

**THE ECONOMIC IMPACTS OF AGRITOURISM:
LOUDOUN COUNTY, VIRGINIA
2018**

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Visit Loudoun**

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**Delivered:
April 2019**

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The Code of Virginia defines agritourism as:

“Any activity carried out on a farm or ranch that allows members of the general public, for recreational, entertainment, or educational purposes, to view or enjoy rural activities, including farming, wineries, ranching, historical, cultural, harvest-your-own activities, or natural activities and attractions. An activity is an agritourism activity whether or not the participant paid to participate in the activity.” (Code of Virginia § 3.2-6400).

Adhering to the above state code definition, this study finds that Loudoun County’s agritourism sector yields substantial economic contributions within the Commonwealth. A summary of key findings are as follows:¹

- There are an estimated 195 establishments in Loudoun County that classify into the agritourism sector according to the Code of Virginia. Approximately 55 of these venues are farm-based wineries, vineyards, farm-based breweries, and farm-based distilleries (WVBD) and the remainder are other types of venues such as U-pick berries, pumpkin patches, Christmas tree farms, etc (non-WVBD).
- In 2018, approximately 85-90 percent of Loudoun’s wineries, vineyards, breweries, and distilleries (WVBD) were open year-round. On average, they each served approximately 16,913 patrons throughout the year.
- Farm-businesses not classified into the WVBD sector (e.g. pumpkin patches, U-pick operations, Christmas tree farms, etc.), on average, reported 3,439 patrons in 2018. Roughly between 51-61 percent of these establishments were open year-round in 2018.
- In 2018, visitors to Loudoun County’s agritourism farm-businesses spent an estimated \$252.9M throughout the state (at the Loudoun venue or traveling to/from the venue).
- The total economic activity stimulated by Loudoun County’s agritourism sector during 2018 was approximately \$413.6M within the Commonwealth.
- Economic activity created by Loudoun’s agritourism sector was associated with approximately \$240.7M in value-added effects in 2018 which is a measure of the sector’s contribution to the gross domestic product of the state.

¹ Within the context of this study, the terms “establishments,” “farm-businesses,” and “venues” can be used interchangeably to refer to individual entities that classify into the agritourism sector according to Virginia state code.

- In terms of employment, the economic activity attributed to Loudoun’s agritourism sector supported approximately 4,072 full-time equivalent jobs in the state in 2018. Approximately 74 percent of these jobs were supported by direct spending both on the farm and at ancillary businesses (gas stations, restaurants, hotels, etc), and the remainder of the jobs are classified as secondary (direct and induced).
- Regarding wages and income, the economic activity spawned by Loudoun County’s agritourism sector was responsible for roughly \$159.1M in wage and salary income in 2018 (direct = \$97.8M; secondary = \$61.3M).
- Economic activity stimulated by Loudoun County’s agritourism sector generated approximately \$27.1M in state and local tax revenues in 2018: roughly 60 percent state; 40 percent local.
- The *economic impact from tourists* [defined as those traveling more than 50-miles (one-way) to an agritourism venue] was approximately \$166.6M during 2018. This *economic impact from tourists* represents the ‘fresh money’ infused into an area economy and is a subset of the total economic activity attributed to agritourism venues.

INTRODUCTION

Existing evidence is available on a piecemeal basis to suggest that the agritourism sector in Loudoun County, Virginia is robust and makes substantial contributions to the Commonwealth's economy. For example, a statewide agritourism economic impact study conducted by Magnini, Calvert, and Walker (2016) reported that agritourism in the Northern Virginia Region (including Loudoun County) supported an estimated \$552.1M in economic activity during 2015. Of this Northern Virginia Region total, approximately 48 percent (\$263.4M) was 'fresh money' infused into local economies from non-local visitors (those traveling more than 50-miles one-way) (Magnini, Calvert, and Walker, 2016).

More recently, a 2018 farm-business survey in Western Loudoun County administered by the Rural Economic Development Council (REDC) found agribusiness employment in the area to be formidable: an estimated 4 full-time and 7.2 part-time employees per operation (REDC, 2018). In addition, a 2019 study of Loudoun County's wine industry found that the county's wineries take-in, on average, \$1M in on-site revenues (Loudoun County, 2019).

