THE ECONOMIC
AND FISCAL IMPACTS
OF THE ODUNDE FESTIVAL

FINAL REPORT – June 2015

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1.0 OVERVIEW

1.1 ABOUT ODUNDE

The ODUNDE festival was founded by Lois Fernandez in 1975 as a way to celebrate the diversified African and African American culture in the City of Philadelphia. It all began with a $100 grant and helpful, willing neighbors, and within two years the festival exploded into a marquee attraction. The concept originates from the Yoruba people of Nigeria as a celebration of a New Year for African and Africanized people around the globe. The day is highlighted by a spiritual procession to the Schuylkill River where fresh fruit and flowers are offered to Oshun, the Yoruba Goddess of the river. ODUNDE has rightfully gained the prestige as one of Philadelphia’s most renowned cultural events.

Today, ODUNDE is both the longest-running and largest African-American street festival in the United States. 2015 marks the Festival’s 40th anniversary, and up to 500,000 people are expected to attend an area covering 12 city blocks throughout historic South Street. The area around 23rd and South Streets will be filled with hundreds of arts and crafts as well as food vendors from around the world, who will all congregate to create an authentic African marketplace that acts as a centerpiece of the festivities. The festival also serves as the centerpiece of a week-long series of events that build the economic and cultural ties between Philadelphia and Africa, including roundtables on business and tourism and an event featuring ambassadors from several nations.

1.2 CULTURAL EVENT ECONOMIC IMPACT

Cultural events and festivals have the ability to make a large impact economically as well as culturally. These events are responsible for catalyzing additional hotel, restaurant, and leisure spending, all of which supports local businesses and generates tax revenues.

This report quantifies the economic impact that the festival has on both the City of Philadelphia as well as the Commonwealth of Pennsylvania. ODUNDE spends approximately $100,000 on their operations annually, and additionally up to 500,000 attendees patronize vendors at the event, and stimulate local restaurant, leisure, and hotel spending, further benefiting the local economy as a result of their attendance at the festival.

It is estimated that the expenditures associated with ODUNDE festival:

- Have an aggregate economic impact of $28 million within the City of Philadelphia, supporting 345 jobs with $12.5 million in earnings.

- Have an aggregate economic impact within the Commonwealth of Pennsylvania of $30.6 million, supporting 380 jobs with $13.3 million in earnings.
The Economic and Fiscal Impacts of the ODUNDE Festival

### Table 1.1 – Total Annual Economic Impact of the ODUNDE Festival

<table>
<thead>
<tr>
<th>Impact Type</th>
<th>City of Philadelphia</th>
<th>Commonwealth of Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Economic Output ($M)</td>
<td>$28.0</td>
<td>$30.6</td>
</tr>
<tr>
<td>Employment Supported (Jobs)</td>
<td>345</td>
<td>380</td>
</tr>
<tr>
<td>Labor Income Supported ($M)</td>
<td>$12.5</td>
<td>$13.3</td>
</tr>
</tbody>
</table>

The operations and ancillary visitor spending also result in significant tax revenues to both the City of Philadelphia as well as the Commonwealth of Pennsylvania. In total, Philadelphia gains $480,000 in tax revenues, and Pennsylvania gains $740,000 in tax revenues from economic activity produced by the ODUNDE festival (see Table 1.2).

### Table 1.2 – Total Annual Impact of the ODUNDE Festival ($ thousands)

<table>
<thead>
<tr>
<th>Tax Type</th>
<th>City of Philadelphia</th>
<th>Commonwealth of Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income Tax</td>
<td>$340</td>
<td>$390</td>
</tr>
<tr>
<td>Sales &amp; Use Tax</td>
<td>$55</td>
<td>$280</td>
</tr>
<tr>
<td>Business Tax</td>
<td>$85</td>
<td>$68</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$480</strong></td>
<td><strong>$740</strong></td>
</tr>
</tbody>
</table>

1.3 **ADDITIONAL IMPACTS**

It is also important to note that cultural events of the type of scale of ODUNDE have impacts beyond the direct spending associated with the festival. Premier events help to define the image and reputation of an area through their visibility and the out of the market visitation that they attract. These visitors who first become familiar with the area through an event may return again for another trip, do business in the region, or even become future residents. These reputational values are outside the scope of this analysis, but they are long-lasting and important for regional growth. Further, the events surrounding the festival, and the nature of the festival itself, helps strengthen international business ties for Philadelphia, a crucial long-term benefit in an increasingly globalized economy.
2.0 METHODOLOGY

The purpose of the report is to quantify the economic and fiscal benefits resulting from the ODUNDE Festival, for both the City of Philadelphia and State of Pennsylvania, which is reviewed in detail in section 3. It also includes a brief summary of planned future research to update these findings in future years in section 4.

