Dean Runyan Associates

The Economic Significance of the Arizona Travel Industry

June 2006

Prepared for

Arizona Office of Tourism

THE ECONOMIC SIGNIFICANCE OF THE ARIZONA TRAVEL INDUSTRY

COMPARISON WITH OTHER EXPORT-ORIENTED INDUSTRIES

GROSS STATE PRODUCT

INDIRECT, INDUCED AND SECONDARY IMPACTS

Prepared By:
Dean Runyan Associates
Portland, Oregon

June 2006

EXECUTIVE SUMMARY

Travel and tourism is an important economic activity in Arizona. Spending by visitors generates sales in lodging, food service, recreation, transportation and retail businesses – the "travel industry." This spending injects money into local economies, just as with other export-oriented industries such as manufacturing, agriculture, and mining. The State of Arizona has a direct stake in the health of its export-oriented industries because of their capacity to generate income for local economies and the state. This report compares the travel industry with some of the other major export-oriented industries in Arizona that are also of interest as a matter of economic development policy.

- The growth of the Arizona travel industry has historically been strong and stable compared to other export-oriented industries in the state. From 1991 through 2004, earnings grew at an average annual rate of 3.8 percent, greater than the four other export-oriented industries with which travel was compared (aerospace, micro-electronics manufacturing, agriculture and food production, and mining).
- The travel industry ranks among the leading export-oriented industries in Arizona in terms of its contribution to Arizona Gross State Product (GSP). Travel industry GSP was $6.1 billion in 2004. Compared to the other leading export-oriented industries, only micro-electronics manufacturing had a higher GSP ($7.1 billion).
- A high proportion of travel industry GSP (71 percent) is comprised earnings – wages and salaries, earned benefits, and proprietor income. This is higher than any of the other industries compared in this report. The travel industry generates a large number of entry-level positions and opportunities for small business ownership in relation to its overall Gross State Product.
- The travel industry also generates a high proportion of tax revenue in relation to its Gross State Product. Tax receipts (primarily sales and excise taxes) comprise 13 percent of travel industry GSP. The comparable figure for the other four export-oriented industries is less than 2 percent. Furthermore, visitors pay most of these taxes and many of the benefits accrue to local governments.
- The travel industry also generates secondary impacts. These impacts result from purchases of inputs by travel industry firms from other businesses in the state, and the expenditures of travel industry employees on goods and services for personal consumption. These secondary impacts were 1.3 times as great as the direct impact of visitor spending – equivalent do an additional $8 billion of GSP in 2004.[1]

[1] These secondary impacts do not include many other significant impacts, such as the manufacture of consumer durables and non-durables that are travel-related, or the value of construction and real estate transactions for visitor-related facilities.

THE ARIZONA TRAVEL INDUSTRY

Travel and tourism is an important economic activity in Arizona. The economic benefits that accrue from travel-related expenditures are primarily in lodging, food service, recreation, transportation and retail businesses. The State of Arizona has a direct stake in the health of this industry as evidenced by the policy and marketing support it provides and the significance of the benefits that accrue to businesses and residents throughout the state.

This report compares the travel industry with some of the other major industries in the state that are also of interest as a matter of economic development policy. The motivation of this comparison is not to rank industries in terms of their importance, nor to evaluate the implementation of public policy with respect to these industries. Rather, the objective of this report is principally to document the importance of the travel industry as a tool of the economic development in Arizona.

This report will discuss the travel industry as an "export-oriented industry." It will compare the travel industry to several other major export-oriented industries in the state. The analysis of these industries will focus initially on the earnings paid to employees. The report will then provide estimates of gross state product – a more comprehensive measure of economic output. The report will conclude with a discussion of secondary impacts. Numerous appendices on various topics are also included.

ECONOMIC DEVELOPMENT AND THE TRAVEL INDUSTRY.

The travel industry is often promoted as an economic development tool for several reasons.

- First, travel is an "export" industry that injects money into local economies. In this respect, it is similar to firms and industries that sell manufactured products in other geographic markets. However, a local travel industry accomplishes this through spending by visitors on locally produced services.
- Second, because the travel industry is service-oriented and labor intensive, it generates many employment opportunities relative to investments in physical capital. The travel industry provides a large number of entry-level positions, as well as opportunities for small business proprietors.
- Third, the promotion of visitor amenities can have other beneficial effects in a community. Many of the same attributes that draw visitors to a community (e.g., recreation facilities, cultural events, attractive downtowns) can also enhance the "quality of life" for residents.

Because of these attributes, the travel industry can be an important component of a local and regional economic development strategy. Obviously, the exact role of the travel

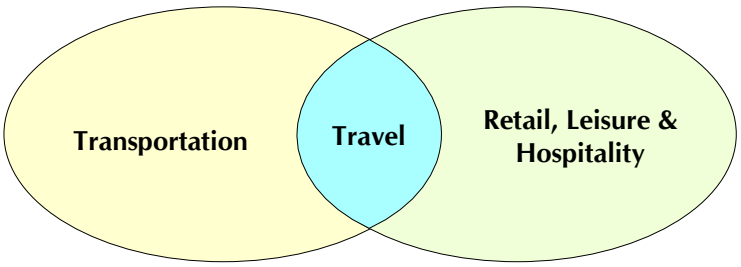
industry in any economic development strategy should be influenced by local labor market conditions and the nature of the visitor market.

TRAVEL AS AN EXPORT-ORIENTED INDUSTRY

As noted, the travel industry is often promoted as an economic development strategy because it is an export-oriented industry – it injects money into a local economy. Exports are not necessarily more important than locally traded goods and services. However, diverse export-oriented industries in any economy are a source of strength – in part because they generate income that contributes to the development of other local services and amenities. Such industries characterize the "comparative advantage" of the local economy within larger regional, national and global markets.

When considering the travel industry as an export-oriented industry, it is useful to distinguish between two types of businesses – (1) those in the retail sector and the leisure and hospitality sector (arts, entertainment, recreation, accommodations and food services), and (2) those that provide transportation services (primarily air and ground transportation).