Despite the important merits of these previous studies, Loudoun County lacks a comprehensive assessment of the fiscal and economic impacts of the county's agritourism sector. Therefore, the purpose of this current study is to build upon the information contained in these earlier reports to be the first to assess the fiscal and economic impacts of Loudoun's agritourism sector. As such, specific objectives of this study seek to address the following:

- The economic impacts of Loudoun County's agritourism sector within the state of Virginia (direct, indirect, induced effects);
- The number of jobs supported by Loudoun County's agritourism sector within the Commonwealth of Virginia (direct, indirect, induced jobs);
- The labor income supported by Loudoun County's agritourism sector within the state of Virginia (direct, indirect, induced labor income);
- The state and local tax revenues generated by Loudoun County's agritourism sector; and
- The value-added effects (contributions to the Commonwealth's GDP) supported by Loudoun County's agritourism sector.

To accomplish these objectives, the next section of this report describes the research methods utilized in this study. Subsequently, the study’s findings are presented. The report ends with a brief conclusion section that contextualizes the key findings. It is prudent to note in this introduction section that a glossary of economic impact terminology is included in Appendix A of this report.

{Research methods section begins on next page}

Loudoun's Agritourism Inventory

This study adheres to the definition of agritourism as defined by the code of Virginia:

“Any activity carried out on a farm or ranch that allows members of the general public, for recreational, entertainment, or educational purposes, to view or enjoy rural activities, including farming, wineries, ranching, historical, cultural, harvest-your-own activities, or natural activities and attractions. An activity is an agritourism activity whether or not the participant paid to participate in the activity.” (Code of Virginia § 3.2-6400).

Because the above definition stipulates that an agritourism venue must be open to the general public, an initial list of Loudoun's agritourism providers was compiled by using publicly available information sources found on the Internet. This initial list was then sent to Visit Loudoun for review and editing based upon their records and knowledge of current county farm-businesses. Evidently, a county's agritourism inventory is constantly changing. While every effort was made to produce an inventory list as accurate as possible, it is assumed that any provider included on the list that may not be in operation would be offset by providers not located for the list.

Attendance Counts

Employing Loudoun's agritourism inventory list, a brief electronic input form was sent to the farm-businesses. This input form was needed so that farm-businesses could provide their estimated 2018 attendance counts and approximations regarding the percentage of these visitors that likely traveled more than 50-miles (one-way) to visit. The input form also asked providers to indicate whether they were open year-round or seasonally.

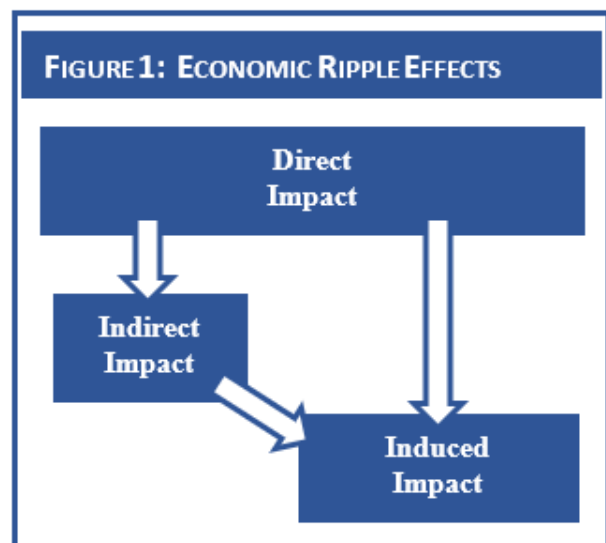
A total of 70 farm-businesses submitted the input form which accounts for 35.8% of Loudoun's inventory. Armstrong and Overton's (1977) method of comparing early to late responses was used as an additional check to confirm that the collected responses are reflective of the sector. All diagnostics confirmed sample adequacy.

Visitor Spending

Per-person visitor spending profiles were adapted from the publicly-available Virginia agritourism economic impact report published in 2016 (Magnini, Calvert, and Walker, 2016). The spending profiles from the previous study were adjusted for inflation to bring them to 2018 monetary values [2016 = 1.3 percent; 2017 = 2.1 percent].

