EXECUTIVE SUMMARY
Cost and Revenue Overruns of the Olympic Games 2000-2018

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EXECUTIVE SUMMARY

The Olympic Games are the largest worldwide multi-sport event and are a significant and complex undertaking. More than 300 projects in distinct industries/branches and different communities/cities need to be coordinated, often involving more than 50 stakeholders. The resources to organise the event and finance new or renovate/upgrade existing infrastructure come from different bodies, different levels of government, private entities and external investments into the local economy.

The scale of attention and visibility, combined with the uniqueness of the task, have inevitably provoked many discussions about the costs and benefits of such an event, and how to assess them carefully. Part of this conversation has been a recurring focus on the cost overruns[1] of the Games and how they compare with the original estimates. This debate cannot take place without also looking at the revenues that finance a substantial part of the event and the benefits of the event, which are often intangible.

The objective of this study is to investigate the cost and revenue overruns of Olympic Games[2] from Sydney 2000 to PyeongChang 2018, as the size and organisational dimension (number of athletes, venues and events) have been relatively constant for that period and provide the best overview of how the Games are managed today.

To provide a base for future host cities, we concentrated our research on the core Olympic costs and revenues. This means we evaluated the development of the expenditure and revenues of the Organising Committees for the Olympic Games (OCOGs), which covers the operations of the event, and the investment of public money for the main Olympic venues (non-OCOG budget).

In addition to these two budgets, host countries, regions or cities often use the Olympic Games as an opportunity to carry out some of their long-term development projects, linked to urban renewal, transport and infrastructure for example, that are often not necessarily needed to stage the Games. This makes the criteria for considering what the actual cost of the Olympic Games is vary widely depending on where they are being organised, the period of the preparation and who is compiling the expenditures (government bodies, independent studies, academic research, media, etc.). These non-Olympic general development projects also have cost overruns, and these are notably often mentioned in media reports. However, these projects have not been considered for the purpose of this study as they are not needed to stage the Games.

This study also shows why attempts to come up with and compare overall capital costs for different Olympic Games editions are misleading. There are many public authorities and private investors involved, which makes it extremely difficult to find all project data from the candidature phase eight years before the Games (t-8) until Games time (t). If during this period any data are left out, cost overrun calculations will be like comparing apples and oranges.

The four main findings of our study were as follows:

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[1] Cost overruns are “the amount by which the actual cost exceeds the budgeted, estimated or target cost” (BusinessDictionary, n.d. a).

[2] Since host cities are committed to hosting the Paralympic Games together with the Olympic Games, the costs and revenues taken on board in this study encompass the Paralympic Games as well, even though for the sake of brevity we write “Olympic Games”.

1. For all 10 Games editions, we found that the costs of organising the Olympic Games (OCOG budget) are usually covered by revenues, which are almost entirely private resources plus the International Olympic Committee (IOC)'s contribution.
2. The OCOGs usually significantly overran their expenditures during the first few years, but then all OCOGs managed to save during the last two years and all of them finally balanced the budget or even generated a profit.
3. All Games underestimated their revenues and had revenue overruns.
4. The core Olympic capital investments considered in this study show cost overruns, but they are similar to the cost overruns of other (non-sporting) mega projects.

Methodologically, we must differentiate between three budgets:

- the expenditures and revenues of the OCOGs, because they are the centre of Olympic Games organisation;
- Olympic-related capital investments on venues, which are needed to stage the Olympic Games. We were very careful to display homogenised data by using the respective GDP deflators and construction price indices to consider inflation, and an average exchange rate to consider different currencies;
- non-Olympic infrastructure projects (airports, metro, roads, urban parks) for the long-term benefit of the city and region that are not required for the organisation of the Games, but which are often mistakenly mixed into the Games-related costs. These projects have not been considered in our study.

