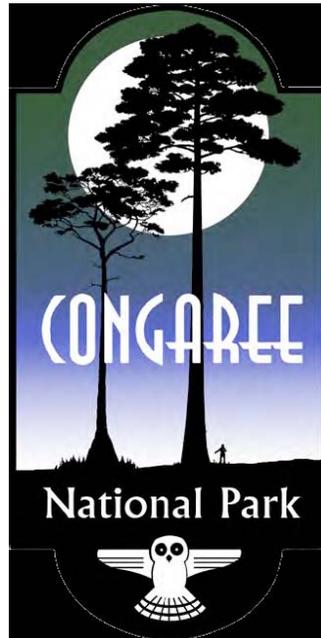


Impacts of Visitor Spending on the Local Economy: Congaree National Park, 2005



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Executive Summary

Congaree National Park hosted 84,301 recreation visits in 2005. Based on the 2005 visitor survey 45% of the visitors are local residents, 28% are visitors from outside the local area not staying overnight within an hours drive of the park, and 28% are visitors staying overnight in the local area. Half of the overnight visitors are staying in motels, cabins or B&B's, 7% are camping and 7% are staying with friends or relatives or other unpaid lodging.

The average visitor party spent \$70 in the local area. Visitors reported expenditures of their group inside the park and within an hours drive of the park. On a party trip basis, average spending in 2005 was \$16 for local residents, \$30 for non-local day trips, \$279 for visitors in motels, \$153 for campers and \$65 for other overnight visitors. On a per night basis, visitors staying in motels spent \$135 in the local region compared to \$62 for campers and \$65 for other overnight visitors. The average per night lodging cost was \$75 per night for motels and \$17 for campgrounds.

Total visitor spending in 2005 within an hours drive of the park was \$2.0 million. Thirty-five percent of the spending was for lodging, 23% restaurant meals and bar expenses, 13% gas and oil, and 11% souvenirs including the park gift shop. Overnight visitors staying in motels, cabins or B&B's accounted for 56% of the spending.

About a third of the park visitors indicated the park visit was not the primary reason for coming to the area, so only a portion of their expenses can be attributed to the park visit. Omitting spending by local visitors and reducing spending attributed to the park visit for visitors in the area for other reasons yields a total of \$1.4 million in spending attributed to the park, about 70% of the \$2.0 million spent by park visitors on the trip.

The economic impact of park visitor spending is estimated by applying this spending to a model of the local economy. The local region was defined as a four county area including Calhoun, Lexington, Richland and Sumter counties in South Carolina. The tourism spending sales multiplier for the region is 1.4.

Visitor spending in 2005 directly supported 29 jobs in the area outside the park, generating \$462,000 in wages and salaries and \$649,000 in value added. Value added includes wages and salaries as well as profits and rents to area businesses and sales taxes. An additional six jobs are supported through secondary effects. The total impact on the local economy including direct and secondary effects is 35 jobs, \$661,000 in wages and salaries and \$994,000 in value added. Visitor spending supports 12 jobs in hotels and 9 jobs in area restaurants.

The park itself employed 14 people in FY 2005 with a total payroll including benefits of \$711,000. Including secondary effects, the local impact of the park payroll in 2005 was 21 jobs, \$875,000 in personal income and \$990,000 total value added. Including both visitor spending and park operations, the total impact of the park on the local economy in 2005 was 56 jobs and \$2.0 million in value added. Park operations account for about 37% of the employment effects and half of the value added.

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Introduction

The purpose of this study is to document the local economic impacts of visitors to Congaree National Park (NP) in 2005. Economic impacts are measured as the direct and secondary sales, income and jobs in the local area resulting from spending by park visitors. The economic estimates are produced using the Money Generation Model 2 (MGM2) (Stynes and Propst, 2000). Three major inputs to the model are:

- 1) Number of visits broken down by lodging-based segments,
- 2) Spending averages for each segment, and
- 3) Economic multipliers for the local region

Inputs are estimated from the Congaree NP Visitor Survey, National Park Service Public Use Statistics, and IMPLAN input-output modeling software. The MGM2 model provides a spreadsheet template for combining park use, spending and regional multipliers to compute changes in sales, personal income, jobs and value added in the region.

