

Mega events, big impacts: an economic analysis of Neil Diamond's South African tour

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Abstract

Mega events, such as music concerts, are expected to have substantial economic impacts for host regions. Potential host regions have an incentive to attract such events. However, there is lack of research on the economic impact of music concerts, especially in South Africa. Both public and private sector stakeholders need accurate information in terms of concerts' economic impacts to enable effective decision-making for resource allocation towards the funding of such events. Without proper data, host regions risk either under-allocating or over-allocating subsidies towards concerts. This paper evaluates the regional economic impact of music concerts by using Neil Diamond's 2011 South African tour. The tour consisted of four concerts hosted in Johannesburg, Cape Town, Durban and Port Elizabeth. The economic impact of concerts stem from two sources, namely: expenditure by concert attendees (the demand-side) and the expenditure by concert organizers (the supply-side). Hosting the Neil Diamond concerts caused a short-term injection of new expenditure into the local economy. Past studies have shown that economic impacts resulting from income stimuli of this nature can be modelled by means of input-output analysis. This injection of new expenditure can be viewed as an increase in demand in the host economies, producing 'flow-on' effects, namely the indirect and induced impacts. The scale of these impacts is influenced by the extent of the inter-industry linkages in a specific economy and the extent of leakage associated with concert expenditures. Provincial Social Accounting Matrices were used to estimate the regional economic impact for each of the provinces which hosted the tour. The two multiplier measures used were: the addition to gross output and Gross Value Added (GVA).

Keywords: Economic impact, Input-Output models, Regional Economics, music concerts

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1. THE ECONOMICS OF A MEGA EVENT

Mega events, such as music concerts, are expected to have substantial economic impacts for host regions. However, there is lack of research on the economic impact of music concerts, especially in South Africa. An example of international research is the study by Gazel and Schwer (1997), evaluating the economic impact of the Grateful Dead concerts hosted in Las Vegas. This study suggested that concerts attracting large 'out-of-town' visitors are likely to produce additional revenues and jobs for the host economy (Gazel & Schwer 1997).

This paper evaluates the regional economic impact of music concerts by using Neil Diamond's 2011 South African tour. The tour consisted of four concerts hosted in Johannesburg, Cape Town, Durban and Port Elizabeth. The economic impact of concerts stem from two sources, namely: expenditure by concert attendees (the demand-side) and the expenditure by concert organizers (the supply-side). Hosting the Neil Diamond concerts caused a short-term injection of new expenditure into the local economy. Past studies have shown that economic impacts resulting from income stimuli of this nature can be modelled by means of input-output analysis. This injection of new expenditure (direct impact) can be viewed as an increase in demand in the host economies, producing a 'flow-on' (multiplier) effect, namely the indirect impact.

The revenue earned by local businesses is spent on replenishing stocks and to pay wages to employees. Suppliers and employees then spend these earnings, producing the indirect impact. However, a proportion of the direct and indirect expenditure is spent on imported products. This proportion is lost to the local economy and referred to as leakage.

In economic impact assessment perspective is important; a specific region must be defined as the focus area. Only new expenditure, originating from outside the host region may be considered for the impact calculations. For this reason, only expenditure by visitors from outside the host region may be considered as an injection of income

into the region. The scale of these impacts is influenced by the extent of the inter-industry linkages in a specific economy and the extent of leakage associated with concert expenditures.

2. ESTIMATING THE ECONOMIC IMPACT OF THE NEIL DIAMOND TOUR

The cash injection (direct effect) is determined by assessing the magnitude of the demand and supply-side expenditure. Input-Output (IO) multipliers may be estimated from an input-output table. The IO matrix forms the foundation of the input-output model (Martins & Van Aardt 2004). It summarizes all transactions that have occurred between the major economic stakeholders in a particular year (Martins & Van Aardt 2004). The most important aspect of the matrix is the division of these transactions into the main sectors of the economy.

The traditional IO matrix can be extended to show expenditure flows between households, government and the rest of the world (Reinert & Roland-Holst 1997:96). When an “extended” database is used the IO matrix becomes a Social Accounting Matrix (SAM) (Reinert & Roland-Holst 1997:96). Matrix algebra is used to transform the basic SAM into a Leontief inverse matrix. This matrix contains the sector specific multipliers for the region involved.