Economic Modeling

In addition to assessing the direct effects of visitor spending, this study also estimated secondary or ripple effects which comprise economic activity from subsequent rounds of re-spending of money. As shown in Figure 1, there are two types of ripple effects: indirect and induced. Indirect effects entail the changes in sales, income and jobs of suppliers to the farm-businesses (Stynes et al., 2000). Induced effects encapsulate the changes in economic activity in the region stimulated by household spending of income earned through direct and indirect effects of agritourism-related monies.



Indirect and induced effects are estimated using economic multipliers. Multipliers reflect the extent of interdependency between sectors in a region's economy and can vary significantly between regions and sectors (Stynes et al., 2000). Here is a simple example of how a multiplier can be interpreted: if the multiplier for the restaurant sector in a given region is 1.27 then it can be estimated that every dollar spent at a restaurant results in 27 cents of secondary economic activity in the region. Economic multipliers for the State of Virginia are commercially available in an economic impact estimation software titled IMPLAN commercialized by MIG, Inc. Therefore, the most recent IMPLAN multipliers were purchased and used in this study to calculate indirect and induced economic impacts. Used by more than 1,000 entities, IMPLAN is said to be the most widely adopted regional economic analysis software in the industry for estimating economic ripple effects (Dougherty, 2011). When adjusting statewide IMPLAN

multipliers for regional analysis, the z-score of a locality's median income and the z-score of a locality's state tax distributions were used to estimate the magnitude of difference between regional and statewide ripple effects.

In the input-output modeling for this study, ***economic activity*** describes the modeling that includes all visitor spending and consequent multiplier effects by both locals and non-locals. In the modeling, ***economic impact from tourists*** represents the modeling that includes all visitor spending and consequent multiplier effects by those who traveled more than 50-miles (one-way) to visit the agritourism venue.² Economic impact outputs reported in this study are reduced by 20 percent to account for spending by visitors who would have traveled and spent money in Loudoun County regardless of whether the agritourism venue existed. Stated differently, some visitation to venues is incidental and occurs when visitors happen to be in the county for other purposes. Consequently, the economic impact modeling would be over-stated to include all visitor spending in such cases. This 20 percent non-primacy reduction is consistent with Virginia's statewide agritourism study (Magnini, Calvert, and Walker, 2016).

{Findings section begins on next page}

² As will be detailed later in this report, economic modeling also includes farm-business spending not supported by visitor revenues.

FINDINGS

This section of the report describes the size and structure of Loudoun’s agritourism sector during 2018 and subsequent economic modeling. The economic modeling yields findings regarding economic output, employment/labor income, value-added effects, and tax revenue generation. The glossary contained in Appendix A offers definitions of key terms used in this findings section.

Size and Structure of Loudoun County’s Agritourism Sector

The inventorying process conducted in this study finds that there are approximately 195 farm-businesses in Loudoun County that classify into the agritourism sector. Because visitors to farm-based wineries, vineyards, farm-based breweries, and farm-based distilleries (WVBD) have different spending profiles than visitors to other types of agritourism venues, Table 1 allocates this inventory into the appropriate category.

TABLE 1: ESTIMATED VENUE INVENTORY AND ATTENDANCE IN LOUDOUN COUNTY		
LOUDOUN COUNTY	FARM-BASED WINERIES, VINEYARDS, BREWERIES, & DISTILLERIES (AKA: WVBD)	AGRITOURISM VENUES (OTHER THAN WVBD)
Estimated Venue Count:	55	140
Avg. Number of Visitors per Venue: ¹	16,913	3,439
1. There is a 15% margin of error window in the WVBD attendance estimation and a 12% margin of error window in the non-WVBD attendance estimation. These margins of error are accounted for in all modeling in this study.		