Congaree NP and the Local Region

Congaree National Park is located along the Congaree River floodplain about 20 miles southeast of Columbia, South Carolina near the towns of Hopkins and Gadsden. Congaree NP houses the Harry Hampton Visitor Center, a 2.4 mile boardwalk loop trail and over 20 miles of backwoods hiking trails, canoeing and kayaking. The park hosted 84,301 recreation visitors in 2005 (Table 1).

The local region was defined as a four county area including Calhoun, Lexington, Richland and Sumter counties in South Carolina. This region roughly coincides with an hours driving distance for which spending was reported in the visitor survey. The four county region had a population of 707,842 in 2006.

Table 1. Recreation Visits to Congaree National Park, 2005

Month	2005	2006
January	5,120	7,511
February	5,534	4,133
March	12,560	16,025
April	9,524	17,130
May	8,780	12,478
June	4,567	13,449
July	4,609	9,713
August	5,135	6,590
September	6,537	10,002
October	10,642	14,352
November	5,974	11,804
<u>December</u>	<u>5,319</u>	<u>10,858</u>
Total	84,301	134,045

Source: NPS Public Use Statistics

Congaree NP Visitor Survey, 2004

A park visitor study was conducted at Congaree NP from April 15-24, 2005 (Le, Littlejohn and Hollenhorst, 2006). The study measured visitor demographics, activities, and travel expenditures. Questionnaires were distributed to a sample of 453 visitors at the park. Visitors returned 326 questionnaires for a 71% response rate. Data generated through the visitor survey were used as the basis to develop the spending profiles, segment shares and trip characteristics for Congaree NP visitors.

Most visitors spent two to four hours visiting the park. Seven percent visited the park on more than one day during their stay in the area. About two thirds of the visitors came to the area primarily to visit the Congaree NP. Thirteen percent of visitors came to visit friends and relatives in the area.

MGM2 Visitor Segments

MGM2 divides visitors into segments to help explain differences in spending across distinct user groups. Five segments were established for Congaree NP visitors:

Local day users: Day visitors who reside within the local region, defined as a 60 minute drive of the park.

Non-local day trips: Visitors from outside the region, not staying overnight in the area. This includes day trips as well as pass-through travelers, who may be staying overnight on their trip outside the region.

Motel: Visitors staying in motels, hotels, cabins, or B&B's within a 60 minute drive of the park

Camp: Visitors staying in private or public campgrounds within a 60 minute drive of the park

Other OVN: Other visitors staying overnight in the area with friends or relatives or not reporting any lodging expenses

The 2005 visitor survey was used to estimate the percentage of visitors from each segment as well as spending averages, lengths of stay and party sizes for each segment. Forty-five percent of the visitors are local residents, 28% are visitors from outside the local area not staying overnight within a sixty minute drive of the park, and 28% are visitors staying overnight within a sixty minute drive of the park. Half of the overnight visitors are staying in motels, cabins or B&B's, 7% are camping and 7% are staying with friends or relatives or in other unpaid lodging (Table 2)¹. The average spending party was 2.5 people.

Three fourths of local residents made the trip primarily to visit the park. Non-local visitors on day trips and campers were more likely to make the trip primarily to visit the park than visitors staying in motels or with friends and relatives.

Table 2. Selected Visit/Trip Characteristics by Segment, 2005

Characteristic	Local	Day trip	Motel	Camp	Other OVN	Total
Segment share (survey)	45%	28%	14%	7%	7%	100%
Average Party size	2.61	2.54	2.30	1.95	3.14	2.54
Length of stay (days/nights)	1.00	1.00	2.07	2.47	1.00	1.63
Re-entry rate	1.15	1.05	1.26	1.47	1.20	1.16
Percent primary purpose trips	76%	65%	49%	79%	33%	67%

a. The re-entry rate is the number of times a visitor is counted as a park visitor during their stay in the area.

Congaree NP hosted 84,301 recreation visitors in 2005. Recreation visits were allocated to the five segments using the segment shares in Table 1. These visits are

¹ These percentages vary slightly from the VSP report (Le, Littlejohn and Hollenhorst. 2006) as some visitors listing motels or campgrounds as lodging types did not report any lodging expenses and are classified here in the other OVN category.

converted to 29,185 party trips by dividing by the average party size and re-entry rate for each segment (Table 3).