The cash injection directly affecting a specific industry can be applied to the multiplier for that industry. These multipliers can be used to determine the total effect on output (gross additional economic output) and Gross Value Added (GVA)². These multiplier measures are intrinsically linked, relating an initial direct stimulus to the final “multiplied” impact generated (Archer 1982).

² GVA (at basic prices) is a measure of Gross Domestic Product (GDP) which accounts for the impact of taxes and subsidies (Bannock, Baxter & Davis 2003). This GVA is obtained by subtracting indirect taxes from GDP and then adding subsidies. The GVA at basic prices corresponds to the value of incomes paid to the factors of production – the compensation of employees and the gross operating surpluses of firms. GVA or GDP can be used as multiplier measures, depending on the preferred treatment of taxes and subsidies, on condition that the measure used is clearly identified.

Output multipliers have the problem of 'double counting' economic impacts (Dwyer 2002:31). Output multipliers account for changes in the outputs of final and intermediate goods. However, intermediate goods are used as inputs in final goods. This causes the change in output of intermediate goods to be counted twice. For this reason, an output multiplier should be supplemented or replaced by the use of an GVA multiplier.

The GVA multiplier measures the contribution of the direct expenditure to GVA. GVA multipliers avoid double counting by considering only the value added at each stage of production. Value added in production (GVA) is measured by factor incomes in terms of the compensation of employees and the operating surpluses of firms. Multipliers may be thought of as ranging between Type 1 or 2 multipliers (see Table 1 below).

Table 1: The Range of Multipliers

Type 1 multiplier = (direct + indirect effect)/direct effect

Type 2 multiplier = (direct + indirect + induced effect)/direct effect

Source: Roberts & McLeod (1989)

A Type 1 multiplier considers both the direct and indirect effects. A Type 2 multiplier includes an induced component which increases employment, income and revenue still further due to local wages and salaries increasing local consumption (Archer 1976, Roberts & McLeod 1989). The increased output (direct + indirect effect) causes an increase in income earned by the factors of production (capital and labour) which is distributed to households who then spend it again on goods and services. This expenditure causes the induced or consumption-induced effects (Van Seventer 2008). The difference between a Type 1 and Type 2 multiplier is that the former excludes the "household income and expenditure loop", whilst it is included in the latter (Van Seventer 2008).

The extent of the induced effect will depend on who receives the additional income. Workers may not receive additional income from additional work. The increases in labour productivity may be seized by firms who may keep the extra receipts to save or to settle debt (Van Seventer 2008). For this reason the induced component could be much less than modelled by the Type 2 multipliers (Van Seventer 2008).

The objective of this study is to conduct an economic impact assessment of Neil Diamond's 2011 South African tour. A provincial viewpoint was used to estimate the regional impact for each of the four host provinces. Provincial Social Accounting Matrices were used as basis to estimate regional sectoral multipliers. Considering the possible over estimation associated with Type 2 multipliers, this analysis only used Type 1 output and GVA multiplier measures. The economic impact was estimated by applying the demand and supply-side income injections to the relevant industry multipliers represented in the SAMs.

3. DEMAND-SIDE EXPENDITURE

A questionnaire was used to randomly sample the concert attendees at each concert. Expenditure was partitioned according to local visitors (from within the host province) and visitors from the other provinces (outside visitors). Visitors from the other provinces provide the main injection of new expenditure whereas expenditure by local visitors represents a shift of expenditure from other activities towards the concert. Locals did not incur expenditure on accommodation as opposed to outside visitors who spent a considerable amount. The demand-side expenditure injection was estimated using the average spending per person and the number of people attending each concert³ (see Table 2 below).

³ Based on the total number of publicly sold tickets.