The estimation of ODUNDE’s quantitative economic and fiscal impacts is comprised of three parts.

1) The first step is to approximate the direct expenditures affiliated with ODUNDE’s activities in the City. This includes the direct spending from ODUNDE for operational purposes, as well as that from visitors and vendors while in town for the festival.

2) The next step is to estimate the indirect and induced expenditures produced from the previously described direct spending inputs. The estimates of economic impact in this report are based on a standard regional input-output model developed by the Minnesota IMPLAN Group.

3) Finally, ESI uses a fiscal model to understand the tax revenue implications of the direct, indirect and induced economic impacts of the festival.

2.1 INPUT-OUTPUT MODELING

Economic impact estimates are generated by utilizing input-output models to translate an initial amount of direct economic activity into the total amount of economic activity that it supports, which includes multiple waves of spillover impacts generated by spending on goods and services and by spending of labor income by employees. This section summarizes the methodologies and tools used to construct, use, and interpret the input-output models needed to estimate the economic impact of the Odunde Festival.¹

The economic impact from festival-related expenditures is modeled using IMPLAN, an industry standard input-output model software program. Such models are designed to estimate two sets of spillover impacts from direct expenditures:

- The indirect effect, which measures the multiplier effect from the purchase of goods and services from local vendors; and

- The induced effect, which measures the multiplier effect from the spending of labor income by employees within a particular geography.

For the purposes of this report, economic impacts were measured for the City of Philadelphia and for the Commonwealth of Pennsylvania. Because the City is wholly contained within the Commonwealth, economic impacts within the City are wholly contained within the total state

¹ See Appendix A for additional information on the input-output methodology used.
impact, and the difference between the two figures represents impacts that take place within the Pennsylvania economy but outside of Philadelphia.

The role of input-output models is to determine the linkages across industries in order to model out the magnitude and composition of spillover impact to all industries of a dollar spent in any one industry. Thus, the total economic impact of the ODUNDE Festival is the sum of its own direct economic footprint (in terms of both organizational spending, and ancillary spending by the visitors it attracts), plus the indirect and induced effects generated by that direct footprint.

2.2 FISCAL MODELING

Another fundamental measure of ODUNDE’s approximate output is both the local and state taxes produced by the festival’s economic activity. The taxes generated by these total expenditures are estimated using a model specifically developed by ESI to estimate fiscal impacts, based on the differential tax structures of the city and state.

The IMPLAN model provides estimates of the total economic impact of a festival or project on the regional economy, however, it provides only a rough estimate of the combined fiscal impact of the increased economic activity on state and local governments. Consequently, ESI has constructed a model that takes the output from the IMPLAN model determines its impact on the relevant tax types and tax bases associated with the jurisdictions in which revenue impacts reside. Specifically, the estimated labor income supported by the direct, indirect, and induced expenditures generated by the model are used to estimate the net increase in the relevant tax bases and therefore in tax revenue gains to the jurisdiction or jurisdictions resulting from the increased business activity and its attendant indirect and induced effects. Those revenues are an important part of the total economic impact of an event or project that is often ignored in conventional economic impact analyses.

2.3 ABOUT ECONSULT SOLUTIONS, INC.

This report was produced by Econsult Solutions, Inc. (ESI). ESI is a Philadelphia-based economic consulting firm that provides businesses and public policy makers with economic consulting services in urban economics, real estate economics, transportation, public infrastructure, development, public policy and finance, community and neighborhood development, planning, as well as expert witness services for litigation support. Its principals are nationally recognized experts in urban development, real estate, government and public policy, planning, transportation, non-profit management, business strategy and administration, as well as litigation and commercial damages. Staff members have outstanding professional and academic credentials, including active positions at the university level, wide experience at the highest levels of the public policy process and extensive consulting experience.
3.0 ECONOMIC AND FISCAL IMPACTS OF THE ODUNDE FESTIVAL

3.1 OVERVIEW

Visitor spending associated with the up to 500,000 visitors to the ODUNDE festival has a substantial impact on the local economy. This section estimates the annual expenditures associated with visitation to and operations of ODUNDE, and then models the economic and fiscal impacts of those expenditures within the City of Philadelphia and Commonwealth of Pennsylvania.