The Travel Industry



In the case of the retail, leisure and hospitality sectors, the export component is simply those goods and services purchased by visitors at the destination.[2] This visitor spending generates earnings and employment for the local economy and tax receipts for government. Although some of this visitor spending will "leak" out of the local economy in the form of imported goods and services that are resold to visitors (e.g., gasoline, food products), the export component of visitor spending is still apparent.[3]

In the case of the transportation sector, the definition and measurement of the export component is more complicated because most transportation spending by visitors concerns travel to and from the destination, rather than travel at or within the destination market. The simplest way to define and measure an export component is to determine that share of earnings, employment and tax receipts that accrue to the

[2] Visitors are persons that stay overnight away from home at the destination, or travel at least 50 miles one-way from home on a non-commuting trip.
[3] This will be discussed later in terms of Gross State Product (GSP). Value-added (or GSP at the state level) is simply gross sales minus intermediate inputs.

destination as a result of these transportation expenditures. For example, the purchase of a round trip ticket by a Chicago resident to Phoenix will have a measurable economic impact in Phoenix and Chicago. The export component for Phoenix will be those impacts (e.g., earnings and employment) that occur in Phoenix. But because all spending and related impacts of air passenger transportation are clearly travel-related, the more common convention is to treat all visitor-related spending on transportation as travel spending, while recognizing that some of this spending is also for outbound travel by residents. In this report, the travel industry is defined and measured as follows:[4]

- Travel is conceptualized as an export-oriented industry at two levels. First, at the level of specific destinations, the impacts of travel include all economic output related to the sale of retail, leisure and hospitality goods and services to visitors, as discussed above.[5] Second, at the level of the state, travel impacts include the sum of these destination-specific impacts relating to retail, leisure and hospitality expenditures, and all transportation-related expenditures on travel.
- Travel will be defined as a trip that involves an overnight stay away from home, or a non-routine day trip of at least 50 miles from the traveler's permanent residence. The purpose of travel can be leisure or business. The traveler may be a resident of Arizona, another state, or another country.
- Travel expenditures include all trip-related sales of enterprises in accommodations, food services, recreation, transportation and retail. In the case of air travel, this expenditure includes the price of a one-way fare to Arizona. It does not include the return trip to the visitor's place of residence. The purchases of durable goods used for multiple trips are not included. These more general travel-related purchases include a wide variety of durable goods where purchases are at least partially motivated by travel intentions. This includes photographic equipment, recreation equipment and transportation equipment (including motor vehicles).
- The travel-related expenditures of Arizona residents on air transportation and travel arrangement services are also included, even though most of these expenditures are for outbound travel. This follows the convention of measuring travel industry impacts where spending and employment impacts are allocated to the location in which they occur. (For example, some of the travel spending of Chicago residents visiting Arizona would similarly be allocated to Illinois.) Furthermore, this recognizes that the availability of transportation and travel services for residents is in part a function of the existence and magnitude of incoming travel.

[4] The measurement of the travel industry in this report is identical to that reported in the *Arizona Travel Impacts 1998-2005p* report prepared by Dean Runyan Associates for the Arizona Office of Tourism (June 2006).

[5] More than three-fourths of all visitor spending in Arizona is by out-of-state residents. See *Arizona Travel Impacts 1998-2005p, above*.

To summarize: The travel industry in Arizona is export-oriented both from the perspective of leisure and hospitality businesses at specific local destinations and, at the state level, from the additional impacts of the larger statewide transportation network that supports travel. In this paper, the travel industry is defined as the aggregate of the travel-related sales of retail, leisure and hospitality businesses and transportation businesses in the state.

COMPARING EXPORT-ORIENTED INDUSTRIES

The table on page 5 shows total annual earnings of the major industry sectors in Arizona during 2004.[6] The industry sectors are grouped into three categories: Export-oriented, Non export-oriented, and Mixed.

- **Export-oriented** industries are those industries that *primarily* sell their products and services to other regional (or state or national) markets. Agriculture, mining, and manufacturing are the best examples of export-oriented industries. Clearly, there are cases in each of these three sectors where the products are sold within the local or regional market. Nonetheless, in general most firms within these industries depend on export markets.
- **Non export-oriented** industries typically comprise a higher proportion of the regional economy in terms of earnings. This is true for Arizona. Many of these industries provide local services such as utilities, public administration, and various business and personal services. Wholesale and retail trade are also *primarily* oriented toward local markets. (Retail stores primarily sell goods that are imported from other markets.) Construction and real estate are also not fundamentally export-oriented in that the demand for construction projects is usually local or funded by the public sector.
- **Mixed** industries often depend on both local markets and export sales, although the exact mix may vary according to particular circumstances. Many of these are industries that provide highly specialized services (e.g., health care, engineering, the arts) and tend to be concentrated in urban areas where local demand is greater than in rural regions.

For the purposes of this analysis, we have defined five major export-oriented industries in Arizona. Industry detail is shown on page 6 and is summarized below.

- **Aerospace**. This industry comprises establishments engaged in aerospace product and parts manufacturing.
- **Micro-electronics**. This industry includes establishments that manufacture computers, communications equipment and similar products and components that utilize integrated circuits. This is the largest manufacturing subsector (NAICS 334).

[6] NAICS refers to the North American Industry Classification System. Earnings data for 2004 is the most recent available from the Bureau of Economic Analysis.

- **Food**. The food group encompasses parts of two major industry categories: agriculture, and food manufacturing or processing.
- **Mining**. This industry is comprised primarily of copper mining companies
- **Travel**. A portion of the transportation, retail, leisure, and hospitality industries as defined in the preceding section.

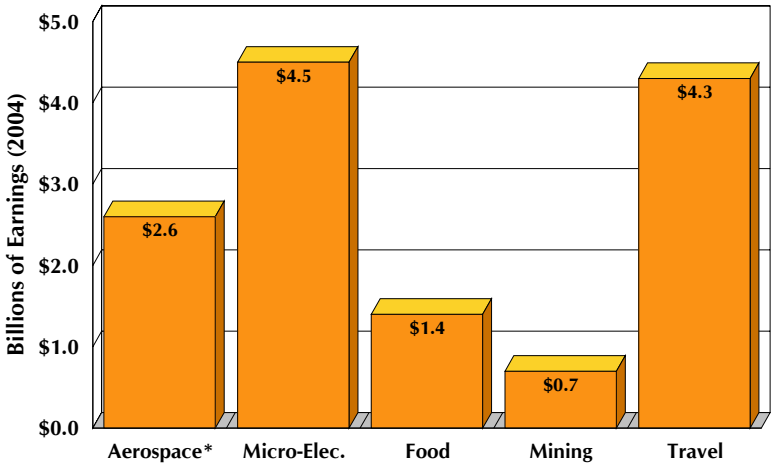
Arizona Earnings and Employment by Industry Sector, 2004

