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COST OVERRUNS IN MEGA SPORTING EVENTS:

Outlets and drawbacks for business enterprises

Wladimir Andreff *

Professor Emeritus at the University Paris 1 Panthéon Sorbonne

Honorary President of the International Association of Sports Economists

Honorary President of the European Sports Economics Association

Introduction

Montreal Olympics 1976 ended up in the red (\$ 1 bn), a deficit covered with a special tax (paid up to 2006), Grenoble Winter Olympics 1968: a local tax paid until 1992, London Olympics: the actual (ex post) cost = £ 9.4 bn (or even £12 bn) while the announced (ex ante) cost = £ 2.4 (multiplied by 4 or 5).

It follows a taxpayers' discontent, an increasing awareness of the cost among the population and its criticisms (Sochi 2014) or even strikes (Brazil 2013).

Questions: Are deficits and cost overruns the rule or exception with mega sporting events (I stick here to the Olympics and the FIFA World Cup)?

Why is it so? Is there any explanatory economic analysis?

At the end of day, are cost overruns a good news or a bad news for local business enterprises in the host country? Abroad for foreign enterprises?

1. Cost overruns in mega sporting events: empirical evidence and analysis

Studying all the Summer Olympics since Munich 1972 and all Winter Olympics since Lake Placid 1980, the *ex ante* cost of the Games (in the candidature file, or right after the IOC vote) is always observed to be much lower than the *ex post* cost (estimated at the moment of the opening ceremony or some time later): Tables 2 and 3 (more details: Andreff, 2012).

Ex post cost minus *ex ante* cost = cost overrun.

The *ex ante* cost is often multiplied by 2 (100% increase, Sydney 2000), or 4 (300% increase, London 2012) or even more (FIFA WC South Africa 2010). A 30% increase would be acceptable accounting for inflation over 6/7 years, cost overruns are only considered here when the cost increase > 30%.

Just one exception: Los Angeles 1984, no cost overrun (see below).

Table 2: Ex ante and ex post cost of Summer Olympics

Host city, year (Nb of bidders)	ct-1: ex ante cost	Ct: ex post cost	After t cost
Munich 1972 (4 bidders)	Overall cost: \$2705m	Investment cost: \$1757m00 LOOC operation cost: \$656m00	
Montreal 1976 (3 bidders)	Investment cost: \$549.5m00 Olympic stadium cost: \$172m	Investment cost: \$3395.6m00 LOOC operation cost: \$476m00	Operation: \$1592m Stadium: \$1000m
Moscow 1980 (2 bidders)	Overall cost: \$3.7bn Operation cost: \$2bn Investment cost: \$1,7bn	Overall cost: \$9bn	
Los Angeles 1984	No commitment	Overall cost: \$1592m LOOC operation cost: \$546m	
Seoul 1988 (2 bidders)	Overall cost: \$3.1bn Investment cost: \$3450m	LOOC operation cost: \$664m00 Investment cost: \$4063m00	Extra cost: \$2bn
Barcelona 1992 (6 bidders)	Investment cost in: 1985: F13bn; 1988: F23,5bn 1990: F35,5bn; 1992: F41,5bn LOOC operation cost: \$1670m	Investment cost: \$10134m00 Overall cost: \$9.3bn LOOC operation cost: \$1793m00	Debt: \$6.1bn
Atlanta 1996 (6 bidders)	Overall cost in 1990: \$2021m	Investment cost: \$1324m00 LOOC operation cost: \$1346m00	