Table 3. Recreation Visits and Party Trips by Segment, 2005

Measure	Local	Day trip	Motel	Camp	Other OVN	Total
Recreation visits	37,935	23,604	11,802	5,901	5,901	84,301
Party visits/trips	12,662	8,833	4,061	2,064	1,564	29,185
Person trips	32,998	22,456	9,351	4,020	4,916	73,740
Percent of party trips	43%	30%	14%	7%	5%	100%
Party nights	12,662	8,833	8,420	5,100	1,564	36,579

Visitor spending

Spending averages were computed on a party trip basis for each segment. The survey covered expenditures of the travel party within an hours drive of the park.

The average visitor party spent \$70 in the local area². On a party trip basis, average spending in 2005 was \$16 for local residents, \$30 for non-local day trips, \$279 for visitors in motels, \$153 for campers and \$65 for other overnight visitors (Table 4).

Table 4. Average Visitor Spending by Segment (\$ per party per trip)

	Local	Day trip	Motel	Camp	Other OVN	All Visitors
In Park						
Souvenirs	0.88	3.43	4.36	9.05	0.92	2.62
Donations	0.19	0.69	0.95	1.84	0.00	0.53
In Community						
Motel, hotel cabin or B&B	0.00	0.00	156.28	0.00	0.00	22.40
Camping fees	0.00	0.00	0.00	41.53	0.00	2.63
Restaurants & bars	5.05	7.19	60.49	27.21	24.09	16.40
Groceries, take-out food/drinks	2.63	2.31	13.44	25.84	18.86	6.75
Gas & oil	3.99	5.65	25.67	22.11	12.77	9.36
Local transportation	1.54	7.26	6.44	0.00	0.00	3.63
Admissions & fees	0.15	1.04	0.00	0.01	1.82	0.49
<u>Souvenirs and other expenses</u>	<u>1.71</u>	<u>2.22</u>	<u>11.57</u>	<u>25.53</u>	<u>6.36</u>	<u>5.12</u>
Grand Total	16.15	29.80	279.21	153.12	64.83	69.92

² The average of \$70 is lower than the \$103 spending average in the VSP report (Le, Littlejohn and Hollenhorst 2005) due to the omission of outliers and treatment of missing spending data.

On a per night basis, visitors staying in motels spent \$135 in the local region compared to \$62 for campers and \$65 for other overnight visitors. The average per night lodging cost was \$75 per night for motels and \$17 for campgrounds.

The sampling error (95% confidence level) for the overall spending average is 22%. A 95% confidence interval for the spending average is therefore \$70 plus or minus \$14 or (\$56, \$84).

Table 5. Average Spending per Night for Visitors on Overnight Trips (\$ per party per night)

	Motel	Camp	Other OVN
Motel, hotel cabin or B&B	75.38	0.00	0.00
Camping fees	0.00	16.81	0.00
Restaurants & bars	29.18	11.01	24.09
Groceries, take-out food/drinks	6.48	10.46	18.86
Gas & oil	12.38	8.95	12.77
Local transportation	3.11	0.00	0.00
Admissions & fees	0.46	0.75	1.82
<u>Souvenirs and other expenses</u>	<u>7.68</u>	<u>14.00</u>	<u>7.28</u>
Grand Total	134.68	61.98	64.83

Congaree NP visitors spent a total of \$2.0 million in the local area in 2005 (Table 6). Total spending was estimated by multiplying the number of party trips for each segment by the average spending per trip and summing across segments.

Overnight visitors staying in motels, cabins or B&B's accounted for 56% of the total spending. Thirty-five percent of the spending was for lodging, 23% restaurant meals and bar expenses, 13% gas and oil, and 11% souvenirs including the park gift shop.

Not all of this spending would be lost to the region in the absence of the park as many visitors are local residents and many non-residents came to the area for other reasons. Spending directly attributed to the park visit was estimated by counting all spending for trips where the park was the primary reason for the trip. Half of the spending outside the park was counted for day trips if the trip was not made primarily to visit Congaree NP. The equivalent of one night of spending was attributed to the park visit for overnight trips made to visit other attractions, friends or relatives or on business.³ All spending inside the park was counted, but all spending by local visitors was excluded.

³ This assumes that these visitors spent an extra night in the area to visit Congaree NP.

These attributions yield a total of \$1.4 million in visitor spending attributed to the park visit, representing about 70% of the overall visitor spending total. Visitors in motels account for 58% of the spending under these attributions (Table 7).

