

Do we need an Economic Impact study or a Cost-Benefit Analysis of a Sports Event?

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Abstract

In this paper, we try to show, using a simple numerical example of a fictive international sports event, that there is a fundamental difference between what is generally called an economic impact study of a sports event and a cost-benefit analysis. The difference is important because an economic impact study does not yield any argument for the government to subsidize the event. Only a cost-benefit analysis can provide the necessary information.

1. Introduction

In the literature on sports economics and management, many impact studies of major sports events or investments in sports stadiums can be found. Although some of these studies have been carried out to satisfy the intellectual curiosity of the scientific researcher, many economic impact studies have been made in the interest of politicians and administrators who want to realize a (too expensive) sports project. Although it has never been clear what exactly these studies were trying to measure or to prove, they are used by sports lobbyists to show how beneficial the realization of their project will be for the local or national economy so that public support and subsidies can be justified. What they fail to see, deliberately or not, is the difference between an economic impact study,

on the one hand, which only measures the flow of foreign money into the country, or the additional income created, and a cost-benefit analysis, on the other hand, sorting out what the benefits for the local population are and which of these money flows are to be considered as a cost. In many cases, notwithstanding many nice economic impact figures, sports events turn out to yield negative net benefits, where some people gain but more people lose. Economists have already pointed out the usual pitfalls and mistakes in economic impact studies. The aim has been primarily to show how a proper economic impact study should be made. But even a properly conducted economic impact study does not provide a sensible argument for the government to support a project. Only the comparison of costs and benefits in a cost-benefit analysis does (see, among many others, Baade and Dye 1990; Crompton, 1995; Davidson and Schaffer, 1980; Kesenne, 1998; Noll and Zimbalist, 1997; Porter, 1999; Preuss, 2000, 2004; Rosentraub, 1994; Siegfried and Zimbalist, 2000).

The objective of this paper is to contribute to a better understanding of the fundamental difference between the economic impact of a sports event, as it usually measured, and its net benefit. We therefore start from a simple numerical example of the organization of a sports event in section 2. From these figures, we try to derive the economic impact of the event in section 3. In section 4, we calculate the difference between the benefits and the cost of the event based on some important principles of cost-benefit analysis. Section 5 concludes.

2. The organization of a sports event: a numerical example

Let's assume that a country is organizing an international sport event such as the Olympics or the World Cup, and that additional sports infrastructure is necessary, which is constructed by the local private sector and financed by the government. The total financial cost of the infrastructure is 100 million, with a labour cost of 45 million. However, the increased construction activity is crowding out other planned construction works for a total value added of 30 million. This means that, due to a lack of construction workers in the country, the newly hired workers are pulled away from other companies, (or hired from abroad), so that the net positive effect for the local economy is reduced.

Nevertheless, also some unemployed construction workers are hired. The capital costs is 25 million and we assume that the supply of capital is infinitely elastic, meaning that additional capital can be attracted without any increase in the cost of capital (assume no crowding-out). Finally, in an open economy, the import of intermediate goods is necessary, costing 30 million.

A second major cost factor is the organization of the sports event. Assume that this involves a labour cost of 50 million and no capital cost. A number of unemployed unskilled workers are hired. However, the necessary skilled workers, being in short supply, are attracted from other companies in the sector, crowding out 30 million in value added.

Table 1. Numerical example

Cost of additional infrastructure: built by local private sector and paid by government		100 million
- labour cost	45	
crowding out other value added: 30		
- capital cost	25	
- imports of intermediate goods	30	
Cost of organization (paid by organizing committee): crowding out other value added: 30		50 million
Revenue organization committee:		70 million
- ticket sales to visitors	15	
- ticket sales to locals	10	
- foreign tv-rights and sponsorship	45	
Revenue of lodging and catering to visitors: keeping out other visitors: 20		40 million
Income multiplier: 1,2		
Government tax returns: 40 % of extra income		