3.2 DIRECT OPERATING EXPENDITURES

ODUNDE Inc., the non-profit organization that operates the festival, reports projected 2015 festival revenues of approximately $100,000. The majority of expenditures are dedicated to city services, entertainment, staff, and banners. Security and insurance also account for a significant portion of the budget, with the remaining line items comprised of festival day incidentals. These expenditures are appropriate to consider as part of the festival’s total economic impact, as they would not have taken place but for the festival. It should be noted that, as a non-profit, ODUNDE relies substantial on contributions of time and effort from volunteers to execute a festival of considerable scale and impact.

3.3 DIRECT VISITOR EXPENDITURES

The ancillary spending for ODUNDE attendees was modeled for four distinct visitor types into five spending categories. Estimates were constructed using industry survey data and are calculated on a per visitor basis, to allow them to be applied to the festival attendance estimate provided by the City of Philadelphia.

Survey data from previous festivals was used to estimate the proportion of visitors falling into a variety of categories. Multiple sources of visitor spending data are used to refine the accuracy of spending estimates by visitor type.

- 68% of attendees are estimated to be Philadelphia regional residents. For this group, a geographically specific survey of ancillary arts and cultural events spending conducted by American for the Arts in 2012 in conjunction with the Greater Philadelphia Cultural Alliance, provided categorized spending estimates.

- 8% of attendees were estimated to be day trippers from outside the region. For this group, a spending profile of day trip visitors to the Philadelphia region provided by Visit Philly was used.
- 23% of attendees were estimated to be non-hotel overnight visitors from outside the region. For this group, a spending profile of overnight visitors to the region provided by Visit Philly was used, with lodging spending adjusted to zero.

- 1% of attendees (representing 5% of overnight attendees) are estimated to be overnight hotel visitors. For this group the full overnight visitor spending profile from Visit Philly was used.

Unsurprisingly, non-residents that make an overnight trip spend the greatest amount, with notably higher spending on food & beverage, lodging, and transportation. Although most residents do not have high transportation or lodging costs, they do spend a sizable amount on food and beverage.

On average, Philadelphia residents spend approximately $22 per day while at the festival, and that amount increases to $68 for non-locals who come to ODUNDE as a day trip. The average spending of overnight trips that do not require hotel lodging averages $115, a figure that rises to $169 for those overnight trips that consist of hotel stays (see Table 3.1).

<table>
<thead>
<tr>
<th>Per Visitor Spend Category</th>
<th>Visitor Type</th>
<th>Residents</th>
<th>Day Trip</th>
<th>Overnight – non-Hotel</th>
<th>Overnight – Hotel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food &amp; Beverage</td>
<td>Residents</td>
<td>$14</td>
<td>$20</td>
<td>$40</td>
<td>$40</td>
</tr>
<tr>
<td></td>
<td>Day Trip</td>
<td>$20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overnight – non-Hotel</td>
<td>$40</td>
<td>$40</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overnight – Hotel</td>
<td>$40</td>
<td>$40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lodging</td>
<td>Residents</td>
<td>$1</td>
<td>$0</td>
<td>$0</td>
<td>$53</td>
</tr>
<tr>
<td></td>
<td>Day Trip</td>
<td>$0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overnight – non-Hotel</td>
<td>$0</td>
<td>$0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overnight – Hotel</td>
<td>$53</td>
<td>$53</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td>Residents</td>
<td>$3</td>
<td>$22</td>
<td>$30</td>
<td>$30</td>
</tr>
<tr>
<td></td>
<td>Day Trip</td>
<td>$22</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overnight – non-Hotel</td>
<td>$30</td>
<td>$30</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overnight – Hotel</td>
<td>$30</td>
<td>$30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retail</td>
<td>Residents</td>
<td>$3</td>
<td>$13</td>
<td>$20</td>
<td>$20</td>
</tr>
<tr>
<td></td>
<td>Day Trip</td>
<td>$13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overnight – non-Hotel</td>
<td>$20</td>
<td>$20</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overnight – Hotel</td>
<td>$20</td>
<td>$20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recreation/Other</td>
<td>Residents</td>
<td>$1</td>
<td>$12</td>
<td>$25</td>
<td>$25</td>
</tr>
<tr>
<td></td>
<td>Day Trip</td>
<td>$12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overnight – non-Hotel</td>
<td>$25</td>
<td>$25</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overnight – Hotel</td>
<td>$25</td>
<td>$25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Residents</td>
<td>$22</td>
<td>$68</td>
<td>$115</td>
<td>$169</td>
</tr>
<tr>
<td></td>
<td>Day Trip</td>
<td>$68</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overnight – non-Hotel</td>
<td>$115</td>
<td>$115</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overnight – Hotel</td>
<td>$169</td>
<td>$169</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sources: Americans for the Arts (2012), Visit Philly (2013)