Industry Sector	Earnings ($Million)	Percent of Total	Average Employment	Percent of Total
Export-Oriented	**15,046**	**12%**	**245**	**8%**
Agriculture, Foresting, Fishing & related	1,440	1.1%	45	1.5%
Mining	732	0.6%	12	0.4%
Manufacturing	12,874	10.3%	187	6.1%
Non Export-Oriented	**67,362**	**54%**	**1,719**	**56%**
Construction	11,038	8.8%	237	7.8%
Utilities	1,067	0.9%	12	0.4%
Wholesale trade	6,599	5.3%	106	3.5%
Retail trade	10,265	8.2%	357	11.7%
Real estate and rental and leasing	5,427	4.3%	158	5.2%
Management of companies and enterprises	1,853	1.5%	24	0.8%
Administrative and waste services	6,807	5.4%	251	8.2%
Other services, except public administration	3,330	2.7%	152	5.0%
Government and government enterprises	20,976	16.7%	423	13.9%
Mixed	**42,854**	**34%**	**1,083**	**36%**
Transportation and warehousing	3,861	3.1%	84	2.7%
Information	3,050	2.4%	56	1.8%
Finance and insurance	8,277	6.6%	162	5.3%
Professional and technical services	9,156	7.3%	182	6.0%
Educational services	1,311	1.0%	44	1.4%
Health care and social assistance	11,678	9.3%	270	8.9%
Arts, entertainment, and recreation	1,341	1.1%	59	1.9%
Accommodation and food services	4,180	3.3%	227	7.4%
Arizona Total	**125,262**	**100%**	**3,048**	**100%**

Source: Bureau of Economic Analysis, U.S. Department of Commerce.
Earnings include wage and salary disbursements, other earned benefits, and proprietor income. Industry sectors include private earnings only, except for government and government enterprises sector. Classification of industry sectors into three primary groups by Dean Runyan Associates.

Selected Arizona Export-Oriented Industries, 2004
($Millions)

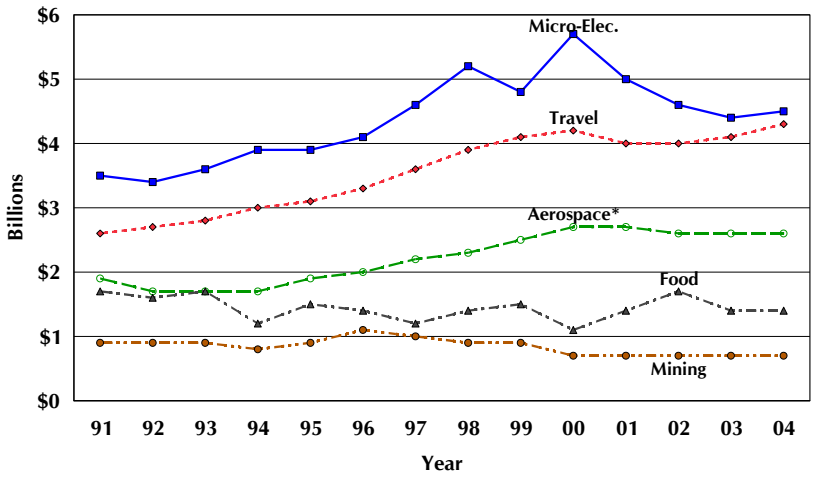
	Annual Earnings	Percent of Total
Aerospace*		
NAICS 3364 Aerospace product and parts mfg.	**2,600**	**2.1%**
Micro-Electronics		
NAICS 334 Computer and electronic product mfg.	**4,460**	**3.6%**
Food		
Food Group Total	**1,403**	**1.1%**
NAICS 111-112 Crop & animal production	1,004	
NAICS 311 Food Product Manufacturing	399	
Mining		
NAICS 212 Mining (except oil & gas)	**667**	**0.5%**
Travel		
Travel Total	**4,267**	**3.4%**
NAICS 71-72 Leisure & Hospitality (part)	2,714	
NAICS 44-45 Retail Trade (part)	539	
NAICS 48 & 53211 Transportation (part)	930	
NAICS 5615 Travel Agencies	84	
Arizona Total Earnings, all industry sectors	**125,262**	



Source: Bureau of Economic Analysis, U.S. Department of Commerce and Dean Runyan Associates. Earnings include wage and salary disbursements, other earned benefits, and proprietor income.
*Aerospace Earnings estimated by Dean Runyan Associates from payroll data.

Altogether, these five export-oriented industries comprised eleven percent of all earnings in Arizona in 2004. Estimates of annual earnings from 1991 through 2004 are shown below. All data are presented in constant (2004) dollars to remove the effect of inflation. The travel industry has had the greatest annual rate of increase (3.8 percent per year) of the five industries (2.3 percent for Aerospace, 2.1 percent for Micro-electronics manufacturing, and negative growth for Mining and Agriculture & Food Production). And despite the decrease in travel in 2001 and 2002 due to the events of September 11 and other adverse factors, travel industry earnings growth has been relatively stable.

Export-Oriented Industries, Arizona
Annual Earnings in $ Billions, 1991-2004
Constant (2004) Dollars



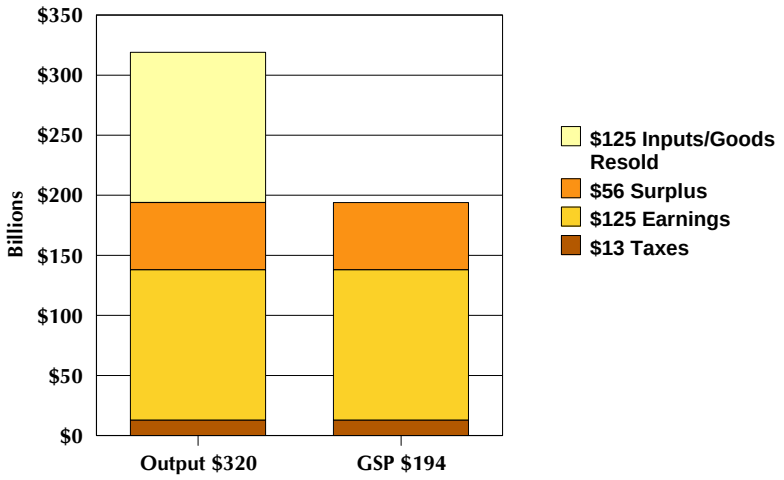
Source: Bureau of Economic Analysis, Bureau of Labor Statistics and Dean Runyan Associates. *Aerospace earnings after 2001 estimated by Dean Runyan Associates from payroll data. Constant dollars estimated with CPI-U for West Region.

GROSS STATE PRODUCT: THE CONCEPT

A more comprehensive comparison of export-oriented industries can be made on the basis of Gross State Product. Gross State Product (also referred to as value-added) includes the contribution of labor and capital to economic output. It is thus a broader, more comprehensive measure of an industry's economic output than earnings alone. Furthermore, industry and state gross product are comparable to the U.S. Gross Domestic Product, generally considered the best single measure of the performance of the total economy.

