

# Attribution Challenges in Economic Impact Studies of Festivals and Events

*A technical white paper (Part 1 of 2)*

Author: Mark Turner, PhD | President, Optimal Solutions Group | Co-Founder, Revelo Software  
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Economic impact studies in the festival/event sector are frequently expected to answer a causal question: *what changed because of the event?* Yet many studies primarily quantify gross spending flows and apply multipliers.

The result is a persistent credibility gap: large economic figures that can be misunderstood as "caused by" the event.

## Executive Summary

Economic impact studies in the festival/event sector are frequently expected to answer a causal question: what changed because of the event? Yet many studies primarily quantify gross spending flows and apply multipliers. The result is a persistent credibility gap: large economic figures that can be misunderstood as “caused by” the event.

This white paper focuses on attribution, defined as isolating the incremental (net) effects of a festival or event from other drivers such as seasonality, destination marketing, concurrent attractions, macroeconomic conditions, and crowding effects. Evidence from event and festival research shows that (1) visitor trip purpose is often bundled (festival + vacation), (2) local spending can represent substitution rather than net new activity, (3) leakages can materially reduce locally retained value, and (4) data limitations routinely force analysts to adopt weaker counterfactuals than would be acceptable in other policy domains (Kim and Dombrosky 2016; Baldi et al. 2022; Dwyer and Jago 2019; Dwyer et al. 2000; Ossowska et al. 2023).

This paper covers Sections 1–5 (Introduction through Methods). A forthcoming white paper will present viable operational solutions using [Revelo Software’s Economic Impact SaaS](#), designed to implement a “Minimum Viable Attribution” framework at scale.

## 1. Introduction

Festivals and events are widely supported through public funding, in-kind services, and infrastructure investments because they generate economic benefits for host communities. Decision-makers commonly request economic impact studies to justify funding, compare alternative proposals, and communicate value to stakeholders (Dwyer et al. 2000; Dwyer and Jago 2019).

Yet the central policy question is rarely “how much spending occurred during the event?” but rather “how much additional economic activity occurred *because of* the event?”

That distinction is the essence of attribution. In this context, attribution refers to isolating the incremental economic effects of an event from what would have happened in the absence of the event (the counterfactual). The festival/event setting makes this difficult because impacts are time-compressed (days rather than years), outcomes are driven by multiple interacting forces (tourism trends, weather, competing activities), and data is often limited to event-period surveys rather than longitudinal observation (Ossowska et al. 2023; Dwyer and Jago 2019).

This white paper is written for practitioners and decision-makers who commission, evaluate, or rely on festival/event economic impact studies. It clarifies the main pitfalls of attribution and identifies methods that can strengthen causal claims, without assuming that every study can afford high-rigor experimental designs.



## 2. Economic Impact vs. Attribution: Clarifying What Is Being Measured

### Gross Activity Versus Net (Attributed) Impact

Many festival/event studies estimate gross spending by attendees, organizers, teams/performers, and media, then apply input-output multipliers to estimate direct/indirect/induced effects (Dwyer et al. 2000). This approach can be valuable for describing the scale of activity associated with an event. Still, it does not by itself establish that the spending was incremental.

A more attribution-consistent measure is net new spending (sometimes described as “injected,” “incremental,” or “additional” spending). Net new spending is the portion of activity that would not have occurred in the local economy in the absence of the event, after adjusting for substitution, time-switching, displacement, and leakages (Dwyer and Jago 2019; Kim and Dombrosky 2016).

#### Working Definitions (recommended for all reports):

- **Gross event-related spending:** Total spending observed among event stakeholders during the event window, regardless of whether it is incremental.
- **Net new (attributed) spending:** The incremental portion plausibly caused by the event, net of key adjustments.
- **Economic contribution vs. economic impact:** Contribution is often used as a descriptive term for an activity associated with a sector; impact implies a causal effect relative to a counterfactual. When a study lacks a credible counterfactual, “impact” should be used cautiously (Dwyer and Jago 2019).

### Why “Multipliers” Are Not Attribution

Input-output multipliers translate spending into modeled ripple effects across industries, but multipliers do not determine whether spending is incremental. If net new spending is overstated at the front end, multiplier modeling can amplify the error (Dwyer et al. 2000; Dwyer and Jago 2019).