Spending by all attendees, resident and non-resident, is estimated to total more than $19 million, of which more than $10 million is from non-locals who stay overnight with family or friends. Additionally, local residents make a sizeable contribution to the overall spending, with an estimated total of $5.9 million (see Table 3.2).

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2 The City of Philadelphia Managing Director’s Office reports that the annual festival attracts “up to 500,000 attendees.” In the interest of producing a conservative estimate of impacts, attendance is assumed to be 400,000.
### TABLE 3.2 – TOTAL ESTIMATED ANCILLARY SPENDING FOR ODUNDE FESTIVAL ATTENDEES

<table>
<thead>
<tr>
<th>Visitor Type</th>
<th>Proportion of Attendees</th>
<th>Est. Number of Attendees</th>
<th>Avg. Individual Spend</th>
<th>Total Spending by Visitor Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residents</td>
<td>68%</td>
<td>272,000</td>
<td>$22</td>
<td>$5,864,000</td>
</tr>
<tr>
<td>Day Trips</td>
<td>8%</td>
<td>32,000</td>
<td>$68</td>
<td>$2,161,000</td>
</tr>
<tr>
<td>Overnight - Non-Hotel</td>
<td>23%</td>
<td>91,200</td>
<td>$115</td>
<td>$10,494,000</td>
</tr>
<tr>
<td>Overnight - Hotel</td>
<td>1%</td>
<td>4,800</td>
<td>$169</td>
<td>$809,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>100%</td>
<td><strong>400,000</strong></td>
<td><strong>$48</strong></td>
<td><strong>$19,328,000</strong></td>
</tr>
</tbody>
</table>

Sources: City of Philadelphia, ODUNDE, Americans for the Arts (2012), Visit Philly (2013), ESI

### 3.4 TOTAL ECONOMIC IMPACTS

$17.6 million in total visitor spending and ODUNDE operational spending is considered to be modelable and produces new economic benefits to the area. These direct expenditures are modeled to lead to additional indirect and induced expenditures of $10.4 million within the City of Philadelphia and $13.0 million within the Commonwealth of Pennsylvania.

Together, direct, indirect and induced expenditures (see Table 3.3):

- Generated a total economic impact of $28.0 million within the City and $30.6 within the Commonwealth.
- Support 345 total jobs with annual earnings of $12.5 million in Philadelphia, and 380 jobs with annual earnings of $13.3 million in Pennsylvania.

### TABLE 3.3 - TOTAL ECONOMIC IMPACT OF THE ODUNDE FESTIVAL WITHIN THE CITY OF PHILADELPHIA AND THE COMMONWEALTH OF PENNSYLVANIA ($ MILLION)

<table>
<thead>
<tr>
<th>Impact Type</th>
<th>Within the City of Philadelphia</th>
<th>Within the Commonwealth of Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Expenditures</td>
<td>$17.6</td>
<td>$17.6</td>
</tr>
<tr>
<td>Indirect and Induced Expenditures</td>
<td>$10.4</td>
<td>$13.0</td>
</tr>
<tr>
<td><strong>Total Expenditures</strong></td>
<td><strong>$28.0</strong></td>
<td><strong>$30.6</strong></td>
</tr>
<tr>
<td><strong>Total Jobs</strong></td>
<td><strong>345</strong></td>
<td><strong>380</strong></td>
</tr>
<tr>
<td><strong>Total Earnings</strong></td>
<td><strong>$12.5</strong></td>
<td><strong>$13.3</strong></td>
</tr>
</tbody>
</table>

Sources: IMPLAN (2013), ESI

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3 See Appendix A- for a full explanation of non-modelable expenditures, and why they are not included.
3.5 TOTAL FISCAL IMPACTS

This increase in economic activity and employment also produces increases in various tax bases – specifically income, sales, and business taxes - for both the City of Philadelphia and the Commonwealth of Pennsylvania.