In concept, the GSP of a particular industry is equal to gross output (sales or receipts) minus intermediate inputs (the goods and services purchased from other industries). GSP is always smaller than output or sales because GSP measures only the "value added" of an industry and does not include the cost of the inputs that are also necessary to produce a good or service. The relationship between output and gross state product for the entire economy of Arizona is shown below. In this chart, output ($320 billion) represents the final sales of approximately sixty different industries in the state.[7] Because some of these sales will actually be used as intermediate inputs ($125 billion) by other industries in the state, output is an overestimate of the true value (GSP = $194 billion) of the products and services produced in the economy.

Components of Arizona Output, 2004
($ Billions)



Source: Dean Runyan Associates, Bureau of Economic Analysis, and Minnesota Implan Group. "Taxes" include excise taxes, property taxes, and other fees minus subsidies. Income taxes are not included. Earnings include wages and salaries, earned benefits and proprietor income. "Surplus" is the remaining GSP or value-added. Surplus includes business receipts retained by the firm or paid out as dividends, interest, or other payments

Gross State Product can also be viewed in terms of the distribution or payout of industry receipts, exclusive of those paid to other firms for intermediate inputs (the bottom three segments of the bars in the preceding chart). Some of the receipts are distributed to labor as wages, benefits and proprietor income. Some receipts are paid to government as taxes. These taxes are sometimes termed "indirect" because most of them are actually paid by consumers in the form of sales or excise taxes.[8] Another portion of receipts, termed "surplus" are paid out as dividends, interest, and other payments, or retained by the firm. The sum of these three broad categories of payments equals Gross State Product.

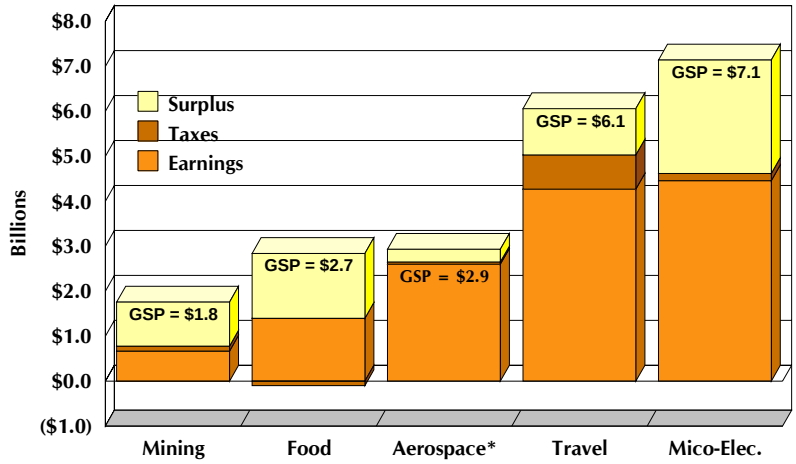
[7] See Appendix C for relationship between travel spending and travel industry GSP.
[8] Other taxes included here are property taxes, business franchise taxes and other fees. Income taxes are not included, because they are paid out of profits.

GROSS STATE PRODUCT OF SELECTED EXPORT INDUSTRIES

Estimates of Gross State Product for the five selected export-oriented industries are shown on the following page.[9] The relationship among the five industries with respect to GSP is similar to the relationship of their earnings. This is as expected in that labor costs typically account for about one-half of an industry's GSP. There are exceptions, however. Notably, travel industry earnings comprise a relatively high share of industry GSP (about 70 percent). This is a reflection of the fact that leisure and hospitality businesses are relatively labor intensive.

This graph is also notable with respect to the industry share of GSP that is paid to government in the form of taxes and fees. (These are primarily sales and excise taxes, and some fees.) The travel industry stands out in that it has the highest proportion of indirect taxes (14 percent).[10] This is about twice the statewide average of 7 percent and proportionately greater compared to the average of the other four export-oriented industries (2 percent). The high proportion of indirect taxes generated by travel spending reflects the fact that many travel purchases are for taxable goods and services (retail goods, lodging, food service, motor fuel).

Gross State Product
Arizona Export-oriented Industries, 2004



Source: Bureau of Economic Analysis, Dean Runyan Associates, and Minnesota Implan Group. *Aerospace Earnings estimated by Dean Runyan Associates from payroll data. See notes in preceding graph for definitions of taxes, earnings and surplus.

[9] The Gross State Product and its components are shown for primary industry sectors in Appendix B.
[10] The estimates of taxes are similar to, but not identical to the estimates of travel-generated tax receipts in the *Arizona Travel Impacts, 1998-2005p* report for two reasons. First, there are some differences in the types of taxes estimated. Most notably, property taxes are included in the GSP estimates of indirect taxes. Property taxes are not included in the *Travel Impacts* estimates. Income taxes are not included in the GSP estimates. They are included in the *Travel Impacts* estimates. Second, the models generating the estimates utilize different methodologies and source data.

Given that the travel industry is conceived of as an economic development tool for local communities, this is an important result. It indicates that the economic output produced by the travel industry is likely to accrue to the local communities in which the industry is located. This is because, first, payments to individuals in the form of employee compensation and proprietor income are more likely to be spent in the community where those employees work, than are other payments, such as interest, dividends, rent, and depreciation allowances. This is consistent with the fact that the travel industry is relatively labor intensive and is comprised of many small businesses and proprietorships. Second, the indirect business taxes that are a component of Gross State Product are largely excise taxes (local, state and federal) that are paid by consumers at the point of sale. This is especially true of the travel industry, where visitor spending includes room taxes, sales taxes, and motor fuel taxes. Some of these excise taxes are levied by local jurisdictions; some are levied by the state and indirectly support local services. In any case, visitors, rather than local residents, pay these excise taxes.

To summarize, the Gross State Product of the travel industry is comparable to other leading export-oriented industries in the state. Furthermore, a high proportion of the travel industry's business receipts are paid in the form of earnings and indirect taxes (paid by visitors) to local and state government. All of these payments directly benefit local communities.

RELATED IMPACTS

To this point, our analysis of export-oriented industries has focused only on "direct" impacts. Direct impacts, whether expressed as wages, employment, value-added (or gross product), or output (or sales) refer to the final sale of a group of products and services. Many industry analyses, including those of the travel industry, report various additional impacts that are related to the direct impact. The different types of related impacts are described below.[11]

Ancillary impacts

In some cases, firms that supply inputs or other related market activities are included in impact studies. For example, economic impacts of the airline industry typically include the visitor expenditures of travelers and the production of airplanes. Economic impacts of the outdoor recreation industry usually include expenditures on recreation fees, travel, and equipment.

Similarly, a broader definition of the travel industry might include the following:[12]

- The manufacture of consumer non-durables that are purchased by visitors on trips (e.g., gifts, motor fuel, food products).