Table 2: Demand-side expenditure

| | JOHANNESBURG | | DURBAN | |
|----------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| | Tickets: 48061 | | Tickets: 23401 | |
| | Locals | Outside visitors | Locals | Outside visitors |
| | Expenditure (R million) | Expenditure (R million) | Expenditure (R million) | Expenditure (R million) |
| Accommodation | N/A | 3.44582 | N/A | 1.996633 |
| Food | 5.721096 | 4.306559 | 4.106969 | 6.930206 |
| Beverages | 6.096033 | 3.083535 | 2.11311 | 3.390025 |
| Transport | 4.426654 | 5.143041 | 3.581289 | 9.079588 |
| Souvenirs | 1.343814 | 0.272957 | 0.790018 | 1.583468 |
| Total | 17.5876 | 12.80609 | 10.59139 | 22.97992 |
| | | | | |
| | Port Elizabeth | | CAPE TOWN | |
| | Tickets: 20336 | | Tickets:35214 | |
| | Locals | Outside visitors | Locals | Outside visitors |
| | Expenditure (R million) | Expenditure (R million) | Expenditure (R million) | Expenditure (R million) |
| Accommodation | N/A | 2.673586 | N/A | 3.25573 |
| Food | 3.890604 | 3.108942 | 6.504905 | 4.289348 |
| Beverages | 1.540473 | 1.258658 | 2.102881 | 1.239501 |
| Transport | 2.561312 | 3.604735 | 2.687936 | 4.199552 |
| Souvenirs | 0.611019 | 0.406293 | 1.415421 | 0.453789 |
| Total | 8.603408 | 11.05221 | 12.71114 | 13.43792 |

In Gauteng the majority of expenditure was provided by local visitors, amounting to R17.5 million and spending by outside visitors amounted to R12.8 million. In contrast, Kwazulu-Natal's income injection is largely attributable to outside visitors, amounting to R 22.97 million and local expenditure amounting to R10.59 million. A similar trend was experienced in the Eastern Cape where local spending amounted to R8.6 million and expenditure by outside visitors amounted to R11.05 million. The majority of concert attendees for the Western Cape concert were locals. The total expenditure by outside visitors was slightly more than that of local visitors. These expenditures were used as

inputs in the SAM multiplier models. The multiplier results are shown in Table 3, 4, 5 and 6 below.

Table 3: Multiplier Impacts for Johannesburg (Gauteng)

| | JOHANNESBURG | | | | | |
|------------------------------|--------------------------------|--------------------------------|--------------------------|-----------------|--------------------------|-----------------|
| | Tickets: 48061 | | | | | |
| | Locals | Outside visitors | Locals | | Outside visitors | |
| | Expenditure (R million) | Expenditure (R million) | Multiplier Impact | | Multiplier Impact | |
| Output | | | GVA | Output | GVA | |
| Accommodation | N/A | 3.445820 | N/A | N/A | 4.540447 | 1.551353 |
| Food | 5.721096 | 4.306559 | 7.827531 | 2.655374 | 5.892179 | 1.998835 |
| Beverages | 6.096033 | 3.083535 | 7.195835 | 3.156652 | 3.639844 | 1.596718 |
| Transport | 4.426654 | 5.143041 | 7.215288 | 2.988529 | 8.382972 | 3.472177 |
| Souvenirs⁴ | 1.343814 | 0.272957 | 0.685345 | 0.174696 | 0.139208 | 0.035484 |
| Total | 17.5876 | 12.80609 | 22.924 | 8.975251 | 22.59465 | 8.654567 |

The multipliers shown above are the total sectoral multipliers for each industry. The R17.58 million expenditure by locals resulted in an R22.92 million increase in gross output. The cash injection from outside visitors amounted to R12.8 million and resulted in an R22.59 million increase in gross output. The R17.58 million expenditure by locals contributed R8.97 million to GVA. The cash injection from outside visitors contributed R8.65 million to GVA.

⁴ The Gauteng, Kwazulu-Natal and Western Cape SAMs did not include a sector for Souvenirs. However, the Eastern Cape SAM does include such a sector and these multipliers were used as a proxy.

Table 4: Multiplier Impacts for Durban (Kwazulu-Natal)

| | Durban | | | | | |
|---------------|-------------------------|-------------------------|-------------------|----------------|-------------------|----------------|
| | Tickets: 23401 | | | | | |
| | Locals | Outside visitors | Locals | | Outside visitors | |
| | Expenditure (R million) | Expenditure (R million) | Multiplier Impact | | Multiplier Impact | |
| Output | | | GVA | Output | GVA | |
| Accommodation | N/A | 1.99663 | N/A | N/A | 3.015053 | 1.058730 |
| Food | 4.10697 | 6.93021 | 5.567353 | 2.325667 | 9.394496 | 3.924391 |
| Beverages | 2.11311 | 3.39003 | 2.722998 | 1.373821 | 4.368457 | 2.203997 |
| Transport | 3.58129 | 9.07959 | 4.767121 | 1.946651 | 12.08601 | 4.935314 |
| Souvenirs | 0.79002 | 1.58347 | 0.355508 | 0.079002 | 0.712561 | 0.158347 |
| Total | 10.5914 | 22.9799 | 13.413 | 5.72514 | 29.5766 | 12.2808 |