Table 6. Total Visitor Spending by Segment, 2005 (\$000s)

	Local	Day trip	Motel	Camp	Other OVN	All Visitors
In Park						
Souvenirs	11.18	30.33	17.71	18.69	1.44	79.34
Donations	2.40	6.10	3.87	3.80	0.00	16.17
In Community						
Motel, hotel cabin or B&B	0.00	0.00	634.73	0.00	0.00	634.73
Camping fees	0.00	0.00	0.00	85.73	0.00	85.73
Restaurants & bars	63.98	63.52	245.67	56.17	37.68	467.02
Groceries, take-out food/drinks	33.29	20.40	54.59	53.34	29.50	191.13
Gas & oil	50.51	49.95	104.28	45.63	19.98	270.34
Local transportation	19.49	64.15	26.16	0.00	0.00	109.80
Admissions & fees	1.92	9.15	0.00	0.02	2.84	13.93
<u>Souvenirs and other expenses</u>	<u>21.68</u>	<u>19.61</u>	<u>46.99</u>	<u>52.69</u>	<u>9.95</u>	<u>150.93</u>
Grand Total	204	263	1,134	316	101	2,019
Segment Percent of Total	10%	13%	56%	16%	5%	100%

Table 7. Total Spending Attributed to Park Visits, 2005 (\$000s)

	Local	Day trip	Motel	Camp	Other OVN	All Visitors
In Park						
Souvenirs		30.33	17.71	18.69	1.44	68.16
Donations		6.10	3.87	3.80	0.00	13.77
In Community						
Motel, hotel cabin or B&B		0.00	466.44	0.00	0.00	466.44
Camping fees		0.00	0.00	74.99	0.00	74.99
Restaurants & bars		52.42	180.54	49.13	37.68	319.76
Groceries, take-out food/drinks		16.84	40.12	46.66	29.50	133.12
Gas & oil		41.22	76.63	39.91	19.98	177.74
Local transportation		52.94	19.23	0.00	0.00	72.17
Admissions & fees		7.55	0.96	0.34	2.84	11.69
<u>Souvenirs and other expenses</u>		<u>16.19</u>	<u>21.20</u>	<u>28.99</u>	<u>9.47</u>	<u>75.85</u>
Total Attributed to Park	0.00	223.58	826.68	262.51	100.92	1,413.70
Percent of spending attributed to the park	0%	85%	73%	83%	100%	70%
Percent of attributed spending	0%	16%	58%	19%	7%	100%

Economic Impacts of Visitor Spending

The economic impacts of Congaree NP visitor spending on the local economy are estimated by applying the spending attributed to the park (Table 7) to a set of economic ratios and multipliers representing the local economy. Multipliers for the region were estimated with the IMPLAN system using 2001 data. The tourism sales multiplier for the region is 1.40. Every dollar of direct sales to visitors generates another \$.40 in secondary sales through indirect and induced effects⁴.

Impacts are estimated based on the visitor spending attributed to the park in Table 7⁵. Including direct and secondary effects, the \$1.4 million spent by park visitors supports 35 jobs in the area and generates \$1.6 million in sales, \$661,000 in labor income and \$994,000 in value added (Table 8).

Personal income covers wages and salaries, including payroll benefits. Value added is the preferred measure of the contribution to the local economy as it includes all sources of income to the area -- payroll benefits to workers, profits and rents to businesses, and sales and other indirect business taxes.

The largest direct effects are in lodging establishments and restaurants. Spending associated with park visits supports 12 jobs in hotels, 9 jobs in restaurants.

Table 8. Economic Impacts of Visitor Spending Attributed to the Park, 2005.

Sector/Spending category	Sales \$000's	Jobs	Labor Income \$000's	Value Added \$000's
Motel, hotel cabin or B&B	466	12	204	330
Camping fees	75	1	8	18
Restaurants & bars	320	9	127	144
Admissions & fees	12	0	4	7
Local transportation	72	2	37	42
Grocery stores	34	1	14	19
Gas stations	40	1	16	20
Other retail	72	2	34	48
Wholesale Trade	27	1	14	16
<u>Local Production of goods</u>	<u>56</u>	<u>0</u>	<u>4</u>	<u>6</u>
Total Direct Effects	1,174	29	462	649
<u>Secondary Effects</u>	<u>469</u>	<u>6</u>	<u>199</u>	<u>345</u>
Total Effects	\$ 1,643	35	\$ 661	\$ 994
Multiplier	1.40	1.20	1.43	1.53

⁴ Indirect effects result from tourism businesses buying goods and services from local firms, while induced effects stem from household spending of income earned from visitor spending.