- The total economic (direct, indirect, and induced) impact generated through the attendees’ ancillary spending is estimated to create additional tax revenues of $480,000 for the City of Philadelphia, and $740,000 in annual tax revenues to the Commonwealth of Pennsylvania (see Table 2.4).

### Table 2.4 - Total Tax Revenue Impact of the Odunde Festival Within the City of Philadelphia and the Commonwealth of Pennsylvania ($ Thousand)

<table>
<thead>
<tr>
<th>Tax Type</th>
<th>City of Philadelphia</th>
<th>Commonwealth of Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income Tax</td>
<td>$340</td>
<td>$390</td>
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<tr>
<td>Sales &amp; Use Tax</td>
<td>$55</td>
<td>$280</td>
</tr>
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<td>Business Tax</td>
<td>$85</td>
<td>$68</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$480</strong></td>
<td><strong>$740</strong></td>
</tr>
</tbody>
</table>


Note that while in the case of economic impact, the City of Philadelphia is contained wholly within the Commonwealth of Pennsylvania (and thus the different between City and Commonwealth impacts represent the portion of indirect and induced impacts that accrue outside of the City but within the Commonwealth), the municipal governments of the City and State are distinct entities with distinct tax structures. Therefore, tax revenue generated by the festival is additive (meaning the dollars generated for the City government are different dollars than those generated for the State government), and together total more than $1.2 million.
4.0 FURTHER RESEARCH

4.1 VISITOR SURVEYING AND UPDATED IMPACT ANALYSIS

Estimates of the current impact of the ODUNDE festival produced in this report represent a “best guess” based on data sources currently available. Going forward, ESI and ODUNDE will work together to gather direct survey data from attendees at the 2015 Festival in order to refine the inputs used in this analysis. Following the conclusion of surveying and data entry from this year’s festival, ESI will incorporate the results into a revised impact analysis, based on data gleaned from the survey.

ESI will draft a survey instrument, in collaboration with the ODUNDE team, and advise on best practices in survey implementation to ensure a sample that is both large and representative. The survey development strategy will mix brief onsite intercepts with invitations to a longer online version of the survey. The survey will include questions on both visitor characteristics (point of origin, age, etc.) and trip characteristics (length and type of stay, travel party size, etc.) to help gain better insight into the demographics of visitors attending ODUNDE and their impact on the local economy.
APPENDIX A – ECONOMIC AND FISCAL IMPACT METHODOLOGY

A.1 History

The theory behind input-output modeling stretches as far back as the mid-17th century, when Sir William Petty described the interconnectedness of “production, distribution, and wealth disposal.” While Perry can be credited with noticing links between economies, input-output modeling did not begin to take true form until the mid-18th century, when French physician François Quesnay created the Tableau Économique. His work detailed how a landowner spends his earnings on goods from farms and merchants, who in turn spend their money on a host of goods and services. Over the course of the century, an algebraic framework was added by Achille-Nicholas Isnard. Robert Torrens and Léon Walras refined the model by establishing the connections between profits and production.

The modern input-output system can be attributed to Wassily Leontief. In his thesis, “The Economy as a Circular Flow” (1928), he outlined the economy as an integrated system of linear equations relating inputs and outputs. This framework soon gained popularity, and became a widely accepted analytical tool. In 1936, Leontief produced the first input-output analysis of the US. Leontief’s work became the US Department of Commerce’s Bureau of Economic Analysis’s (BEA) standard benchmark for US production in the 1950’s. Leontief received a Nobel Prize for his work in 1973.