[11] All related impacts should be interpreted cautiously. This is because most economic resources have alternative uses. For example, a firm that stops selling to a given Arizona industry may find alternative markets. Similarly, workers that lose employment in one industry may find employment elsewhere. Related impacts illustrate economic interrelationships, not the "size" of the core industry.

[12] The question of what should be included in the travel industry is also central to definitions of Travel and Tourism Satellite Accounts. See Appendix B.

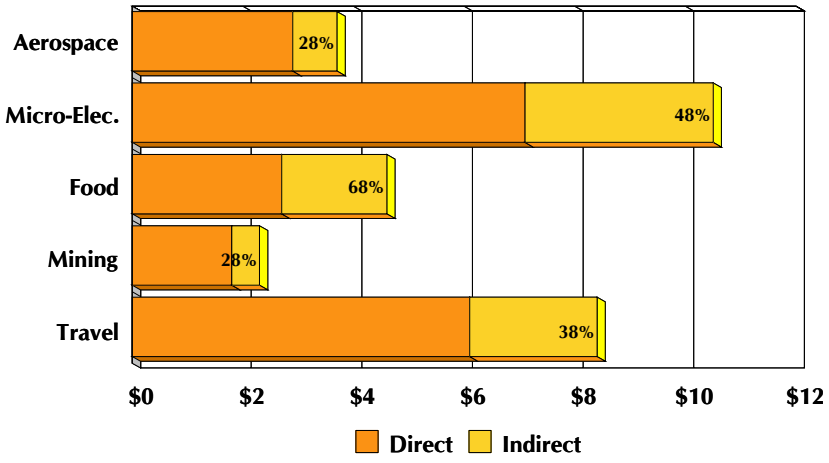
- The manufacture of consumer durables that are used for travel over the course of multiple trips (e.g., luggage, recreational vehicles, photographic equipment).
- Construction and real estate transactions for visitor-related facilities.
- Public investments in visitor-related infrastructure.

The analysis contained in this report does not consider these ancillary relationships apart from the initial definition of the six primary export-oriented industries. In the case of travel, this is motivated by the desire to focus on the local economic impacts of travel. Were such ancillary economic transactions included, the economic impact of the larger travel industry would be considerably greater.

Indirect impacts

Indirect impacts refer to the intermediate inputs used to produce the final product or service, providing that those inputs are themselves produced within the designated geographic area (Arizona). These indirect impacts are typically determined by an input-output model that describes the purchasing patterns of industries. For example, local restaurants may purchase fruits and vegetables produce in Arizona. In this analysis, the indirect impacts of the five export-oriented industries are reported, as estimated from an Implan Input-Output model.[13]

Direct and Indirect Gross State Product, 2004
Arizona Export-Oriented Industries



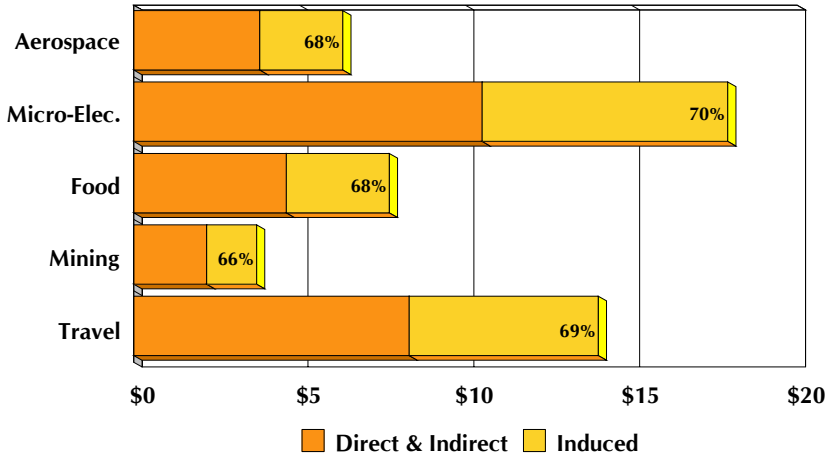
Source: Dean Runyan Associates and Minnesota Implan Group.

[13] See Appendix D.

Induced impacts

Induced impacts refer to the purchase of goods and services by *employees* that are attributable to direct and indirect impacts. These induced impacts are derived from economic data that describe the purchasing patterns of households. For example, employees of all the designated export-oriented industries will spend their income on food, household durables, health care, and so on. In this analysis, these induced impacts of the five export-oriented industries are also estimated from an Implan model.

Direct, Indirect and Induced Gross State Product, 2004
Arizona Export-Oriented Industries

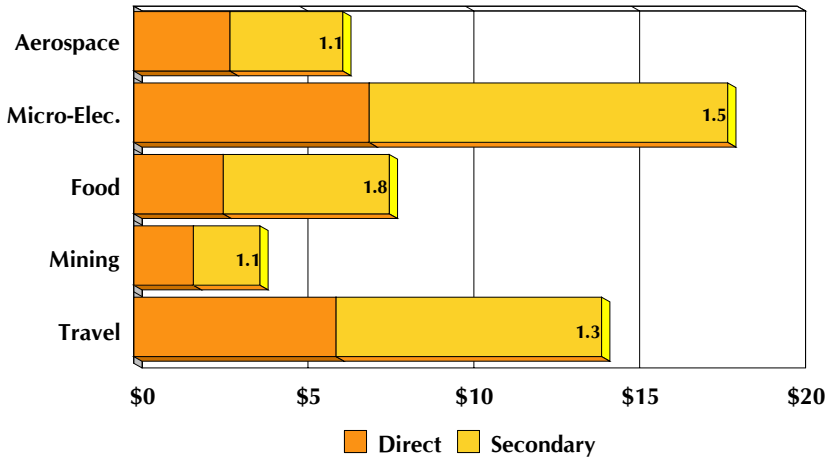


Source: Dean Runyan Associates and Minnesota Implan Group
Note: Induced impacts reflect spending of employees in direct and indirect industries.

Secondary Impacts

The sum of indirect and induced impacts is sometimes referred to as the secondary impact. These secondary impacts are typically as great as the direct impact alone. For example, the direct GSP of the travel industry is $6.1 billion; the indirect GSP is $2.3 billion, and the induced GSP is $5.7 billion. The total (direct, indirect and induced) GSP for travel is 2.3 times greater than direct GSP. This is equivalent to a multiplier of 1.3. The analogous multipliers for the other industries are shown in the bar graph.

Direct and Secondary Impacts, 2004
Arizona Export-Oriented Industries



Source: Dean Runyan Associates and Minnesota Implan Group
Note: Secondary impact equals sum of indirect and induced impacts. Combined secondary multiplier indicated in bar. A multiplier of 1.3 for Travel indicates that the sum of the indirect and induced effects is equal to the direct effects multiplied by 1.3.