All results in this study are presented as percentages because the aim is to reveal the variations of the OCOG expenditures and revenues and the non-OCOG capital investments over time from bidding (t-8) to staging the Olympic Games (t). Shown in percentages, the absolute value of the costs is unnecessary and has no influence on the comparisons. Furthermore, the use of percentages has allowed this study to compare and contrast the 10 editions of the Olympic Games that were analysed. This has been done by categorising the expenditures and revenues of the OCOG and building a fixed set of Olympic venues (hereafter referred to as a "basket of venues") that are definitely needed and consistent across every Games edition for the non-OCOG capital investments. This "basket of venues" plays a similar role to the "basket of consumer goods" for tracking purchasing power (cost variation over time) in an economy. It also allows for a coherent comparison between different editions of the Games. Finally, the selection of venues represents a variety of capital investments and thus contains different potentials for cost overruns. The diversity of the basket ensures that the cost variations of these representative investments are relatively the same as those that a larger or full sample of all Olympic investments would create.

The "core" basket reflects with high probability the "performance" of the full basket with some conservative distortions due to the fact that the "core" basket represents the highest level of project size and complexity. However, given that we have over-proportionally considered more venues financed using taxpayers' money, the cost overruns are probably higher in our study than for the overall investments. Thus we take a conservative estimation here. The basket contains the Olympic Stadium, Olympic Village, IBC/MPC, swimming pool, multipurpose hall, velodrome, ski jumping hill, sliding centre and ice stadium. In other words, it can reasonably be assumed that almost all capital investments in sports venues were publicly financed anyhow and that private investors are less likely to accept (or manage) cost overruns than public fund providers. Overall, the rate of cost overruns should be higher for public funding and, by often not including the share of private investment in this study, we are taking a conservative approach, as the overruns would tend to be reduced otherwise.

Tables 1 and 2 summarise the main findings. For all 10 Games editions analysed, we found that the operational costs of organising the Olympic Games (OCOG budget) are usually covered by revenues,

which are almost entirely private resources and the IOC's contribution, which stems from the sale of media rights and international sponsorships.

Tab. 1: *Total cost overruns/ underruns from the Olympic Games*

	Sydney 2000	Athens 2004	Beijing 2008	London 2012	Rio 2016[3]
OCOG Revenue	72%	51%	8%	50%	N/A
OCOG Expenditure	51%	30%	4%	48%	N/A
Non-OCOG	56%	29%[4]	N/A	43%	N/A

Table 1 shows the percentage change in the budget estimated eight years before the Games to the final budget. It clearly shows that, relatively, revenues are underestimated more than costs. In particular, for Sydney 2000 and Athens 2004, OCOG revenues were used to balance the public costs of the host cities. A small final profit was then shared between the National Olympic Committees (NOCs), the city and the IOC, in accordance with the Host City Contract. PyeongChang 2018 is the first host that can keep its profit (US$ 55m) entirely, without a share going to the IOC. This study will have considerable information about the "N/A" fields; however, for this table we were not able to produce a final figure due to a missing final budget from (t).

The "basket of venues" used to measure the non-OCOG budgets demonstrates that the Olympic Games between 2000 and 2012 caused cost overruns from 29% to 56%. Rio 2016 managed to reduce the costs for the Olympic Stadium and its multipurpose hall, which was partly renovated for the Pan American Games in 2007. The public share of costs for the six core Olympic venues in Rio that are considered in our "basket" look low in comparison to media reports; however, there may have been large cost overruns for non-Olympic general infrastructural enhancements. The non-OCOG finances of Rio 2016 are not finalised, thus we have no comparable figure in Table 1.

Tab. 2: *Total cost overruns/underruns from the Olympic Winter Games*

	Salt Lake City 2002	Turin 2006	Vancouver 2010	Sochi 2014	Pyeong-Chang 2018[5]
OCOG Revenue	119%	N/A	12%	-3%	27%
OCOG Expenditure	114%	58%	12%	-6%	24%
Non-OCOG	28%	20%	13%	178%	N/A

[3] The accounts for the Olympic Games Rio 2016 have not yet been formally closed at the time of our report, so there are no final numbers available.

[4] Additional venues were considered.

[5] The accounts for the Olympic Winter Games PyeongChang 2018 have not yet been formally finalised at the time of our report, so there are no final numbers for non-OCOG budget.

