.7
All tourism trips	1.3	-0.6	0.4	7.7	2.2	1.6
All domestic tourism	1.1	-0.7	0.2	4.8	1.5	0.8
Resident air travel trips	0.3	-0.9	0.5	10.2	7.4	1.0
All resident trips	0.2	-0.9	0.1	3.7	1.9	1.0

- Tax breaks to “all domestic tourism” perform fairly poorly

Findings

- Without offsetting policies, these shocks would have led to a fall in GDP of \$30bn.
 - With the offsetting policies, hotels have been left worse off.
- Poorly targeted responses perform poorly.
- Well targeted policies can contribute to welfare and can be identified by policy modelling