The organizing committee (in cooperation with the international sports body) covers the organization cost by ticket sales, television rights and sponsorship. The revenues consist of ticket sales to locals of 10 million; ticket sales to foreign visitors of 15 million, and the broadcasting and advertising rights of 45 million, which are sold to foreign companies only. The organizing committee's revenues are 70 million so that, compared with the cost of the organization, a profit of 20 million is made. The foreign visitors spend also 40 million on lodging and catering. However, given limited hotel capacity, foreign sports visitors keep out regular tourists, so that a displacement effect must be taken into account of 20 million. Assume that there is no lack of lodging and catering workers so that no crowding out is caused by the extra output. The government overall average tax rate is set at 40 % of total income. Finally, a (Keynesian) multiplier effect is taken into account. This is the result of the direct net income creation in the country which induces more spending by the residents, so that indirectly more value added and income can be created. However, given the high tax rate of 40 %, and assuming a high household saving rate and a high import rate of consumption goods in an open economy, the value of the income multiplier is only 1.2 (for more explanation, see Dornbusch, Fischer and Startz, 1998, or any other macroeconomic textbook). These figures are presented in table 1.

3. The economic impact approach

Because it is not always clear what exactly economic impact studies are trying to measure, several variations show up. We present two different types of impact studies that are often found in the literature, although some impact studies present one or another combination of the two.

A first type only calculates the money that flows into the country from outside, based on the reasonable assumption that the money that locals spend on tickets would also have been spent on other goods in the absence of the event. This implies that the local's saving rate has not been changed by the event. Given the figures in the numerical example, it means that total additional spending is 100 million as shown in table 2.

Table 2. Economic Impact approach I

Counting only the additional spending of foreign visitors:	
- total ticket sales	25 million
- foreign tv-rights and sponsoring	45 million
- lodging and catering, visitors:	40 million
minus ticket sales to locals	- 10 million
Total foreign spending (110 – 10)	100 million

A second type of economic impact study tries to determine the additional income (or value added) that is created by the sports event, including the extra jobs and the government tax returns. In the construction industry, the government has built and financed new sports accommodations for a total value of 100 million, so that income is created and additional workers are employed. However, not all income can be counted as additional income for the organizing country, because some income flows to foreign countries by importing intermediate goods (or hiring foreign construction workers). Also, due to the building of new sports accommodations, other construction works had to be cancelled or postponed, or workers had to be attracted from other construction companies. In the numerical example, the net value added of the construction industry is not 100 million, but only 40 million, because of imports (30) and crowding out effects (30). It is clear that the rate of unemployment can seriously affect the economic impact of an event: the higher the unemployment rate in the industry, the smaller will be the crowding-out of other value added.

The organization of the sports event costs 50 million and the total revenue is 70 million, so that the organizers' profit is 20 million. Assume that 50% of these profits are taken out of the country by the international co-organizing body so that the other 10 million goes to the domestic sports federations. Also this economic activity creates additional income,

but some crowding-out of 30 million occurs by lack of skilled workers. So, the additional income creation in the country is only 20.

The lodging and catering of foreign visitors during the event creates extra value added in hotels and restaurants. Because of the likely displacement of regular tourists during the event, the net value added is only 20.

Because locals spend 10 million on tickets, they do not spend that money on the goods and services that they would have bought if the sports event was not organized. So, this value added and income is lost for other industries in the local economy.

Table 3. Economic Impact approach II

Direct income creation (value added):	70 million
- construction industry	40
- organization sector	20
- lodging and catering	20
- other sectors	- 10
Indirect income creation: (multiplier = 1.2)	14 million
Total income creation:	84 million
Government tax returns (0,40 x 84):	33.6 million
Government savings on unemployment benefits:	42 million
Job creation (50.000 per job)	1680 job years

Adding up, as is shown in table 3, the direct income creation of the event is 70 million. Applying the multiplier of 1.2, the indirect income creation is 14 million, so that a total income of 84 million is created. Many economic impact studies also mention the extra jobs that are created: if on average the income per employee is 50 000, 1680 jobs are created.