IMPLICATIONS

The travel industry ranks among the leading export-oriented industries in Arizona in terms of its contribution to earnings, state and local tax receipts, and Gross State Product. Only micro-electronics manufacturing has a higher Gross State Product. Additional advantages of the travel industry include:

- The travel industry is labor-intensive. It generates a large number of entry-level positions and opportunities for small business ownership.
- The travel industry generates a high proportion of tax revenue in relation to its output and Gross State Product. Visitors pay most of these taxes and local governments receive many of the benefits.
- The growth of the travel industry has historically been positive and relatively stable. This is likely to continue given Arizona's strength as a visitor destination.

All of this suggests that the travel industry can be a cost-effective economic development strategy for local communities when resources are effectively targeted. This targeting should proceed on the basis of local labor market conditions, existing and potential visitor markets, and other economic development objectives.

APPENDICES

Appendix A: Regional Travel Impact Model (RTIM) Methodology

Appendix B: Arizona Gross State Product and Components by Industry Sector, 2004

Appendix C: U.S. Travel and Tourism Satellite Accounts

Appendix D: Travel Spending and Travel Industry Gross State Product (2005p)

Appendix E: IMPLAN Modeling System

Appendix F: Travel Impact Industries matched to 1997 NAICS

REGIONAL TRAVEL IMPACT MODEL (RTIM) METHODOLOGY

The Regional Travel Impact Model (RTIM) provides estimates of the direct impact of visitor spending at the state, regional and county level.[14] The initial impact of visitor spending is used to calculate the earnings, employment and tax receipts associated with this spending. The basic procedure is described in the following three sections. The direct estimates of the RTIM can also be used as inputs for the analysis of secondary impacts and Gross State Product, also described below.

VISITOR SPENDING

Spending estimates are derived from two types of data: (1) the visitor spending patterns of specific types of visitors, and (2) the amount or volume of visitation associated with each visitor category. The types or categories of visitors typically include: hotel/motel guests, campers, overnight guests in unpaid private homes of friends and relatives, overnight stays in vacation or second homes, and day trips (non-routine travel of at least 50 miles one-way from home). The spending patterns refer to the average amounts spent on specific commodities, including accommodations, food service, groceries, ground transportation, entertainment, and other retail purchases. The average daily spending patterns of these different types of visitors are estimated from available survey data on a state, regional and/or urban-rural basis. The visitation estimates are derived from a variety of sources, including room tax data, camping attendance data, visitor survey data, and census housing data. The resulting calculations provide detailed county level estimates of visitor spending for specific commodities. The estimates are typically reported on an annual basis.

EARNINGS, EMPLOYMENT, TAX RECEIPTS

The detailed spending estimates are used to estimate the related earnings, employment and tax receipts for each commodity or business category. The earnings attributable to visitor spending on specific commodities are derived from payroll-receipts ratios and output-compensation ratios.[15] Earnings include payroll, other earned benefits and proprietor income. Employment is estimated from the average annual earnings for each job associated with a particular commodity. State and local tax receipts are estimated by applying the appropriate sales and income tax rates to sales and earnings. Property tax collections are usually not estimated due to data limitations.

[14] The county is typically the smallest geographic unit of analysis. Sub-county estimates can also be provided if adequate data is available. In some cases, data may be insufficient for detailed county impacts.

[15] The initial visitor spending or sales estimates are adjusted by removing all excise tax collections by the business. Payroll-receipts ratios are calculated from the Economic Census, reported every five years by the U.S. Census bureau. Output-compensation ratios are estimated from the U.S. Bureau of Economic Analysis and other proprietary input-output models.

VALIDITY CHECKS

Travel-generated earnings, employment and tax receipts are estimated from visitor spending, rather than from industry and government data per se. Published government data on industry employment, earnings and taxable sales by business type are used to evaluate and, where necessary, refine the travel-generated estimates at the county and regional level.

SECONDARY IMPACTS

The previously discussed estimates of visitor spending and travel-generated earnings, employment and tax receipts refer to *direct* impacts only. *Secondary* impacts include geographically bounded *indirect* and *induced* impacts. **Indirect** impacts represent the purchases of goods and services by **firms** within a defined geographic area that are attributable to the purchases of visitors. **Induced** impacts represent the purchases of goods and services (also geographically bounded) by **employees** that are attributable to the earnings generated by visitor spending. Estimates of these secondary impacts (typically reported as earnings, employment and tax receipts) are prepared by Dean Runyan Associates by using the direct estimates of travel-generated earnings and employment as input data for use with other input-output models.[16]

VALUE ADDED (GROSS STATE PRODUCT)

The value added of a business or industry includes payments to employees (earnings) and the other payments of a firm (including taxes, dividends, interest, rent, profits) that represent the economic contribution of the business or industry, exclusive of the goods and services bought from the suppliers that actually produced them. Dean Runyan Associates provides estimates of the value added generated by visitor spending that is consistent with the U.S. Bureau of Economic Analysis's Gross State Product accounting.

[16] Dean Runyan Associates currently uses the Minnesota Implan Group model.