In 1976 the USDA Forest Service became required to submit five year management plans to the federal government concerning the socio-economic effects of resource use. Through extensive surveying, the impacts of each industry could be determined at local levels. This directly resulted in the creation of IMPLAN software for measuring economic impacts. By the late 1980’s the University of Minnesota began to offer the software to a wider audience. Seeing the need to update economic databases and improve the existing software, the Minnesota IMPLAN Group (MIG) was formed in 1993. Using a similar methodology to the USDA Forest Service, MIG was able to provide a quality input-output modeling software to a wider range of users with frequent database updates.

A.2 Application

The use and application of multipliers are fairly basic and intuitive. Multipliers, in their most basic form, are the result of an algebraic analysis expressing how two inputs are interconnected in the production of an output. The result of the equation generates a multiplier that is broken down into direct, indirect, and induced effects. In a generalized example: if the multiplier for good “X” to good “Y” is 3, then the direct of good “X” on “Y” is 1, with indirect and induced effects of 2. Essentially, every unit of good “X” supports 2 units of good “Y”.

When implemented on a large complex scale, such as that of the US economy or any subsection of it, multiplier effects across industries can be complicated. However, the same general concept comes into play. Each industry has largely different and varied inputs into other industries. The
quantity of the output is largely decided by the scale and efficiency of the industries involved. As a result, the sum of those inputs equates to an output product plus a value added/component. By arranging these inputs and outputs by industry in a matrix, and performing some algebra to find the Leontief inverse matrix, each industry’s effect on final demand can be estimated. Additionally, the direct, indirect, and induced effects can also be determined. Direct effects include direct purchases for production, indirect effects include expenses during production, and induced effects concern the expenditures of employees directly involved with production. Using building construction as an example, the direct effects would include materials, brick, steel, and mortar, the indirect effects would involve the steel fabrication, concrete mixing, and the induced effects would consider the construction workers purchases from their wages. While impacts vary in size, each industry has rippling effects throughout the economy. By using an input-output model, these effects can be more accurately quantified and explained.

IMPLAN is one of several popular choices for regional input-output modeling. Each system has its own nuances in establishing proper location coefficients. IMPLAN uses a location quotient to determine its regional purchase coefficient (RPC). This represents the proportion of demand for a good that is filled locally; this assessment helps determine the multiplier for the localized region. Additionally, IMPLAN also accounts for inter-institutional transfers (eg. firms to households, households to the government, etc…) through its social account matrix (SAM) multipliers. IMPLAN takes the multipliers and divides them into 440 industry categories in accordance to the North American Industrial Classification System (NAICS) codes. A comprehensive breakdown of a region’s multipliers by industry can be shown.

Despite the usefulness of input-output modeling, there are some shortcomings to the system. Notably, input-output models ignore economies of scale. Input-output models assume that costs and inputs remain proportionate through different levels of production. Further, multipliers are not generally updated on a timely basis; most multipliers are prone to be outdated with the current economy. If the multipliers are sourced from a year of a recession economy, the multipliers may not accurately represent the flows from an economic boom period. Additionally, the multipliers may not capture sudden legal or technological changes which may improve or decrease efficiency in the production process. Regardless, I-O models still serve as the standard in the estimation of local and regional impacts.

### A.3 Economic Impact Model

The methodology and input-output model used in this economic impact analysis are considered standard for estimating such expenditure impacts, and the results are typically recognized as reasonable and plausible effects, based on the assumptions (including data) used to generate the impacts. In general, one can say that any economic activity can be described in terms of the total output generated from every dollar of direct output. If an industry in a given region sells $1 million of its goods, there is a direct infusion of $1 million into the region. These are referred to as direct output.

However, the economic impact on the region does not stop with that initial direct expenditure. Regional suppliers to that industry have also been called upon to increase their production to meet the needs of the industry to produce the $1 million in goods sold. Further, suppliers of these same suppliers must also increase production to meet their increased needs as well. These are
referred to as *indirect output*. In addition, these direct and indirect output require workers, and these workers must be paid for their labor. These wages and salaries will, in turn, be spent in part on goods and services produced locally, engendering another round of impacts. These are referred to as *induced expenditures*.

Direct output are fed into a model constructed by Econsult Solutions and based on IMPLAN data. The model then produces a calculation of the total expenditure effect on the regional economy. This total effect includes the initial direct expenditure effect, as well as the ripple effects described, the indirect and induced expenditure effects.