Also very important are the government tax returns, including the savings on unemployment benefits. If the average tax rate on income is 40 %, and the profits of the organizing committee are not taxed, the total tax receipts are 33.6 million. If we assume that the (untaxed) unemployment allowances are 50 % of gross income, 42 million is saved by the government because of increased employment.

Both types of economic impact studies, if carried out correctly, can provide some interesting information, but which one is the right impact study? The answer depends on how 'economic impact' is defined, and nobody seems to know. In any case, both impact studies show very positive results so that the sports event deserves government support. Or not? Unfortunately, the information in neither of the two approaches provides the government with the answers it needs when it comes to deciding about supporting the event. What the government needs is information about the costs and the benefits of the event.

4. Cost-benefit analysis

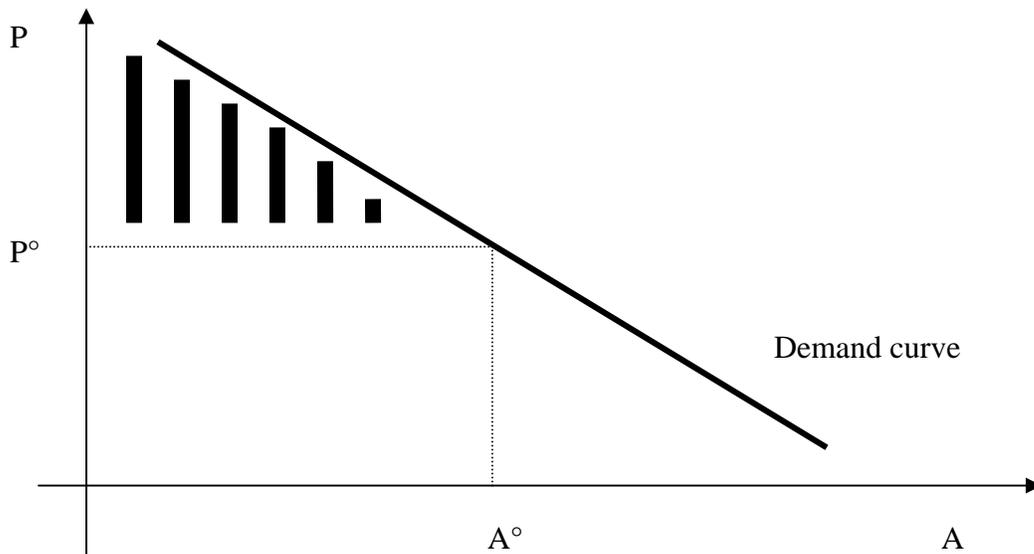
In this section, a cost-benefit analysis is carried out based on the same input data. However, in order to keep things simple, not all elements of cost-benefit analysis will be discussed and applied. The only objective of this article is to show the difference with the common economic impact studies. Nevertheless, a few fundamental principles of cost-benefit analysis, such as the consumer surplus and the opportunity cost cannot be neglected.

The objective of a cost-benefit analysis is to compare the benefits of a sports event for a region or a country, which is the increase of the value of consumption of the local population, with the costs of the factors of production that are necessary to organize the event.

On the benefit side, not only the actual expenditures of the local population have to be taken into account, but also the consumer surplus. The consumer surplus is the difference between the price a spectator is willing to pay and the price he has to pay to attend a game. If somebody is willing to pay 30 euro to attend a match and the ticket price is only

20 euro, the consumer surplus is 10 euro. In order to measure the consumer surplus, one needs to estimate a demand equation for sports tickets and that is complicated. However, the theory can easily be illustrated in figure 1, where the ticket price is indicated on the vertical axis and attendance on the horizontal axis. The downward sloping line represents the demand curve for tickets. If the price is P° , A° people are willing to buy a ticket. But it is clear that a good number of people were willing to pay more than P° (all spectators to the left of A° were willing to pay a higher price), so that the consumer surplus is the shaded triangular area.