The R10.59 million expenditure by locals resulted in an R13.413 million increase in gross output. The cash injection from outside visitors amounted to R22.97 million and resulted in an R29.57 million increase in gross output. The R10.59 million expenditure by locals contributed R5.72 million to GVA. The cash injection from outside visitors contributed R12.28 million to GVA.

Table 5: Multiplier Impacts for Port Elizabeth (Eastern Cape)

| | Port Elizabeth | | | | | |
|---------------|-------------------------|-------------------------|-------------------|-----------------|-------------------|-----------------|
| | Tickets: 20336 | | | | | |
| | Locals | Outside visitors | Locals | | Outside visitors | |
| | Expenditure (R million) | Expenditure (R million) | Multiplier Impact | | Multiplier Impact | |
| Output | | | GVA | Output | GVA | |
| Accommodation | N/A | 2.673586 | N/A | N/A | 3.3419825 | 1.2565854 |
| Food | 3.890604 | 3.108942 | 7.4310536 | 2.4510805 | 5.9380792 | 1.9586335 |
| Beverages | 1.540473 | 1.258658 | 2.3965123 | 0.8378379 | 1.958093 | 0.6845633 |
| Transport | 2.561312 | 3.604735 | 4.046873 | 1.5880134 | 5.6954813 | 2.2349357 |
| Souvenirs | 0.611019 | 0.406293 | 0.2749586 | 0.0611019 | 0.1828319 | 0.0406293 |
| Total | 8.603408 | 11.05221 | 14.1494 | 4.938034 | 17.11647 | 6.175347 |

The R8.60 million expenditure by locals resulted in an R14.14 million increase in gross output. The cash injection from outside visitors amounted to R11.05 million and resulted in an R17.11 million increase in gross output. The R8.60 million expenditure by locals contributed R4.93 million to GVA. The cash injection from outside visitors contributed R6.17 million to GVA.

Table 6: Multiplier Impacts for Cape Town (Western Cape)

| | Cape Town | | | | | |
|---------------|-------------------------|-------------------------|-------------------|----------------|-------------------|----------------|
| | Tickets: 35214 | | | | | |
| | Locals | Outside visitors | Locals | | Outside visitors | |
| | Expenditure (R million) | Expenditure (R million) | Multiplier Impact | | Multiplier Impact | |
| Output | | | GVA | Output | GVA | |
| Accommodation | N/A | 3.25573 | N/A | N/A | 4.514469 | 1.506685 |
| Food | 6.5049 | 4.28935 | 7.87893 | 3.051131 | 5.195382 | 2.011923 |
| Beverages | 2.10288 | 1.2395 | 1.947521 | 0.574756 | 1.147928 | 0.338778 |
| Transport | 2.68794 | 4.19955 | 3.144667 | 1.277424 | 4.913136 | 1.995811 |
| Souvenirs | 1.41542 | 0.45379 | 0.636939 | 0.141542 | 0.204205 | 0.045379 |
| Total | 12.7111 | 13.4379 | 13.6081 | 5.04485 | 15.9751 | 5.89858 |

The R12.71 million expenditure by locals resulted in an R13.60 million increase in gross output. The cash injection from outside visitors amounted to R13.43 million and resulted in an R15.97 million increase in gross output. The R12.71 million expenditure by locals contributed R5.04 million to GVA. The cash injection from outside visitors contributed R5.89 million to GVA.

4. SUPPLY-SIDE EXPENDITURE

A breakdown of organiser spending was obtained from the organisers. Only expenditures which could be considered to flow to the host province were incorporated in the models. The multiplier impacts from these expenditures are shown in Table 7 below.