This is why attribution work in event studies is often less about econometric sophistication and more about disciplined *netting out* of non-incremental spending.

### 3. Why Attribution Is Uniquely Challenging For Festivals And Events



#### Short Duration Notice

Events often operate over a narrow time window, while many economic indicators (employment, income) respond slowly and are influenced by broader conditions. Even when short-run indicators exist (hotel occupancy, sales tax), they can be highly volatile due to weather, macroeconomic changes, and shifting travel patterns (Dwyer et al. 2000; Ossowska et al. 2023).

#### Bundled Trip Purpose and Partial Motivation

Visitor spending is frequently bundled: the festival may be one reason for a trip, but not the only reason. Baldi et al. show the importance of disentangling motivations in small destinations where “event tourism” and general leisure tourism overlap; if analysts attribute 100% of visitor spend to the event, they risk systematic overstatement (Baldi et al. 2022).

#### Substitution and “Local Spending” Ambiguity

Local residents may attend and spend money, but that spending is often switched from other local activities (substitution), not net new economic activity for the region. A practical example is the Canfield Fair study, which treats local spending as non-incremental and focuses on visitor spending to avoid inflating net impacts (Kim and Dombrosky 2016). Whether local spending should be excluded entirely depends on the study question and local context, but it must be explicitly justified.

## Additional Attribution Challenges

### Displacement and crowding-out

Large events can displace normal economic activity:

- regular visitors avoid the area due to congestion or price increases,
- locals avoid downtown spending,
- capacity constraints shift visitor lodging/spending to surrounding jurisdictions.

Displacement is frequently ignored because it is hard to measure, yet it can be material, especially in peak seasons or constrained destinations (Dwyer and Jago 2019; Dwyer et al. 2000).

### Leakage and limited local capture

Leakage occurs when event-related spending flows out of the study region via imports, non-local ownership, online platforms, and supply chain purchases outside the area. In small or rural regions, leakage can be especially high, reducing locally retained benefits and complicating claims about community-level development (Kim and Dombrosky 2016; Ossowska et al. 2023).

### Stakeholder heterogeneity and spatial distribution

Festival impacts are distributed unevenly across geographies and stakeholders. Research on local food festivals and rural development highlights that perceived and realized effects can vary by stakeholder group and by proximity to the event, underscoring why a single headline number rarely captures the full distributional picture (Ossowska et al. 2023).

## 4. Core attribution strategies for event-sector economic impact work

Economic impact assessments typically rely on three broad strategies to support causal attribution. In the festival/event context, each strategy has practical adaptations and common failure modes.

### Estimating the counterfactual

**Counterfactual estimation** asks: *What would have happened without the event?* This is the strongest logic for attribution, but it is difficult to apply to one-off events and short time windows.

#### Common Counterfactual Approaches For Events Include:

1. **Before/after comparisons** (e.g., event weekend vs. typical weekend).
  - *Risk:* confounds due to seasonality, weather, and concurrent activities.
2. **Year-over-year comparisons** (same weekend or seasonal window).
  - *Risk:* broader tourism/economic trends can dominate, and one year is rarely a stable baseline.
3. **Matched comparison locations** (similar destinations without the event).
  - *Risk:* spillovers (visitors stay in nearby towns), and “similarity” is hard to defend without data.
4. **Difference-in-differences** using a comparison area and multiple years (when feasible).
  - *Risk:* parallel trends assumptions often fail in tourism economies.

Even when counterfactuals are weak, explicitly stating which counterfactual is assumed, and why it is plausible, improves transparency and interpretability (Dwyer and Jago 2019; Dwyer et al. 2000).

## Theory of change consistency



A theory of change (or logic model) specifies the causal chain: the event attracts a specific audience → visitors generate incremental spending in target sectors → local businesses increase sales and employment → local tax revenues and incomes increase.

Event research emphasizes that the most defensible studies measure multiple links in the chain, not only attendee spending. For example, focusing on robust attendance measurement and careful expenditure scope helps reduce attribution errors when moving from “activity” to “impact” (Dwyer and Jago 2019).

### Eliminating alternative explanations

The third strategy is systematically addressing other plausible drivers of observed changes:

- competing events, holidays, and seasonal peaks;
- destination-wide marketing campaigns;
- weather anomalies;
- construction/transport disruptions;
- macroeconomic shocks.