As seen in Table 1, while visitation levels vary widely among establishments, on average 16,913 and 3,439 visitors patronized the WVBD and non-WVBD establishments (respectively) during 2018.³ Of these visitors, an estimated 41% and 33% are non-local [travel more than 50-miles (one-way) to visit the venues] for WVBD and non-WVBD, respectively. In terms of spending, on average, non-local visitors to agritourism establishments (non-WVBD) spend \$35.93 at the farm-business; whereas, local visitors to farm-businesses (non-WVBD) spend an estimated \$22.39 per visit. On the other hand, visitors to

³ Mean substitutions of the outliers were used when calculating attendance. There is a 15 percent margin for error in the WVBD attendance estimate and a 12 percent margin for error in the non-WVBD attendance estimate. These error margins are accounted for in the subsequent economic modeling.

wineries, vineyards, breweries, and distilleries (WVBD) spend more on average: non-local = \$47.08 per visit; local = \$25.73 per visit.⁴

As to be expected with any nature-based offering, seasonality plays a role. In Loudoun County, most wineries and breweries are open year-round (roughly 85-90 percent). On the other hand, of other types of agritourism venues (non-WVBD), about 39-49 percent are only open seasonally. Of those establishments that are only open seasonally, October is the month with the highest number in operation. Many factors contribute to the strength of October, for example: fall foliage, pumpkin patches, late-season harvested vegetables, etc... Driven partially by Christmas tree farms, December still has a large number of venues in operation in comparison to January and February.

Based upon the per venue attendance estimates and per visitor spending profiles detailed earlier in this section, Table 2 reports the estimated visitor counts and associated visitor spending for 2018. As seen in the Table, Loudoun County’s venues hosted roughly 1.2M attendees throughout the year. These individuals recorded an estimated \$252.9M of spending associated with these visits (includes both spending on/off venue).

TABLE 2: VISITOR COUNTS AND SPENDING ATTRIBUTED TO LOUDOUN COUNTY AGRITOURISM					
LOUDOUN COUNTY	LOCALS		TOURISTS		TOTAL VISITOR SPENDING IN THE STATE (INCLUDES SPENDING ON AND OFF THE FARM)
	ESTIMATED NUMBER OF LOCAL VISITORS TO FARM -BUSINESSES (EXCLUDING WVBD)	ESTIMATED NUMBER OF LOCAL VISITORS TO FARM-BASED WINERIES, BREWERIES, & DISTILLERIES (WVBD)	ESTIMATED NUMBER OF TOURIST VISITORS TO FARM-BUSINESSES (EXCLUDING WVBD)	ESTIMATED NUMBER OF TOURIST VISITORS TO FARM-BASED WINERIES, BREWERIES, & DISTILLERIES (WVBD)	
Visitation & Spending:	283,780	466,510	139,860	324,170	\$252.9M

⁴ These spending profiles are adapted from Magnini, Calvert, and Walker (2016) and adjusted to account for two years of inflation.

Economic Impacts of Loudoun County’s Agritourism Sector

Outputs

Loudoun County’s agritourism sector supported \$413.6M in economic activity around the Commonwealth during 2018 (see Table 3). As detailed in the glossary (Appendix A), this economic activity includes consumers’ spending both on and off the farm as well as subsequent ripple effects of the money. Furthermore, this economic activity encompasses the spending by farm-businesses that is not supported by visitor revenues at the farms.⁵ Regarding this economic activity figure of \$413.6M, a lower bound estimate of \$371.9M and an upper bound estimate of \$455.2M were modeled based upon the error margins in the venues’ attendance estimates. As seen in Table 3, approximately 55 percent of the economic activity supported by Loudoun’s agritourism sector is through direct effects; the remainder is through secondary effects (indirect and induced).

TABLE 3: STATEWIDE “ECONOMIC ACTIVITY” AND “IMPACT FROM TOURISTS” ATTRIBUTED TO AGRITOURISM IN LOUDOUN COUNTY				
EFFECT TYPE	ECONOMIC ACTIVITY (RANGE)^a	ECONOMIC ACTIVITY (MEAN)^b	ECONOMIC IMPACT FROM TOURISTS (RANGE)^c	ECONOMIC IMPACT FROM TOURISTS (MEAN)^d
Direct	\$203.0M - \$248.6M	\$225.8M	\$78.4M - \$103.9M	\$91.2M
Indirect	\$80.5M - \$98.5M	\$89.5M	\$31.1M - \$41.2M	\$36.2M
Induced	\$88.4M - \$108.2M	\$98.3M	\$33.7M - \$44.7M	\$39.2M
TOTAL OUTPUT:	\$371.9 - \$455.2M	\$413.6M	\$143.3M - \$189.8M	\$166.6M
<p>a. Range in economic activity can be attributed to the margins of error in the attendance estimation: 12 percent margin for non-WVBD; 15 percent margin of error for WVBD.</p> <p>b. The mean economic activity is the high and low end of the range summed and divided by two.</p> <p>c. Range in economic impact can be attributed to the margins of error in the attendance estimation: 12 percent margin for non-WVBD; 15 percent margin of error for WVBD.</p> <p>d. The mean economic impact from tourists is the high and low end of the range summed and divided by two.</p>				