Sydney 2000 (5 bidders)	Overall cost in 1994: \$3428m Investment cost: \$2500m LOOC operation cost: \$1463m New South Wales Invt: \$1220m	Investment cost: \$2601m00 LOOC operation cost: \$2434m00 New South Wales Invt: \$1249m	Overall cost: \$6.6bn
Athens 2004 (5 bidders)	LOOC operation cost: \$2162m00 Overall cost: €4.6bn	LOOC operation cost: \$2404m00 Overall cost: €6.0bn (June 2004)	Overall: €9.6bn
Beijing 2008 (5 bidders)	Investment cost: \$1600m00 Invt cost in 2006: \$2800m LOOC operation cost: \$786m00 Olympic stadium cost: €300m Overall cost: €2.2bn (\$bn1.9bn) 2004 \$2.4bn in 2006	Investment cost: \$2170m00 LOOC operation cost: \$1458m00 Infrastructure cost: \$35.6bn Olympic stadium cost: €380m Overall cost: \$43 to 45bn	Invt cost: €13.5bn Infrastr: €29bn
London 2012 (5 bidders)	Overall cost: £3.4bn in 2005; £3.674bn end 2005; £9.3bn in 2007 £10.0bn in 2009 Investment in 2005: £2.664bn in 2006: €15.0bn LOOC operation 2005: £1010m in 2006: €1900m	Overall in 2011: \$19bn (£11.6bn)	

m: million; bn: billion; \$m00: in 2000 dollars; Australian dollars for Sydney; F: French francs

Sources: Andreff & Nys (2002), Auf der Maur (1976), Barget & Gouguet (2010), Gouguet & Nys (1993), Preuss (2004 & 2006), Zimbalist (2010 & 2011), bidding committees, press articles.

Table 3: Ex ante and ex post cost of Winter Olympics

Host city, year (Nb of bidders)	ct-1: ex ante cost	Ct: ex post cost	After t cost
Lake Placid 1980 (2 bidders)	Initial operation cost: \$47m Investment cost: \$129m	LOOC operation cost: \$96m	Op. loss: \$8.5m
Sarajevo 1984 (3 bidders)	Operation cost: \$17.6m	Operaton cost: \$20.2m Investment cost: \$15.1m	
Calgary 1988 (3 bidders)	Initial overall cost: can\$500m	Overall cost: can\$1000m LOOC operation cost: \$636m	
Albertville 1992 (7 bidders)	Initial total cost: F2933m in 1987: F3160m, 1991: F11487m of which operation cost: F3233m, sporting equipments: F714m infrastructures: F8630m Accommodation cost: F289m	Overall cost: F12bn LOOC operation cost: F4200m sporting equipments: F5755m infrastructures: F7800m Accommodation cost: F575m	Op. loss: \$60m (F285m) Extra sport equipt cost: F286m
Lillehammer 1994 (4 bidders)	Overall cost in 1988: \$1511m	Overall cost: \$1700m	Op.loss: \$343m

Nagano 1998 (5 bidders)	Overall cost in 1992: \$450m	Overall cost: \$875m	Debt: \$11bn
Salt Lake City 2002 (4 bidders)	Operation cost: \$400m in 1989, 1996: \$1000m, 1998: \$1300m	Operation cost: \$1.9bn	Op. loss: \$168m
Turin 2006 (6 bidders)	Investment cost: €3.5bn Operation cost: \$660m	Investment cost: €13bn Operation cost: \$1357m	Op. loss: \$38m
Vancouver 2010 (3 bidders)	Operation cost: \$846m	Operation cost: \$1269m Investment cost: €1.31bn	Op. loss: \$37m
Sochi 2014 (3 bidders)	Initial total cost: \$8.4bn 2007: \$12bn, 2010: \$33bn		

m: million; bn: billion; \$00: in 2000 dollars; Australian dollars for Sydney, F: French francs; Y: yen

Sources: Andreff & Nys (2002), Barget & Gougnet (2010), Burton & O'Reilly (2009), Chappelet (2002), Elberse et al. (2007), Jeanrenaud (1999), Solberg (2008), Tihi (2003), Zimbalist (2010 & 2011), bidding committees, press articles.

Cost overruns emerge despite the IOC claims that «the Games will pay for the Games» (watchword after L.A. 1984) followed with a \$ 60m deficit for Albertville 1992 (also in Barcelona 1992, Calgary and Seoul 1988) ...

... and IOC attempts and calls for struggling against the Games' 'gigantism'.

However, the IOC members who vote the hosting city do not mind the cost since it is not paid either by the IOC (except the OCOG organisation cost) or by the IOC voters themselves. Result: usually they do not vote for the cheapest but for the most expensive candidature file (Table 1) supposed to be the most 'fantabulous' or fantastic.