The cost and revenue development for the Olympic Winter Games shows a similar pattern. Salt Lake City 2002 experienced major changes in its OCOG budget, while Vancouver 2010's variation was much lower. For all Olympic Winter Games editions, the OCOGs also managed to balance the expenditures and revenues. A key result is that over the 10 Olympic Games evaluated, the OCOGs always managed to end up with either a balanced budget or a surplus.

The non-OCOG cost overruns of Salt Lake City 2002, Turin 2006 and Vancouver 2010 were at a moderate 13-28%. The outlier was Sochi 2014 with 178%. Other than Sochi 2014, PyeongChang 2018 seems to have managed a reduction of its total costs. One year ahead of the Games the estimates were below the projections made eight years before. However, while the OCOG budget ended with a profit, we do not yet have the final budget for investments, which explains the N/A for these Games.

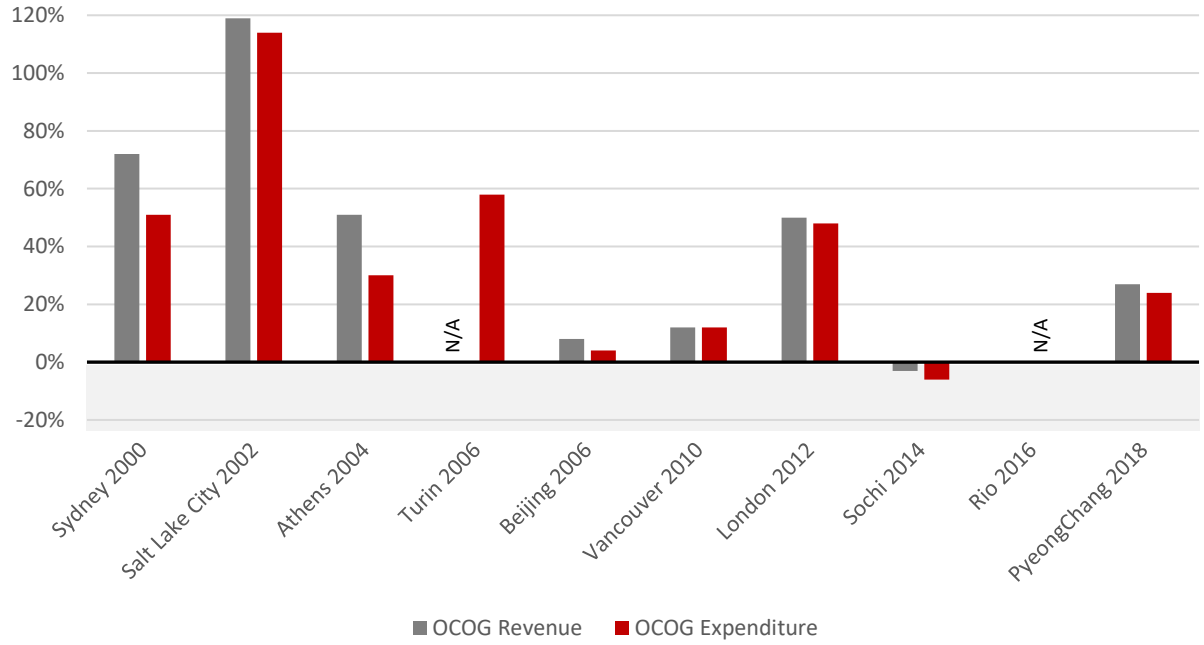

Fig. 1: Total cost overruns/underruns of the Organising Committees for the Olympic Games for which final numbers are available at the time of our report

Figure 1 compares all the 10 Games editions used in this study. It shows that the percentage of cost and revenue overruns became lower after Turin 2006, which indicates better planning and management. For OCOG revenues, all OCOGs except Rio 2016 (not definitively confirmed) and Sochi 2014 achieved a revenue overrun against their projection eight years before. The expectations of all other eight cities were greatly exceeded. According to the recent report by PyeongChang 2018 to the IOC Session in Buenos Aires on 8 October 2018, the OCOG achieved a surplus of US$ 55m. Sydney 2000 had the highest difference (72%) for the Olympic Games; and Salt Lake City 2002, with 119%, was the highest for the Olympic Winter Games.