⁵ \$717K of farm spending not supported by visitor revenues was included in the modeling. This figure was computed by calculating a per-farm average from the Magnini, Calvert, and Walkerl (2016) statewide study.

A sub-category of economic activity is ***economic impact from tourists*** which represents the “fresh money” injected into the economy by non-local visitors to Loudoun’s agritourism venues. As seen in Table 3, for calendar year 2018 this fresh money is modeled to be between \$143.3M - \$189.8M with a mean of \$166.6M. Approximately 55 percent (\$91.2M) of this economic impact from tourists is through direct spending of tourists both at the venues and traveling to/from the venues. On the other hand, \$75.4M was through secondary effects (indirect and induced).

Jobs and Labor Income

Regarding employment, as listed in Table 4, during 2018 the economic activity associated with Loudoun County’s agritourism sector supported an estimated 4,072 full-time equivalent jobs in Virginia. The labor income associated with these jobs was roughly \$159.1M. Approximately 61 percent of this labor income was earned where agritourism patrons spend their money directly; for example: restaurants, hotels, gas stations, and the venues themselves. The balance of the labor income was produced through secondary effects; for example: suppliers to businesses where direct spending occurred.

TABLE 4: EMPLOYMENT AND LABOR INCOME SUPPORTED BY LOUDOUN COUNTY’S AGRITOURISM SECTOR¹		
Effect Type	Employment (Full-time equivalent jobs)	Labor Income
Direct	3,002	\$97.8M
Indirect	461	\$29.8M
Induced	609	\$31.5M
Total Output	4,072	\$159.1M
1. All employment and labor income figures were computed by averaging the lower bound and upper bound economic models (lower bound of attendance estimation margin of error; upper bound of attendance estimation margin of error).		

These employment-related findings will likely continue to be strong, or strengthen further, going forward. That is, the 2018 REDC study (cited in the introduction of this report), found that approximately 16 percent of Loudoun’s agribusinesses that they surveyed plan to add full-time positions in the next 18 months; and, roughly 23 percent plan to add part-time positions during the same timeframe. None of that study’s agribusiness respondents reported plans to reduce staffing (REDC, 2018).⁶

{Value-added effects and tax revenues begin on next page}

⁶ The availability of labor is viewed by many agribusiness providers in Loudoun County as their most pressing challenge that hinders them from expanding operations (REDC, 2018).

Value-Added Effects and Tax Revenues

During 2018, Loudoun County’s agritourism sector contributed approximately \$240.7M to the gross domestic product (GDP) of Virginia through value-added effects. Moreover, the economic activity supported by agritourism in Loudoun produced an estimated \$27.1M in state and local tax revenues. Of this amount, roughly 60 percent was retained by the Commonwealth and about 40 percent were local taxes.

TABLE 5: VALUE-ADDED EFFECTS AND TAX REVENUES SUPPORTED BY LOUDOUN COUNTY’S AGRITOURISM SECTOR¹		
Effect Type	Value-Added	State and Local Taxes
Direct	\$126.1M	\$27.1M
Indirect	\$55.5M	
Induced	\$59.1M	
Total Output	\$240.7M	
1.All value-added and tax figures were computed by averaging the lower bound and upper bound economic models (lower bound of attendance estimation margin of error; upper bound of attendance estimation margin of error).		