Figure 1. Consumer Surplus



On the cost side, not the actual financial cost of a sports event should be taken into account, but the opportunity cost. The opportunity cost of an event is the benefit of the best alternative. For instance: if the government spends 100 million on a sports event, and the benefits are 120 million, the net benefit is 20 million if the financial cost is taken into account. However, the government could have decided to spend the same amount of money on organizing a music festival that would have yielded a total benefit of 150

million. It follows that the government foregoes these returns. These foregone benefits of 150 million are the opportunity cost of the sports event. It follows that the cost of the sports event is higher than the benefit of 120 million. In practical applications, however, this theory is difficult to implement in practice, because it is not possible to take account of all possible alternative ways to spend this amount.

Nevertheless, the concept of the opportunity cost can be useful in many cost-benefit applications (see Noll and Zimbalist, 1997). For instance: if the organization of a sports event would only involve the hiring of unemployed workers, the opportunity cost would be zero, even if the financial cost to pay these workers is very high. The reason is that the benefit to the country of the alternative, which is unemployment, is zero. In that case, the opportunity cost would even be negative if unemployment allowances are paid. If there is little or no unemployment, hiring more workers implies that they have to be taken away from other jobs, so that output and income are lost elsewhere. The sports event is crowding out other production so that the opportunity cost is positive. Indeed, the government money could have been spent on another project where no crowding-out effects occur. It follows that all crowding-out effects or import leakages, that are generated by spending the money on a sports event, are to be considered as part of its opportunity cost.

Returning to the numerical example, the direct financial benefits of the sports event are the total ticket sales of 25 million, the foreign television-rights and sponsorship of 45 million and the visitors' lodging and catering expenditures of 40 million. The indirect financial benefits of 14 million are based on the multiplier effects, created by spending the money on the sports event¹. Assuming that the consumer surplus is 50 % of the sports expenditures of locals, the consumer surplus is 5 million. However, as indicated above, the international sports body takes 50% of the (untaxed) organization profits of 20 million out of the organizing country, so that the total benefits to the country are reduced by 10 million.

Given the financial cost of 150 million, what is the opportunity cost in the numerical example? Part of the public spending of 100 million is leaking to other countries through

¹ It can be argued that these multiplier effects should not be counted as a benefit because the alternative spending of the government money would have created multiplier effects as well.

the imports of intermediate goods, costing 30 million. Another 30 million is crowded out by the employment of construction workers that are in short supply. Also for the organization of the event, costing 50 million, skilled workers in the sector are in short supply, causing crowding-out of 30 million. All other hired workers were previously unemployed. Part of the opportunity cost is also the 10 million that locals have not spent on other goods and services because they spent it on tickets. Assuming that the consumer surplus of these other goods and services was 2 million, 12 million has to be added to the opportunity cost.

Table 4. Cost-benefit analysis

Direct financial benefits: $25 + 45 + 40$	110 million
Indirect financial benefits (multiplier)	14 million
Consumer surplus of locals:	5 million
Minus: profits leaving the country	- 10 million
Total benefits:	119 million
Total opportunity cost: $30 + 30 + 30 + 12 + 20$	122 million
Net benefit: (119-122)	- 3 million

Last but not least, the foreign visitors, attracted by the sports event, can also keep regular tourists out, because of limited hotel capacity. Also this 20 million is part of the opportunity cost. Adding up, the total opportunity cost is 122 million, which is lower than the financial cost² of 150 million. (see table 1).

² Some people argue that not the total cost of the sports infrastructure should be included in the costing of the event. Apart from the fact that some accommodations would have been constructed anyway (therefore we used the term '*additional* infrastructure' in table 1), the argument goes that these sports facilities will still be useful after the event. However, this is a knife that cuts on both sides. If a new sports accommodation has been built, that would not have been built without the sport event taking place, the use

Adding up, the total benefits are 119 million, the total opportunity cost is 122 million, so that the net benefit for the country is negative and equal to minus 3 million. These figures are shown in table 4.