Table 7: Supply-side expenditure impact

| | JOHANNESBURG | | | Durban | | |
|---|----------------|-------------------|----------------|----------------|-------------------|----------------|
| | Expenditure | Multiplier Impact | | Expenditure | Multiplier Impact | |
| | (R million) | Output | GVA | (R million) | Output | GVA |
| Accommodation | 0.30386 | 0.400392 | 0.136804 | 0.31199 | 0.47113 | 0.16544 |
| Transport | 0.0874 | 0.142451 | 0.059002 | 0.08736 | 0.11629 | 0.04749 |
| Community, Social and Personal Services | 0.31593 | 0.445454 | 0.206902 | 0.13784 | 0.17707 | 0.09295 |
| Electricity | 0.03 | 0.043375 | 0.020107 | 0.039 | 0.0489 | 0.02185 |
| Other fabricated metal products | 0.03518 | 0.037454 | 0.012062 | 0.02331 | 0.02298 | 0.00715 |
| Communication | 0.01879 | 0.069222 | 0.025878 | 0.01313 | 0.02125 | 0.00859 |
| Machinery & equipment | 0.09098 | 0.125938 | 0.040248 | 0.06427 | 0.08638 | 0.02519 |
| Insurance | 0.12537 | 0.158839 | 0.09872 | 0.12537 | 0.14749 | 0.08989 |
| Total | 1.0075 | 1.42312 | 0.59972 | 0.80227 | 1.09147 | 0.45854 |
| | | | | | | |
| | Port Elizabeth | | | Cape Town | | |
| | Expenditure | Multiplier Impact | | Expenditure | Multiplier Impact | |
| | (R million) | Output | GVA | (R million) | Output | GVA |
| Accommodation | 0.38845 | 0.48709 | 0.18405 | 0.34903 | 0.48397 | 0.16152 |
| Transport | 0.0926 | 0.14624 | 0.05718 | 0.0842 | 0.09851 | 0.04002 |
| Community, Social and Personal Services | 0.11668 | 0.14575 | 0.05639 | 0.25045 | 0.20162 | 0.1146 |
| Electricity | 0.0292 | 0.03176 | 0.015 | 0.03 | 0.0347 | 0.01621 |
| Other fabricated metal products | 0.01875 | 0.03658 | 0.01072 | 0.08745 | 0.07891 | 0.02573 |
| Communication | 0.0022 | 0.0043 | 0.00176 | 0.01879 | 0.02337 | 0.00981 |
| Machinery & equipment | 0.05976 | 0.06472 | 0.01817 | 0.05889 | 0.05155 | 0.0156 |
| Insurance | 0.12537 | 0.14013 | 0.07258 | 0.12537 | 0.1128 | 0.0714 |
| Total | 0.833 | 1.05658 | 0.41584 | 1.00416 | 1.08543 | 0.45488 |

The supply-side expenditures all produced a relative increase in output. The contribution to GVA is smaller than initial expenditure; this is attributable to a large portion of spending 'leaking' from the host economies.

5. TOTAL ECONOMIC IMPACT

The demand-side expenditure is the most important factor determining the economic impact of a mega-event. A prudent impact assessment methodology requires that only expenditure by outside visitors be considered for the impact calculations. However, there is another school of thought who argues that expenditure by locals is not a shift of expenditure but rather expenditure induced by the event. For this reason, this analysis distinguished expenditure and economic impact according to local and outside visitors. The total economic impact (across all four host provinces) is shown in Table 8 below.

Table 8: Total economic impact (Demand-Side)

| TOTAL IMPACT (Tickets: 127012) | | | |
|--------------------------------|-------------|-------------------|----------|
| | Expenditure | Multiplier Impact | |
| | (R million) | Output | GVA |
| Locals | 49.49351 | 64.0945 | 24.68328 |
| Outside visitors | 60.2761 | 85.26282 | 33.00929 |
| Total | 109.7696 | 149.3573 | 57.69257 |

Considering only outside visitors, the event increased gross output by R85.26 million and GVA by 33.00 million. Incorporating locals, the impact on gross output amounted to R149.35 million and the impact on GVA to R57.69 million

6. CONCLUSION

Neil Diamond's 2011 South African tour created a significant economic impact for the host economies. The direct cash injection provided a further stimulus for the economy (multiplier effect) producing a positive impact in terms of output and GVA. It should be noted that these results depend on the estimation of visitor expenditure, average length of stay and the size of the visitor "population". The multiplier results will be relevant, on condition that the assumptions used in modelling the economic impact hold. These results are an estimate of the possible multiplier impact, based on the available information.

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