Event forecasting and assessment frameworks explicitly recommend documenting these factors because governments often make comparative funding decisions, and untested assumptions about alternative explanations can misrank event proposals (Dwyer et al. 2000).

## 5. Methods: what is feasible in festival/event studies, and where each method breaks

This section summarizes methodological options commonly used for attribution in economic impact work and highlights their applicability to festivals and events.

### Experimental and quasi-experimental methods (high rigor, limited applicability)

**Randomized controlled trials (RCTs)** are rarely feasible for city-level events because it is not possible to randomly assign “festival” vs. “no festival” conditions across comparable jurisdictions. In narrower cases (e.g., randomized marketing offers, randomized discounting, randomized outreach to potential attendees), RCT-style approaches can evaluate components of event strategy, but typically not the whole event.

**Quasi-experimental designs** can sometimes support stronger attribution:

**Difference-in-differences (DiD):**

Compares changes in outcomes for a host area with those of a comparison area over time.

*Works best with multiple years of data and credible parallel trends.*

**Propensity score matching (PSM):**

Matches attendees or businesses to similar non-attendees/non-participants.

*Often undermined by unobserved differences (e.g., festival-goers may systematically differ in spending propensity).*

**Regression discontinuity:**

Applicable when event-related benefits have sharp eligibility thresholds (e.g., vendor grants).

*Not commonly available for general economic impact questions.*

For most festival economic impact studies, the binding constraint is not knowledge of these tools but the lack of longitudinal and comparative data needed to use them credibly (Dwyer and Jago 2019; Ossowska et al. 2023)

## Net-to-gross adjustments (pragmatic core for many event studies)

Given typical data constraints, the most practical improvements in attribution often come from disciplined net-to-gross calculations.

### Key Adjustments Include:

**1. Scope spending to non-local visitors where appropriate.**

Many studies exclude locals to reduce substitution bias; the Canfield Fair case illustrates this logic by focusing on non-local injection (Kim and Dombrosky 2016).

**2. Adjust for trip purpose (partial attribution).**

Visitor surveys can measure whether the event was the primary reason for travel and allow proportional allocation of spending. This is especially important in small destinations where leisure tourism and event tourism overlap (Baldi et al. 2022).

**3. Account for leakage using local purchase coefficients or related approaches.**

Leakage can be substantial in rural areas and small destinations, affecting how much spending is retained locally (Kim and Dombrosky 2016; Ossowska et al. 2023).

**4. Address displacement/crowding-out where measurable.**

Even a scenario-based displacement adjustment (low/central/high) can improve credibility if the study transparently explains why displacement is plausible and how sensitive results are to it (Dwyer and Jago 2019).

Dwyer and Jago emphasize “best practice” elements such as robust attendance measurement and the disciplined use of direct expenditure approaches, precisely because these inputs determine whether “impact” estimates are meaningful (Dwyer and Jago 2019).

## Contribution analysis and mixed-method approaches (credible when causality is complex)

When rigorous counterfactual estimation is not feasible, contribution analysis can produce a credible performance story: the event plausibly contributed to observed changes, supported by triangulated evidence. Mixed-methods, surveys, interviews, and administrative data are particularly relevant in rural development contexts, where outcomes are multidimensional and cannot be captured by a single indicator (Ossowska et al. 2023).

## Forecasting frameworks (ex-ante), and the attribution risk

Governments frequently require forecasting to determine which events are most “deserving” of public support. Dwyer et al. describe a forecasting framework that emphasizes consistent expenditure inputs and conservative multiplier choices, while also acknowledging that forecasting inherits the attribution weaknesses of its assumptions (Dwyer et al. 2000). In festival funding contexts, ex ante forecasting is often necessary. Still, it should explicitly separate (a) projected activity, (b) assumed incremental shares, and (c) uncertainty ranges.

## Next in the series (forthcoming)

This white paper has focused on *why attribution is hard* and *on the methods commonly used*. A forthcoming white paper will provide operational solutions using [Revelo Software's Economic Impact SaaS](#), including a practical “Minimum Viable Attribution” framework designed to standardize survey design, net-to-gross logic, leakage/displacement handling, and transparent reporting across festivals and events.

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