Eight out of the 10 OCOGs analysed also had expenditure overruns. Rio 2016 (according to the data we have) managed to keep up with the prognosis in its Candidature File, and Sochi 2014 spent even less than predicted due to the high inflation during the time of preparation.

Another finding in this study is that the first few years of an OCOG's lifecycle is the period in which they significantly overrun their expenditures. However, all OCOGs achieved savings during the last two years, thereby balancing the budget. An important contribution to balancing the budget is the high revenue

overruns. This can be explained by the ever-increasing revenues of the Olympic Movement and the often conservative revenue estimate in the candidature files.

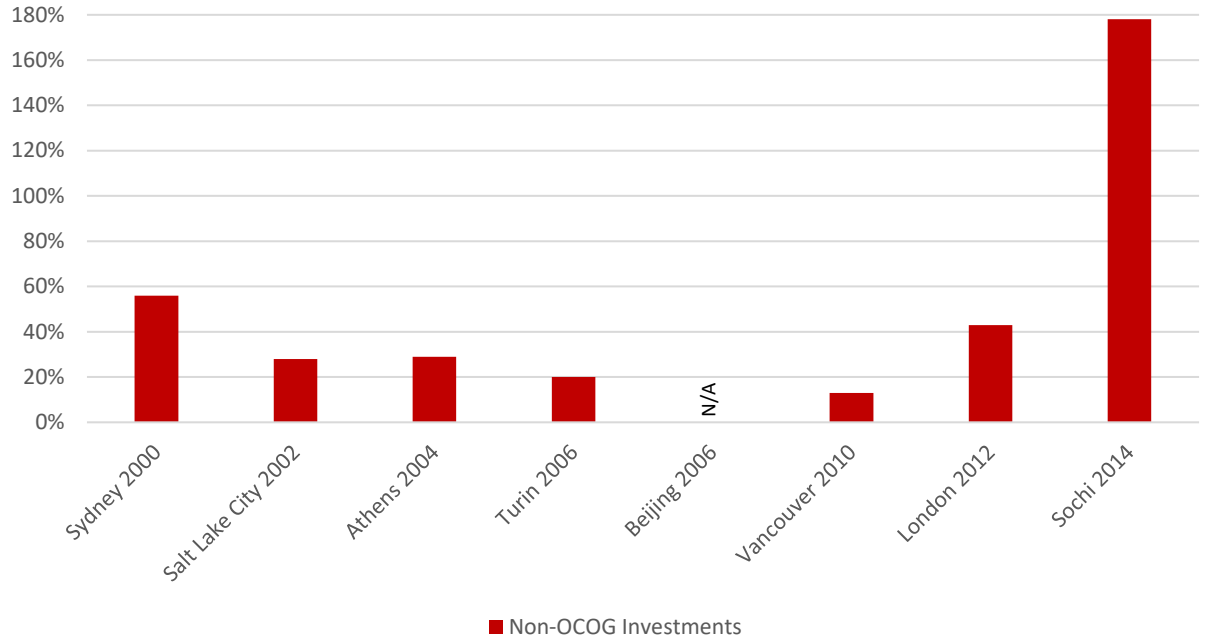

Fig. 2: Total cost overruns of the non-OCOG budgets for which final numbers are available at the time of our report

Regarding capital investments (Fig. 2), this study shows that core Olympic investments (non-OCOG budgets) have cost overruns similar to other mega projects. However, we demonstrated that some Olympic venues were able to reduce projected costs while others had severe overruns. In our discussion, we explain other reasons.

Although it was possible to conclude that the capital costs of the non-OCOG budget do not present higher overruns than projects in other industries and businesses, this study offers empirical evidence that a comparison of the Games or of Games investments as a whole with other mega projects cannot be reliable and is methodologically and academically questionable because of the following factors:

1) The Olympic Games are unique in their composition of construction (stadium, sewage supply, telecommunications and power plants, airports and villages, parks, etc.) and societal projects (education programmes, nation building and tourism advertisement, etc.), and thus no other branch can be compared to them.
2) The Olympic Games and all construction projects are unique for each country – thus making it impossible to compare the construction of a stadium in Brazil with one in Australia – due to different political and economic systems and public support levels, or national financial crises and inflation.