{Conclusions section begins on next page}

CONCLUSIONS

Many stakeholders in Loudoun County already realize the importance / potential of the county's agritourism sector. For example, the 2018 Loudoun REDC study reported that more than one-half (approximately 54 percent) of the agribusiness operators surveyed in that study viewed agritourism as either "important" or "very important" (REDC, 2018). The value that lies in this current study is the quantification of Loudoun's current agritourism offerings. Quantification in terms of number of operations, economic impact produced, jobs/labor income supported, contribution to GDP, and tax revenues generated.

An estimated 60 percent of the economic activity supported by Loudoun's agritourism sector in 2018 was generated by those living within a 50-mile radius of the venues visited (see Table 3). This statistic is testament to the fact that Loudoun's vast array of agritourism venues is a valuable amenity routinely utilized by the area's residents. Because the median income of local residents is near the highest in the nation for a community with more than 65K residents (ACS, 2011), it is evident that local residents have the discretionary income to spend on agritourism-related experiences. Therefore, if such amenities were not available in Loudoun then it seems plausible that some/most of this spending would have leaked out of the local economy.

Furthermore, while outside the scope of the current study, it is prudent to note that local amenities such as a network of wine / beer venues, farm-to-table food sourcing availability, venues for family bonding such as pumpkin patches and associated events / festivals, can play a role when corporations are deciding where to locate their national/regional offices. Such corporations inherently know that they will have an easier time attracting and retaining talent if their locations are in areas with sought-after amenities. More specifically, "quality of place" is defined in the academic literature in many different ways, but it is perhaps best described as existing when a community is **distinctive** from other communities and **attractive** as a place to reside, work, and/or visit (Reilly and Renski, 2008). Following this logic, Loudoun's agritourism offerings aid in making the community **distinctive** and **attractive** to both residents and visitors.

Regarding visitors, as previously detailed in this report (see Table 3), roughly 40 percent of the economic activity supported by Loudoun's agritourism sector derives from tourists. This 'fresh-money' entering local economies helps to further grow the tax base and also creates jobs. Based upon the findings of this study, it appears that Loudoun's branding as DC's Wine Country® is producing a healthy ROI. This conclusion is made based upon the fact that approximately 1/3 of a million tourists visited Loudoun's wineries, breweries, and distilleries during 2018 (see Table 2). It seems plausible that the *principle of cumulative attraction* is taking hold in Loudoun with regard to carving-out a niche for such destination branding. The

principle of cumulative attraction posits that similar businesses will often attract more customers if they are clustered together geographically than if they are dispersed (Litz and Rajaguru, 2008; Nelson, 1958; Prayag, Landre, and Ryan, 2012). In other words, proximity to similar businesses often enhances performance (Litz and Rajaguru, 2008). Following this logic, as Loudoun's WVBD agritourism sector continues to grow and to strengthen, so does the destination's reputation and consequent ability to attract clientele.

Also in terms of visitors, it is worth noting that nearly one-half of a million tourists patronized Loudoun's non-WVBD agritourism venues during 2018. A study conducted by Lucha et al. (2014) found that access to well-developed roadways/highways is a key determinant in attracting patrons to agritourism venues. In comparison to many rural locations in Virginia, easy access to venues by road is another key competitive advantage of Loudoun's agritourism sector. Particularly on weekends, it is relatively easy to travel to Loudoun from other points in the DC metro area.

As stated in the introduction section of this paper, other useful studies have recently been conducted that examine particular components of Loudoun's agritourism sector: a 2018 farm-business survey in Western Loudoun County administered by the Rural Economic Development Council (REDC) and a 2019 study of Loudoun County's wine industry found that the county's wineries take-in, on average \$1M in on-site revenues (Loudoun County, 2019). It is the confluence of findings of this growing body of research that helps identify and measure the sector, as well as inform strategic decisions.

The per-venue attendance estimates for the WVBD sector found in this current study are consistent with the estimates identified in the 2019 study cited above. As noted in the 2019 study cited above, attendance volumes at breweries appear to be larger than attendance volumes at wineries, therefore, as this body of research expands in the future, teasing-out specific economic impacts of breweries relative to wineries might prove informative.