Part of the total expenditure effect is actually the increase in total wages and salaries (usually referred to as labor income), which the model can separate from the expenditure estimates. Direct payroll estimates are fed into the “household” industry of the input-output model. Impacts of this industry are estimated using the personal consumption expenditure breakdown of the national input-output table and are adjusted to account for regional consumption spending and leakages from personal taxes and savings. The direct, indirect, and induced labor income represent a component of the total economic impact attributable to wages and salaries. Finally, the model calculates the total expenditures affecting the various industries and translates this estimate into an estimate of the total labor (or jobs) required to produce this output.

In short, the input-output model estimates the total economic activity in a region that can be attributed to the direct demand for the goods or services of various industries. This type of approach is used to estimate the total economic activity attributable to the expenditures associated with various types of spending in the region (see Figure A.1 and Table A.1).
Figure A.1 – Flowchart of Input-Output Methodology for Estimating Economic Impact

Source: Econsult Solutions, Inc. (2013)
Table A.1 – Glossary of Terms for Input-Output Models

**Multiplier Effect** – the notion that initial outlays have a ripple effect on a local economy, to the extent that direct output lead to indirect and induced output.

**Economic Impacts** – total expenditures, employment, and labor income generated.

**Fiscal Impacts** – local and/or state tax revenues generated.

**Direct Output** – initial outlays usually associated with the project or activity being modeled; examples: one-time upfront construction and related expenditures associated with a new or renovated facility, annual expenditures associated with ongoing facility maintenance and/or operating activity.

**Direct Employment** – the full time equivalent jobs associated with the direct output.

**Direct Labor income** – the salaries and wages earned by employees, contractors, and proprietors as part of the direct output.

**Indirect Output** – indirect and induced outlays resulting from the direct output; examples: vendors increasing production to meet new demand associated with the direct output, workers spending direct labor income on various purchases within the local economy.

**Indirect Employment** – the full time equivalent jobs associated with the indirect output.

**Indirect Labor income** – the salaries and wages earned by employees, contractors, and proprietors as part of the indirect output.

**Total Output** – the sum total of direct output and indirect output.

**Total Employment** – the sum total of direct employment and indirect employment.

**Total Labor income** – the sum total of direct labor income and indirect labor income.

*Source: Econsult Corporation (2009)*

A.4 Fiscal Impact Model

The IMPLAN model provides estimates of the economic impact of a new project or program on the regional economy. It does provide only a rough estimate of the combined fiscal impact of the increased economic activity on state and local governments. Consequently, Econsult has constructed a model that takes the output from the IMPLAN model and generates detailed estimates of the increases in state and local tax collections that arise from the new project. Those revenues are in fact a part of the total economic impact of a new project that is often ignored in conventional economic impact analyses.

The IMPLAN model provides estimates of direct, indirect, and induced expenditures, labor income, and employment within the defined region. The Econsult fiscal impact model combines the IMPLAN output with the relevant tax types and tax bases associated with the jurisdiction or jurisdictions for which fiscal impact is being modeled. Specifically, the estimated labor income
supported by the direct, indirect, and induced expenditures generated by the model are used to apportion the net increase in the relevant tax bases and therefore in those tax revenue categories. The resulting estimates represent the projected tax revenue gains to the jurisdiction or jurisdictions as a result of the increased business activity and its attendant indirect and induced effects.

A.5 Non-Modelable Expenditures

The model takes into account the difference between total sales induced by visitors and total local economic impact. The amount available to circulate through the local economy will be less than what the visitors to the ODUNDE Festival are spending. Therefore, the model assumes that the markup on retail is what creates the impact on the local economy. Because local stores buy goods from wholesalers and manufacturers outside of the area, the expenditures cannot be fully attributed to Philadelphia County and these “retail margins” are thus dropped from the regional model.

The $19.3 million in ancillary visitor spending reported in Table 2.2 includes all retail sales and margins in Pennsylvania. $17.6 million of this total expenditure will circulate through the local and state economy. These ancillary spending totals only include the markup on retail at gasoline stations and miscellaneous retailers, which will result in the actual economic impact of the spending of these visitors.

A.6 Sources


Lahr, Michael. “Input-Output Analysis: Technical Description and Application.” Rutgers University Edward J. Bloustein School of Planning and Public Policy