Arizona Gross State Product & Components by Industry Sector, 2004

Amounts in $Millions and Percent of Total in Parentheses

Industry Sector	GSP		Earnings		Taxes		Surplus	
Export-Oriented	**22,005**	*(11.3)*	**15,046**	*(12)*	**413**	*(3.1)*	**6,546**	*(11.7)*
Agriculture, Foresting, Fishing & related	2,333	*(1.2)*	1,440	*(1.1)*	-121	*(-0.9)*	1,014	*(1.8)*
Mining	1,801	*(0.9)*	732	*(0.6)*	107	*(0.8)*	962	*(1.7)*
Manufacturing	17,871	*(9.2)*	12,874	*(10.3)*	427	*(3.2)*	4,570	*(8.2)*
Non Export-Oriented	**110,392**	*(56.8)*	**67,362**	*(53.8)*	**9,668**	*(73.1)*	**33,362**	*(59.8)*
Construction	13,214	*(6.8)*	11,038	*(8.8)*	279	*(2.1)*	1,897	*(3.4)*
Utilities	3,447	*(1.8)*	1,067	*(0.9)*	811	*(6.1)*	1,569	*(2.8)*
Wholesale trade	11,600	*(6)*	6,599	*(5.3)*	2,611	*(19.7)*	2,390	*(4.3)*
Retail trade	16,284	*(8.4)*	10,265	*(8.2)*	3,677	*(27.8)*	2,342	*(4.2)*
Real estate and rental and leasing	26,759	*(13.8)*	5,427	*(4.3)*	1,976	*(14.9)*	19,356	*(34.7)*
Management of companies and enterprises	2,538	*(1.3)*	1,853	*(1.5)*	8	*(0.1)*	677	*(1.2)*
Administrative and waste services	8,326	*(4.3)*	6,807	*(5.4)*	285	*(2.2)*	1,234	*(2.2)*
Other services, except public administration	3,971	*(2)*	3,330	*(2.7)*	144	*(1.1)*	497	*(0.9)*
Government and government enterprises	24,253	*(12.5)*	20,976	*(16.7)*	-123	*(-0.9)*	3,400	*(6.1)*
Mixed	**61,849**	*(31.8)*	**42,854**	*(34.2)*	**3,152**	*(23.8)*	**15,843**	*(28.4)*
Transportation and warehousing	5,457	*(2.8)*	3,861	*(3.1)*	520	*(3.9)*	1,076	*(1.9)*
Information	6,289	*(3.2)*	3,050	*(2.4)*	679	*(5.1)*	2,560	*(4.6)*
Finance and insurance	16,264	*(8.4)*	8,277	*(6.6)*	628	*(4.7)*	7,359	*(13.2)*
Professional and technical services	10,769	*(5.5)*	9,156	*(7.3)*	193	*(1.5)*	1,420	*(2.5)*
Educational services	1,376	*(0.7)*	1,311	*(1)*	15	*(0.1)*	50	*(0.1)*
Health care and social assistance	13,360	*(6.9)*	11,678	*(9.3)*	105	*(0.8)*	1,577	*(2.8)*
Arts, entertainment, and recreation	1,886	*(1)*	1,341	*(1.1)*	171	*(1.3)*	374	*(0.7)*
Accommodation and food services	6,448	*(3.3)*	4,180	*(3.3)*	841	*(6.4)*	1,427	*(2.6)*
								(0)
Arizona Total	**194,246**	*(100)*	**125,262**	*(100)*	**13,233**	*(100)*	**55,751**	*(100)*

Source: Bureau of Economic Analysis and Dean Runyan Associates. "Taxes" include excise taxes, property taxes, and other fees minus subsidies. Income taxes are not included. Earnings include wages and salaries, earned benefits and proprietor income. "Surplus" is the remaining GSP or value-added. Surplus includes business receipts retained by the firm or paid out as dividends, interest, or other payments

U.S. TRAVEL AND TOURISM SATELLITE ACCOUNTS

The Bureau of Economic Analysis (BEA)[17] has developed a travel and tourism satellite account framework (TTSA) to analyze the U.S. travel and tourism industry in a systematic and consistent way that links travel expenditures to the industries that produce tourism goods and services. The TTSA framework is directly related to the U.S. national economic accounts that provide economic measures of all the industries that produce goods and services in the United States.

Travel demand is defined as the travel-related expenditures made by visitors before, during, and immediately after each trip taken, and consists of business travel and travel by government employees, U.S. resident household travel, and travel in the United States by nonresidents (international visitors). The definitions, framework and estimating methods used for the U.S. TTSA's follow, as closely as is practicable, the guidelines for similar travel satellite accounts that were developed by the World Tourism Organization (WTO) and the Organization for Economic Co-operation and Development (OEDC).

Travel Satellite Account frameworks may also include measures such as Consumer Durables (expenditures for recreation equipment and vehicles), Capital Investment (investments made by travel and tourism providers and government agencies to provide facilities, equipment and infrastructure to visitors), Non-Visitor Exports (consumer goods exported for the ultimate sale to visitors in other locations or capital goods exported for use by industry service providers), and Government Expenditures (expenditures made by agencies and departments on behalf of visitors or the community-at-large in order to promote or develop tourism). The BEA has also developed other satellite accounts to measure various components of other industries such as transportation services, environment and mineral resources, and research and development.

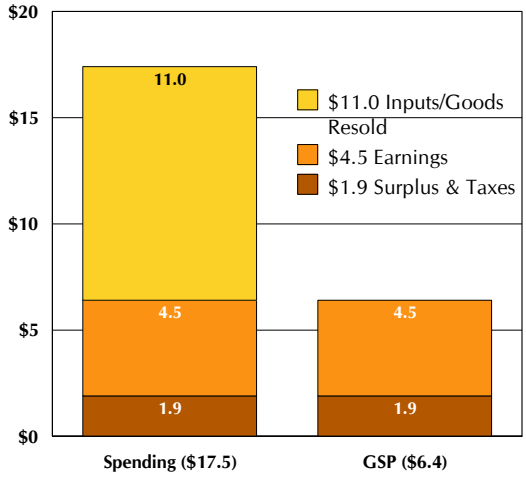
[12] The TTSA's were developed by the Bureau of Economic Analysis with the support of the Tourism Industries Office of the International Trade Administration, U.S. Department of Commerce. For an overview, see Peter D. Kuhbach, Mark A. Planting, and Erich H. Strassner, "U.S. Travel and Tourism Satellite Accounts for 1998-2003," SURVEY OF CURRENT BUSINESS 84 (September 2004): 43-59.

TRAVEL SPENDING AND TRAVEL INDUSTRY GROSS STATE PRODUCT (2005P)

Estimates of travel spending and travel industry Gross State Product are shown in the chart below. About 38 percent of all travel spending in Arizona is attributed to the production of travel businesses, or GSP. The remaining 62 percent is attributed to inputs and goods resold at retail. Intermediate inputs cover a range of goods and services that are purchased by travel industry businesses for the purpose of creating a product or service for the traveler. For example, lodging establishments purchase cable television services. Restaurants purchase food and beverages from vendors. In both cases, these inputs are classified as the GSP of other industries. In addition, travel spending occurs at many retail establishments where the goods purchased from the retailer are purchased as finished goods from suppliers. These resold goods are also counted as products of other industries. This would include motor fuel, groceries, and most of the commodities sold at retail establishments.

These estimates of travel spending include only trip related expenditures on leisure commodities and transportation. The estimates do not include spending on travel related consumer durables such as luggage, photographic equipment, recreation equipments, boats and recreation vehicles, or other motor vehicles.

Arizona Travel Spending and Gross State Product, 2005p



Source: Dean Runyan Associates and Minnesota Implan Group.

IMPLAN MODELING SYSTEM[18]

IMPLAN is a widely used, nationally recognized economic impact model, first developed by the U.S. Forest Service, to estimate the economic activity associated with a sale of a good or service. This methodology has been packaged, along with the necessary data files, as IMPLAN Pro by the Minnesota IMPLAN Group, Inc. (MIG) of Stillwater, Minnesota, and is the basis for the indirect and secondary impacts described in this report. Some of the conventions used by IMPLAN follow.

DATABASE COMPONENTS

The IMPLAN databases consist of two major parts: 1) national-level matrices and tables and 2) economic and physical data at the county and/or state level. The national matrices are combined with regional data to create a statewide model, which reflects local conditions.