Next, it is responsible to state in this report that even though the economic impacts of Loudoun's agritourism sector are formidable, the majority of these impacts are realized through patron's off-venue spending (e.g. gas stations, restaurants, etc...). Yes, profits can be made by agritourism providers, but those profits are mostly earned through very hard work. Many things can go wrong when depending on Mother Nature for one's livelihood: too much rain, too little rain, a late frost, etc... Moreover, the start-up costs in the wine business are typically very large relative to the start-up costs in many other sectors in which an entrepreneur could compete. In fact, of the agribusinesses surveyed in Loudoun's 2018 REDC study, only about one-half of the for-profit operations reported earning a profit (REDC, 2018). These comments

are not made in this report to be discouraging, but rather to paint a complete picture of the sector.

Finally, going forward, this current study can be extended in a number of ways. For example, IMPLAN economic models can be calculated for solely Loudoun's wine tourism. Similarly, as the brewery sector continues to grow, modeling can be eventually teased-out to include only that sector. In addition, it is important to note that because Loudoun's agritourism input-output models are built for this study, it would be relatively easy to refresh/update the models on a periodic basis.

RESEARCHER BIO

Dr. Vincent Magnini is the Executive Director of the Institute for Service Research. He was recently ranked as one of the top 12 most prolific hospitality researchers worldwide and holds editorial board appointments on all of the top-ranked research journals in the field. Further, he is a U.S. Fulbright Scholar. He has published six books and more than 250 articles and reports. Dr. Magnini has also been featured on National Public Radio's *With Good Reason, All Things Considered, Pulse on the Planet* and cited in the *New York Times* and *Washington Post*.



Dr. Magnini regularly consults for a number of constituencies in the hospitality and tourism sectors. The consulting activities include projects such as economic impact analyses, strategic plans, feasibility studies, and executive education seminars. Recent economic impact studies conducted by Dr. Magnini include:

- The Economic Impacts of Michigan's Ports and Harbors (with William Boik and Dr. John Crotts)
- Virginia State Parks Economic Impact Report (conducted annually)
- The Potential Economic Impacts of Rail Conversions (with Chuck Wyatt)
- The Economic Impacts of the Southern Virginia Higher Education Center
- The Economic Impacts of Spearhead Trails (with Chuck Wyatt)
- The Fiscal and Economic Impacts of Virginia's Agritourism Industry (with Esra Calvert and Dr. Martha Walker)
- The Economic Significance and Impacts of West Virginia's State Parks and Forests (with Dr. Muzzo Uysal)

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APPENDIX A: GLOSSARY OF TERMS

Many of the definitions in this glossary are paraphrased directly from Stynes et al. (2000) MGM2 user's manual.

Direct effects – the changes in sales, income and jobs in an area as a result of first-round visitor spending and spending by agritourism farm-businesses not supported by visitor revenues.

Economic impact from tourists – economic output modeling that includes all visitor spending and consequent multiplier effects by those traveling more than 50-miles to visit an agritourism site. Thus, economic impact figures reflect all of the “fresh money” entering an economy as a result of a given agritourism venue.

Economic activity – economic output modeling that includes all visitor spending and consequent multiplier effects by both locals and non-locals as well as any money spent by agritourism businesses that was not supported by visitor spending. Consequently, economic activity figures represent all of the economic activity stimulated by an agritourism business location within the state.

Indirect effects – the changes in sales, income and jobs to businesses that supply goods and services to entities where direct spending occurs.

Induced effects – the changes in economic activity in the region stimulated by household spending of income earned through direct and indirect effects.

IMPLAN – a computer-based input / output economic modeling system. With IMPLAN one can estimate 528 sector input / output models for any region consisting of one or more counties. IMPLAN includes procedures for generating multipliers and estimating impacts by applying final demand changes to the model.

Multipliers – express the magnitude of the secondary effects in a given geographic area and are often in the form of a ratio of the total change in economic activity relative to the direct change. Multipliers reflect the degree of interdependency between sectors in a region's economy and can vary substantially across regions and sectors.

Secondary effects – the changes in economic activity from subsequent rounds of re-spending of money. There are two types of secondary effects: indirect and induced.

Value-added (also termed ‘gross regional product’) – the sum of total income and indirect business taxes. Value-added is a commonly used measure of the contribution of a region to the national economy because it avoids the double counting of intermediate sales and incorporates only the ‘value-added’ by the region to final products.