Recently, I have checked the data about the costs of the past FIFA World Cups (Table 4): again cost overruns are the rule more than exception.

Table 1: Ex ante cost: comparison between cities bidding for the Olympics

<i>2012 Summer Olympics: announced costs</i>			
New York	London	Madrid	Paris
Overall: 10,68M\$	Overall: 18,25M\$	Overall: 3,64M\$	Overall: 8,87M\$
Investment: 7,59M\$	Investment: 15,79M\$	Investment: 1,64M\$	Investment: 6,21M\$
Operation: 3,09M\$	Operation: 2,46M\$	Operation: 2M\$	Operation: 2,66M\$
Moscow			
Overall: 11,86M\$			
Investment: 10,07M\$			
Operation: 1,79M\$			
<i>2016 Summer Olympics: announced costs</i>			
Chicago	Tokyo	Madrid	Rio de Janeiro
Overall: 3,3M\$	Overall: 4,07M\$	Overall: 4,18M\$	Overall: 9,53M\$
Investment: 2,6M\$	Investment: 2,11M\$	Investment: 2,35M\$	Investment: 7,6M\$
Operation: 0,7M\$	Operation: 1,96M\$	Operation: 1,83M\$	Operation: 1,93M\$

Sources: bidding committees.

Table 4 : Ex ante and ex post cost of the FIFA World Cup

FIFA World Cup in:	Ex ante cost	Ex post cost
France 1998	OrgC 1995: 1.6 bn F stadia: 2.4 bn F	OrgC: 2.4 bn F InvC: 4.3 bn F stadia: 3.1 bn F
Japan & South Korea 2002	Japan OrgC: 530 m € Korea OrgC: 395 m € InfraC Korea: 2.6 bn \$ stadia Korea: 1.3 bn \$ stadia Japan: 4.6 bn \$	InfraC: 5.6 bn \$ stadia Korea: 2 bn \$ stadia Japan: 5 bn \$
Germany 2006	OrgC: 430 m € InfraC: 1.6 bn € stadia 2003: 1.4 bn € Total cost: 3.7 bn €	OrgC: 450 m € InfraC: 3.7 bn € stadia: 1.5 bn € Total cost: 8 (10) bn €
South Africa 2010	InvC: 2.3 bn R 2003; 17.4 bn R 2007; 30.3 bn R 2010	InvC: 39.3 bn R, municipal Inv included
Brazil 2014	InvC: 8.2 bn \$ 2010; 14.5 bn \$ 2012; 16 bn \$ 2013 stadia: 1.5 bn \$ 2010; 3.9 bn \$ 2013 Total cost 2007: 12 bn \$	Expected total cost: 45 bn \$?
Russia 2018	InvC: 11 bn \$ 2010; 19 bn \$ 2012; 22 bn \$ 2013	Expected InvC: 43 bn \$ 2018?

OrgC: organisational cost; InC: investment cost; InfraC: infrastructure cost

bn: billion; m: million; F: French franc; R: rand

Source: author's data collection, various sources.

And now come Brazil (WC 2014, SOG 2016) and Russia (WOG 2014, WC 2018):

cost overrun already materialises with FIFA WC in Brazil and Russia (Table 4) ... as well as for the Olympics (Andreff, 2014):

Sochi 2014 ex ante: OrgC = €1.2 bn; InvC = € 6.4bn and total cost = € 7.6 bn as against € 4 bn in Turin 2006 and € 2 M in Vancouver 2010 ...
... has reached \$ 33 M in 2010 and \$ 52 M in 2013.

Rio de Janeiro ex ante: OrgC = \$ 1.93 bn; InvC = \$ 7.60 bn and total cost = \$ 9.53 bn,
already revised up to about \$ 42 M of which OrgC = \$ 2.8 M, InvC in sporting equipment = \$ 9 M, transportation system = \$ 5 M, urban renovation = \$ 14 M (see also Prof. Istvan Kasznar's presentation).