The following IMPLAN data was used to estimate indirect and secondary impacts:

1. Industry Output
2. Employment
3. Value Added (includes earnings)

Industry Output represents the dollar value of an industry's total production. The data is derived from a number of sources including Bureau of Census economic censuses and the Bureau of Labor Statistics (BLS) employment projections.

Employment is listed as a single number of jobs for each industry. The data is derived from BLS Covered Employment and Wage data supplemented by county business patterns and Regional Economic Information System (REIS) data. Employment estimates include both full-time and part-time workers.

Value Added includes employee compensation, proprietor income, other property type income, and indirect business taxes. Employee compensation includes the total payroll costs (including benefits) of each industry in the region. Proprietary income consists of payments received by self-employed individuals (includes private business owners, doctors and lawyers). Other property type income consists of payments from rents, royalties, dividends and interest. Indirect business taxes consist primarily of excise and sales taxes paid by individuals to businesses.

[18]Minnesota IMPLAN Group, Inc., "Micro IMPLAN Users Guide", version 91-F, March 1994.

MARGINS

Margins represent the difference between producer and purchaser prices. Producer prices are the prices an industry receives for its production of goods or services. Purchaser prices are a sales price and may include a retail markup, wholesale markup or transportation costs, in addition to the price paid for production. To estimate indirect and secondary impacts, purchaser prices for retail goods were subdivided using margins to split a purchase (sales) price into the appropriate producer values and assign each value to the correct industry. Margins do not apply to service businesses such as lodging and eating and drinking establishments where the service is produced at the same time as it is purchased.

TRADE FLOWS

Trade flows describe the movement of goods and services between a defined region and the outside world (imports and exports into and out of the study region). Regional Purchase Coefficients (RPC's) represent the portion of local demand purchased from local producers for each commodity. RPC's were used to estimate how much of the local production of a commodity will be used to supply local demand and how much will be exported from the region. IMPLAN software automatically generates RPC's for each commodity with a set of econometrically based equations.

INDIRECT AND SECONDARY IMPACTS

Indirect impacts are driven by final demand met by industries either directly (by supplying goods and services to consumers) or indirectly (by supplying goods and services to other industries). Each industry that produces goods and services generates demands for additional goods and services. These other producers, in turn, purchase goods and services. These indirect purchases (indirect effects) continue until "leakage" from the state (imports, wages, profits, etc.) stop the cycle.

Secondary impacts include the indirect impacts and also take into account the impact of the income and expenditures of households employed in both the direct and indirect businesses within the travel-related industries (i.e., induced effect).

VISITOR SPENDING BY IN-STATE RESIDENTS

The statewide estimate of direct and secondary impacts is based on total visitor spending (state residents, non-residents, and international visitors). Economists sometimes argue that the inclusion of in-state residents results in an overestimate of economic impacts. This is because travel spending by residents may merely substitute for, or displace, expenditures on other goods or services that also generate direct and secondary economic impacts. To the extent that economic impacts generated by the in-state travel spending of residents functions in this fashion, it should be distinguished from spending by out-of-state and international visitors, which generates economic impacts *at the level of the state* that would not otherwise be present.

There are essentially two reasons for including spending by in-state residents in the direct and secondary impact estimates provided here. First, all export-oriented industries sell a portion of their products to in-state households and businesses. Any

comparison of industries would thus require that these in-state sales be excluded from the secondary impacts. While such estimates might be feasible, the adjustments might in some ways result in an underestimate of the secondary impacts *at the local level*. This leads to the second, more fundamental reason for not excluding in-state residents when estimating the economic impacts of travel spending.

Essentially, travel is a behavioral concept rather than a geographic one. Travel is defined by length of distance from home (usually at least 50 miles one-way), trip purpose (non-routine), and/or the use of an overnight accommodation away from home. Whether this involves crossing a state boundary is arbitrary from the perspective of travel, even if not so for the purpose of maintaining economic accounts. The operators of tourist attractions in local communities are generally less interested in visitor origin than in the revenue that they generate for their businesses. In terms of the economic impacts at the *local* level, the distinction between in-state residents, out-of-state residents and international visitors is not relevant.[19] It is for this reason that most state level travel impact estimates include in-state resident visitor spending. In essence, these state level travel impact estimates really represent an aggregation of smaller geographic units, such as counties or regions.[20]

How, then, should the direct and secondary impact estimates be interpreted? At the state level, they should be interpreted as describing the size or magnitude of the "travel industry." This interpretation applies to other industries as well. The question of how much economic output would be lost within the state from a reduction in travel spending is a different issue, as is the case for other industries.[21]

[19] The same is true of other industries, such as agriculture. From the perspective of the local economy, it makes little difference whether agricultural products are exported to another country, another state or another region of the same state.

[20] It is for this reason that it is also not appropriate to compare the secondary impacts of different states because the size of these secondary impacts are partly a function of the size of the state economy. Larger states will have larger secondary impacts. Furthermore, excluding in-state travel spending does not solve the problem. Because large states, such as California, have high proportions of in-state visitor spending, while small states, such as Rhode Island, have low proportions of in-state visitor spending, we would not be measuring the same behavior in the two states if we chose to exclude in-state visitor spending.

[21] Dean Runyan Associates estimates that 22 percent of all visitor spending is from in-state travel in Arizona.

Travel Impact Industries Matched to 1997 NAICS

Travel Impact Industry	NAICS Industry* (code)
Accommodation & Food Services	
	Accommodation (721)
	Food Services and Drinking Places (722)
	Residential Property Managers (531311)
Arts, Entertainment & Recreation	
	Performing Arts, Spectator Sports (711)
	Museums (712)
	Amusement, Gambling (713)
	Scenic and Sightseeing Transportation (487)
	Miscellaneous Industries (see note**)
Retail	
	Food & Beverage Stores (445)
	Gasoline Stations (447)
	Clothing and Clothing Accessories Stores (448)
	Sporting Goods, Hobby, Book, and Music Stores (451)
	General Merchandise Stores (452)
	Miscellaneous Store Retailers (453)
Ground Transportation	
	Interurban and rural bus transportation (4852)
	Taxi and Limousine Service (4853)
	Charter Bus Industry (4855)
	Passenger Car Rental (532111)
	Parking Lots and Garages (812930)
Air Transportation	
	Scheduled Air Passenger Transportation (481111)
	Support Activities for Air Transportation (4881)
Travel Agencies	
	Travel Agencies (56151)

Note: Travel Impact Industry is comprised of parts of the the corresponding industries.
*Government enterprizes (e.g., park systems) are included in this classification.
**Includes parts of industries in other sectors (e.g., accommodation, charter bus).