Our literature review provides a complete picture of reasons for cost overruns in mega projects and at the Olympic Games. The results show systematically that cost/expenditure/revenue changes per Games edition, per expenditure/revenue category and per infrastructure. Thus, we illustrate that at the same Games edition, different categories have different overruns. In most cases we were able to give logical explanations as to why these happened.

Overall in our study, we have been able to logically and theoretically explain which patterns caused cost overruns. These are not explained in the executive summary owing to their complexity. However, one of the main reasons for OCOG and non-OCOG cost overruns is the change of scope relating to expenses that were not planned at the beginning or that changed in the preparatory process, both on the side of the OCOG budget and for non-OCOG costs. Another reason is time pressure, which arises when the construction of venues begins too late.

We end with 18 recommendations for the IOC, OCOGs, host cities and public authorities:

R1: Host cities need to receive earlier guidance about the capital investments required for the Games.

R2: The IOC should alleviate pressure on cities during the bidding stage in order to reduce the risks of a "winner's curse" (i.e. overestimating their benefits).

R3: The IOC should work against strategic low-cost estimates to protect the taxpayer and should ensure that figures given are as realistic as possible.

R4: The host city should start constructing the required infrastructure as soon as the Olympic Games are awarded.

R5: The IOC should maintain responsibility for the agreed structural changes and enforce its overarching power to avoid unnecessary investments.

R6: The IOC should ensure that the host city's decision-makers have extensive plans regarding the funding of each "required" Olympic investment.

R7: The IOC should ensure that infrastructure costs that would have been incurred in any case are not counted in the "Olympic" costs.

R8: Cost and revenue projections should be estimated at the Games-time value. Inflation must be accounted for on the basis of consumer price indices and construction price indices.

R9: The host government should appoint a professional executive leadership.

R10: The host government should report to the parliament annually on the estimates of non-OCOG costs.

R11: Workforce and administration need to be budgeted with higher contingencies.

R12: Legacy transformation costs need to be planned and budgeted from the very beginning.

R13: The host city and the IOC should insist on maximising legacy through capacity reduction and post-event planning.

R14: The IOC should undertake measures together with the host government with a view to increasing transparency in relation to budget, cost and revenue changes.

R15: The delivery authority has to maintain a clear focus on the need for timely decision-making individually and collectively on an Olympic programme, in particular when there are multiple stakeholders and interests.

R16: The IOC should create a consistent financial category system to detect changes during and between Games.

R17: A first serious budget estimate should be made only once there is a valid overview of the overall project.

R18: The IOC should ensure that the Organising Committee conducts, in collaboration with relevant partners, a cost-benefit analysis before and after the Olympic Games.

THE RESEARCH TEAM & INSTITUTIONS

The institutions involved in this study were as follows:

The Europe-wide university ranking places Johannes Gutenberg University Mainz (JGU) among the top five German universities and in 21st place overall in Europe.

Founded in 1477, JGU is one of the oldest and biggest German universities and combines stimulating academic diversity with excellent research structures. JGU actively cooperates with leading German and European sports organisations, and participates in the political and cultural life of the region. The Institute of Sports Science covers the full spectrum of sports subjects, including sports economy, sports media and sports management. It is an active member of the MESGO (Executive Master in Sports Governance) and the Erasmus + MAiSI (Master in Sports Ethics and Integrity) programmes, with education strong at all levels. Research in sports management is focused on mega sports events, in particular Olympic research.

The University of Paris was created at the very beginning of the 13th century, and inherited its name from the College created by the theologian Robert de Sorbon in 1252. Alongside Oxford and Bologna, the Sorbonne is one of the oldest universities in the world.

Panthéon-Sorbonne University was established only in 1971 and has a renowned department of economics. The University Paris 1 Panthéon-Sorbonne, which succeeded the Faculty of Law and Economics of the Sorbonne, is one of the most famous and largest universities in France. Paris 1 is at the centre of a rich network of international relations stretching across the five continents, and plays a major role in training researchers, academics, judges, lawyers, senior managers and top French civil servants.

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