Cost overruns are always smaller for organisation/operation cost than for investment and infrastructure cost.

Now how explain this long-lasting tendency to cost overruns?

The economic theory of auctions provides a response coined the *winner's curse*: in any auction-type setting where the value of the auctioned object is uncertain but will turn out to be the same for all bidders, the party who overestimates the value is likely to outbid the competitors and win the contest.

Candidate cities / countries indeed overbid for hosting a mega sporting event. Thus, in order to outbid all the rivals, the winner must promise and commit itself to achieve a fantastic / fantabulous Olympics project (namely underestimating the actual costs, overestimating the actual benefits) ... which appears unattainable at the end of the day, when the winner has to really implement the project (then the winner of the bid appears to be financially cursed, *i.e.* a loser).

Olympics: nobody knows the actual value of being selected to host them. The one who has the most aggressively bid and overestimated the value (the winner) yields an unexpected financial loss (which increases with the number of bidders).

Variants of the winner's curse are:

1/ The winner's curse hypothesis was first advanced, in market economies, to explain low returns on investment to companies engaged in competitive bidding for oil and gas leases (Capen *et al.*, 1971).

2/ Financial markets: concentrate the great bulk of the literature about the winner's curse in auctioning process ; ex: share value underestimation in initial public offerings, price overbidding in sealed-bid auctions, English auctions, etc.

3/ Second hand markets (Akerlof ,1970), the value of a «lemon» is uncertain, and information asymmetry lead to adverse selection, the purchaser is cursed.

4/ Centralised allocation of investment funds in centrally planned economies: A national investment fund was allocated by a central planner – CP – across decentralized enterprises to enable them to invest: the CP was announcing the overall amount of the investment fund and calling state-owned enterprises to apply with the best possible projects (information asymmetry: the CP did not know the enterprises' factors of production, capabilities, possible slacks, etc.).

Each enterprise was incited to «cheat» on (the reality of) its costs, completion duration of investment, the efficiency of its project (thus its revenues) ... in order to get investment funds. For a project k :

$$ck < Ck; \quad rk > Rk \quad \text{therefore:} \quad bk = rk - ck > Bk = Rk - Ck$$

b_k : *ex ante* (expected) social benefit; B_k : *ex post* (achieved) social benefit.

The more an investment project cost (completion duration) was underestimated, the more it was likely to be selected and financed by the CP ... and the more it will be unfeasible at expected cost and in due time: systematic cost overruns and completion delays (unachieved building sites) had characterized the CPEs for ever.

The Olympics centralised allocation process with asymmetric information

IOC objective function: as a (global) central planner who allocates the Games, calls for the best possible Olympics (quality, security, telecommunication, etc.) and selects the best host city's candidature file (through an auctioning-like process) ... its actual knowledge of the Olympics project being limited (despite site visits): information asymmetry.

Host cities objective function: get the Games; they overbid for that with underestimating their costs (overestimating the gains): the winner's curse emerges as soon as a city is a candidate (and there are other candidates to outbid): the winner is cursed by the IOC auction-like allocation process...

...whose some requirements are mandatory (Olympic facilities) while the quality of non sporting infrastructures, ceremonies, etc., is appealing for the votes in favor of «the best» (most fantastic) project, *i.e.* the most costly.

In order to outbid competing candidates, each city k has to announce in its candidature file the lowest possible cost (including with underestimating the real cost down to ck , role of impact studies) ...

... and the highest possible revenues/benefits up to rk .

The more an investment project cost is underestimated (and the more its benefit is overestimated), the more it is likely to be selected as the most fantastic one.

But the actual cost (that will only reveal for the bid's winner) is $Ck > ck$ and the actual benefits are $Rk < rk$, therefore: $bk = rk - ck > Bk = Rk - Ck$

Due to overbidding, the winner's curse always emerges so that, even before the Games, a cost overrun is for sure (and a benefit "under-run" is probable).

Indicators of the winner's curse

1/ Higher net social cost or lower net social benefit than expected. Due to the paucity of data about both ex ante and ex post costs/benefits, and the lack of relevant cost-benefit analysis of mega sporting events, proxies are to be used.