⁵ The local economic impact of all \$2.0 million in visitor spending (Table 6) is reported in Appendix C.

Impacts of the NPS Park Payroll

The park itself employed 14 people in FY 2005 with a total payroll including benefits of \$711,000. Including secondary effects, the local impact of the park payroll in 2005 was 21 jobs, \$875,000 in personal income and \$990,000 total value added. Including both visitor spending and park operations, the total impact of the park on the local economy in 2005 was 56 jobs and \$2.0 million value added. Park operations account for about 37% of the employment effects and half of the value added.

Study Limitations and Error

The accuracy of the MGM2 estimates rests on the accuracy of the three inputs: visits, spending averages, and multipliers. Recreation visit estimates rely on counting procedures at the park, which may miss some visitors and count others more than once during their visit. Recreation visits were adjusted for double counting based on the number of days respondents reported visiting the park during their stay in the area.

Spending averages are derived from the 2005 Congaree NP Visitor Survey. Estimates from the survey are subject to sampling errors, measurement errors and seasonal/sampling biases. Due to relatively small samples and considerable variation in spending, the overall spending average is subject to sampling errors of 22%.

Spending averages are also sensitive to decisions about outliers and treatment of missing data. To carry out the analysis incomplete spending data had to be completed and decisions had to be made about the handling of missing spending data and zero spending reports. Conservative assumptions were adopted.

First, cases reporting some expenses but leaving other categories blank were completed with zeros. Respondents that did not complete the spending question were assumed to spend no money on the trip. Twenty-three percent of the cases had missing spending data. Most of these were local visitors or day trips. Dropping these cases instead of treating them as zeros would increase the overall spending average from \$70 to \$91. This change would increase spending totals and impacts by 30%.

The small samples make the spending averages somewhat sensitive to outliers. Twenty-four cases involved large parties of more than seven people and two cases reporting expenses of more than \$1,000 were omitted in computing spending averages, yielding a final sample of 300 cases for the spending analysis⁶. The overall spending average was \$70 omitting outliers compared to \$86 with outliers (See Appendix B for details).

⁶ Reports of spending for long stays and large parties are deemed unreliable. Spending reported for large parties may not include everyone in the party. Recall of spending for very long stays may also be unreliable and such stays frequently involve multiple stops and activities, so that much of the spending is unrelated to the park visit. Since spending averages are applied to all visits, the procedures are equivalent to substituting the average of visitors in the corresponding visitor segment for these outliers.

Although sample sizes are small for most segments, the spending averages are consistent with those at similar parks. Estimated nightly room and campsite rates are also reasonable for the area. As the sample only covers visitors during a single week, we must assume these visitors are representative of visitors during the rest of the year to extrapolate to annual totals.

Multipliers are derived from an input-output model of the local economy using IMPLAN. Input-output models rest on a number of assumptions, however, errors due to the multipliers will be small compared to potential errors in visit counts and spending estimates.

REFERENCES

Le, Y., Littlejohn, M. and Hollenhorst, S.J. (2006). Congaree National Park Visitor Study. Summer 2005. Visitor Services Project Report #163. Moscow, ID: National Park Service and University of Idaho, Cooperative Park Studies Unit.

National Park Service Public Use Statistic Office. (2006). Visitation DataBase. <http://www2.nature.nps.gov/stats/>.

Stynes, D. J., Propst, D.B., Chang, W. and Sun, Y. (2000). Estimating national park visitor spending and economic impacts: The MGM2 model. May, 2000. Final report to National Park Service. East Lansing, Michigan: Department of Park, Recreation and Tourism Resources, Michigan State University.