Even if the net benefit of the event would have been positive, that is not a sufficient condition for the government to step in with public money. Therefore one should investigate who wins and who loses. If only the organizing committee is running away with the profits while the tax payer has to suffer, the government should think again. In table 5, we have tried to identify the winners and the losers. The workers in the construction industry have experienced a direct income increase of 40 million (see table 3). However, they have to pay taxes (40 % of 40 million) and the previously unemployed workers no longer receive their unemployment allowances of 20 million (50 % of gross income) so that the gain is 4 million. The extra income creation in the organization sector is 20 million but the workers pay an extra tax of 8 million and lose their unemployment allowances of 10, so that the gain is 2 million. Also the workers in the lodging and catering sector are among the winners; they also enjoy an increase in after-tax income of 12 million, so that, after subtracting the unemployment allowances of 10 million, 2 million is left over. More complex is the situation for the other domestic sectors, because the local spectators, who were buying tickets for 10 million, did not spend that money on other sectors as they would have done without the event taking place. Assuming also that the indirect spending (multiplier effect) of 14 million goes to the other domestic sectors, the net positive effect is 4 million ($-10 + 14$). Then, more taxes are paid (1.6 million) and the new employed in the sector no longer receive their unemployment allowances of 2 million (50 % of gross income gain) so that the total benefit is 0.4 million. There is also the 10 million profits from the organization that stay with the domestic sports federations. Last but not least, the local spectators profit because of the additional consumer surplus of 3 million. The consumer surplus of spending 10 million of watching the sports event (5

of that facility after the event cannot be simply interpreted as a lower cost of the sports event. The reason is again the notion of the opportunity cost. If the sports accommodation would not have been constructed without the event taking place, it means that the benefit of an alternative use of the money could have had an even higher long-run return, which would further increase the opportunity cost of the sports event.

million) was assumed to be higher than the consumer surplus of spending the money on other consumption goods (2 million).

Table 5. The winners and the losers

Construction industry (40 – 16 - 20)	4 million
Organization sector (20 – 8 - 10)	2 million
Lodging and catering (20 – 8 - 10)	2 million
Other domestic sectors (4 - 1.6 - 2) (because of local ticket sales and multiplier effect)	0.4 million
Domestic sports federations	10 million
Locals (consumer surplus of 5 - 2)	3 million
Government or tax payer (-100 + 33.6 + 42)	-24.4 million
Net benefit (21.4 – 24.4)	- 3 million
International sports body	10 million

The big loser, however, turns out to be the tax payer. The government has spent 100 million of tax money, while the tax returns from the created income was 33.6 million (see table 3). Because of the increased employment in the country, the government saved 42 million on unemployment allowances (50 % of 84 million). So, the government budget shows an additional deficit of 24.4 million.

Comparing winners and losers, one can derive the same negative net benefit of 3 million as found in table 4. So, the sports event has an overall negative economic effect on the country because the costs are larger than the benefits, and moreover, while some industries and institutions profit, the average tax payer turns out to be the dupe. The big winner, however, is the organizing committee, in cooperation with the international

sports body, who made a profit of 20 million by selling tickets, broadcasting and commercial rights that largely exceeded the organizational cost.

5. Conclusion

In this paper, we have tried to show the fundamental difference between an economic impact study and a cost-benefit analysis of a sports event. In our opinion, it has never been very clear what exactly was meant by "the economic impact" of a sport event. In many cases, economic impact studies are only made to convince the government to support the sports event because of its positive impact on the local economy. Anyway, if the organization of a sports event is a profitable business, the private sector can do the job without any tax money, as has been shown in the past.

Does this mean that a sports event with a negative net benefit for the country should not be organized, or should not be supported by the government? It depends on what is included in the analysis and what is not, such as some long-term or positive external effects. These can be long-term effects on foreign direct investment or on the sports participation rate, health or labor productivity. Because these benefits are hard to estimate or to quantify, or rather arbitrarily, they are often left out.

If one thing should be clear from the numerical example, it is that most economic impact studies are all a bit fuzzy, and are certainly not able to provide a good argument for governments to support an event. Maybe we should better stop making economic impact studies of sports or arts, as already advocated by Van Puffelen (1996), and try to perform serious cost-benefit analyses.

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