2/ Cost overruns: $C_t > c_{t-1}$; *ex post* achieved cost $>$ *ex ante* announced cost.

3/ Revisions (ex post) in the Olympics project (because the cost has become too high).

4/ Delayed completion of Olympics investments: which requires additional finance, jobs and overtime work to be completed before the t date (ex: Athens 2004).

5/ Extra public subsidy or extra public finance.

6/ Host city fiscal deficit and debt (then taxpayers extra-taxation).

7/ A disappointing number of ‘foreign’ (to the host region) visitors during and after the Games (the only winner’s curse indicator on the revenue/benefit side).

With these indicators: the winner’s curse reveals to be there in nearly all Summer and Winter Olympics, except when there was not really an auction (Los Angeles). The least affected host cities: Lake Placid, Lillehammer and Atlanta.

Los Angeles 1984: *the exception that confirms the rule*. After Montreal 1976 financial disaster, no candidate, L.A. called by the IOC to apply: just one single candidate, no bid, no overbidding, no winner’s curse, no cost overrun.

2. Cost overruns: opportunities and drawbacks for business enterprises

Cost overruns may fall upon the organisers (municipality, OCOG) and then fuel deficit and debt, and/or the suppliers of inputs for the mega sporting event (enterprises) in two ways:

a/ Cost increases in those enterprises committed to deliver a stadium, an hotel, a motorway, a service, etc. , due to:

- . Unexpectedly high local inflation rate.
- . A revision in the Olympics (WC) investment project.
- . A completion delay, some enterprise is lagging behind the schedule.
- . Penalties for not supplying in due time or without filling the contracted qualitative requirements.

b/ Increasing costs also open new outlets to enterprises that are not yet involved in the Olympics (or WC) project due to:

- . Its revision (see below) or extension.
- . Substitution of new enterprises to failing suppliers.

. Upstream bottlenecks (also agglomeration and congestion effects, traffic jams, etc.) met by incumbent suppliers.

. A final rush in order to stick to the deadline.

Revision of the mega sporting event project:

a/ Downward revision: when some investment in a building, transportation or service is abandoned in the Olympics (WC) project, some enterprises loose a market (normally get a compensation fee for a breach in the contract).

b/ Upward revision: when one more building, service, etc., is added to the Olympics (WC) project or to the perspective infrastructure, urban renovation, etc., or a new unforeseen investment extending a building, etc., this creates a new demand addressed to incumbent or to not yet involved enterprises.

b/ occurs more often than a/; overall investment in a mega sporting event is always under the threat of uncertainty (due to the winner's curse).

Delayed completion leads to:

a/ be more costly than a delivery in due time, and thus requires additional finance (usually a cost for the municipality or OCOG), ...

as well as hiring more manpower, resorting to overtime work (then an increase in wages and the payroll) that hit incumbent enterprises lagging behind the schedule.

b/ substituting a new supplier to an incumbent one, or the organisers signing with an additional supplier: new outlets for some enterprises.

Local, domestic or foreign enterprises may be affected by or benefit from cost overruns depending on whether the product or service is produced locally, 'imported' from another region located in Brazil, or imported by a multinational company to Brazil.

Beware that a mega sporting event sometimes may be more beneficial to a host country's/city's (Brazil's or Rio's) geographical neighbours, not only due to aforementioned imports.

(Leeds (2008) has demonstrated that neighbour cities/region (skiing resorts located in Colorado) have more benefited from an inflow of tourists in 2002, due to hosting the Winter Olympics in the US than Salt Lake City itself (crowded out),... and without taking over any cost of hosting the Games.

Example: the project 'Guyane Base Avancée' (head: Bernard Lama) expects to Attract tourists alongside with the 2014 World Cup; more basically to attract some national football team in the Cayenne training centre (among those teams which are going to play in Manaus, Fortaleza, or even Natal or Recife, up to Salvador de Bahia?). A stadium has been extended and refurbished (below 10,000 seats) and new sports halls built up .

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