Appendix A: Definitions of Economic Terms

Term	Definition
Sales	Sales of firms within the region to park visitors.
Jobs	The number of jobs in the region supported by the visitor spending. Job estimates are not full time equivalents, but include part time positions.
Labor income	Wage and salary income, sole proprietor's income and employee payroll benefits.
Value added	Personal income plus rents and profits and indirect business taxes. As the name implies, it is the net value added to the region's economy. For example, the value added by a hotel includes wages and salaries paid to employees, their payroll benefits, profits of the hotel, and sales and other indirect business taxes. The hotel's non-labor operating costs such as purchases of supplies and services from other firms are not included as value added by the hotel.
Direct effects	Direct effects are the changes in sales, income and jobs in those business or agencies that directly receive the visitor spending.
Secondary effects	These are the changes in the economic activity in the region that result from the re-circulation of the money spent by visitors. Secondary effects include indirect and induced effects.
Indirect effects	Changes in sales, income and jobs in industries that supply goods and services to the businesses that sell directly to the visitors. For example, linen suppliers benefit from visitor spending at lodging establishments.
Induced effects	Changes in economic activity in the region resulting from household spending of income earned through a direct or indirect effect of the visitor spending. For example, motel and linen supply employees live in the region and spend their incomes on housing, groceries, education, clothing and other goods and services.
Total effects	Sum of direct, indirect and induced effects. <ul style="list-style-type: none"> ▪ Direct effects accrue largely to tourism-related businesses in the area ▪ Indirect effects accrue to a broader set of businesses that serve these tourism firms. ▪ Induced effects are distributed widely across a variety of local businesses.

Appendix B: Handling of Missing Spending Data and Outliers

To compute spending averages and to sum spending across categories, spending categories with missing spending data were filled with zeros. If spending was reported in any category, the remaining categories were assumed to be zero. This yielded 235 cases with valid spending data, 16 cases reporting zero spending and 75 cases not completing the spending question. Cases with no spending data were on day trips or overnight trips reporting no lodging expenses. It was assumed that these cases spent no money in the local area.

Table B-1. Valid, Zero and Missing Spending Data by Segment

	Local	Day trip	Motel	Camp	Other OVN	Total
Report some spending	98	61	45	21	10	235
Missing spending data	38	25	0	0	12	75
Zero spending	<u>11</u>	<u>4</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>16</u>
Total cases	147	90	45	21	23	326
Percent zero	7%	4%	0%	0%	4%	5%
Percent missing	26%	28%	0%	0%	52%	23%

Twenty-six cases were omitted from the spending analysis. Twenty four of these were large parties of more than seven people, including several with 40 or more people. Two cases reported expenses of more than \$1,000. The overall spending average is \$70 omitting outliers compared to \$86 with outliers. The outliers primarily affect the motel spending average.

Table B-2. Spending Averages by Segment, with and without outliers

Segment	With outliers			Without outliers			Pct Error ^a
	Mean	N	Std. Deviation	Mean	N	Std. Deviation	
Local	18	147	47	16	132	45	48%
Day trip	31	90	54	30	84	54	39%
Motel	381	45	555	279	43	197	21%
Camp	180	21	220	153	19	178	52%
Other OVN	<u>62</u>	<u>23</u>	<u>144</u>	<u>65</u>	<u>22</u>	<u>147</u>	<u>94%</u>
Total (weighted)	86	326	252	70	300	138	22%

a. Pct errors computed at a 95% confidence level

Appendix C. Impacts of all Visitor Spending, 2005

Table C1 gives the impacts of \$2.0 million in visitor spending on the local economy. All visitor spending in the region is included in this analysis. Impacts including all visitor spending are roughly 42% higher than those reported in Table 8, which count only spending directly attributable to the park visits.

Table C-1. Impacts of all Visitor Spending on the Local Economy, 2005

Sector/Spending category	Sales \$000's	Jobs	Personal Income \$000's	Value Added \$000's
Direct Effects				
Motel, hotel cabin or B&B	635	16	277	450
Camping fees	86	1	9	21
Restaurants & bars	467	13	186	210
Admissions & fees	14	0	5	9
Local transportation	110	3	56	63
Grocery stores	48	1	20	27
Gas stations	60	1	24	31
Other retail	115	3	54	76
Wholesale Trade	41	1	21	24
<u>Local Production of goods</u>	<u>81</u>	<u>0</u>	<u>6</u>	<u>9</u>
Total Direct Effects	1,657	41	659	919
<u>Secondary Effects</u>	<u>668</u>	<u>8</u>	<u>281</u>	<u>487</u>
Total Effects	2,325	49	939	1,405