

# III – The economic impact of the Olympic Games

## Introduction

The Olympic Games is an event of such magnitude that it can potentially have a significant economic impact on the host city and, for the smaller countries, on the host nation as a whole. While the actual event may last for only a few weeks, preparations commence up to a decade beforehand and may entail considerable investment expenditures that can have longer term economic significance. With the Athens 2004 Olympics only weeks away, this article identifies the economic effects of hosting the Games, reviews the experience of past host cities, and reviews the outlook for the Greek economy in the light of the likely impact of the Athens Games. The discussion is structured as follows:

- III.1 Identifying the economic impacts of the Olympic Games
- III.2 Evidence from past Games
- III.3 The Athens 2004 Olympics and the outlook for the Greek economy
- III.4 Summary and conclusions

In Box 3.1, at the end of this article, we also take a look at how far economic and political factors can contribute to explaining how many medals countries win at the Olympics.

### III.1 – Identifying the economic impacts of the Olympic Games

It is important to draw a distinction between the financial impact of hosting the Olympics and the wider economic impact of the Games. The financial impact of the Games relates specifically to the budgetary balance of the host city's organising committee, and whether the financial costs of hosting the Games can be met by the revenues directly generated from Games events. The economic impact, on the other hand, relates to the wider effects of the Games on the general economy arising from associated factors such as increased tourism and improved infrastructure. In

Table 3.1 – Key economic benefits and costs of the Games

	Benefits	Costs
Pre-Games Phase	Tourism Construction activity	Investment expenditure Preparatory operational costs (including bid costs) Lost benefits from displaced projects
Games phase	Tourism Stadium & infrastructure Olympic jobs Revenues from Games (tickets, TV rights, sponsorship, etc.)	Operational expenditure associated with Games Congestion Lost benefits from displaced projects
Post-Games phase	Tourism Stadiums & infrastructure Human capital Urban regeneration International Reputation	Maintenance of stadiums and infrastructure Lost benefits from displaced projects

general, we focus in this article on the overall economic impact, although in some cases we also refer to estimates of the financial performance of the Games itself.

Clearly, for large economies such as the United States, the economic impact of hosting the Games is likely to be significant primarily at the local or regional level, rather than at the macroeconomic level. But for a smaller economy such as Greece, these effects are likely to be felt also at the national level.

The full economic impact of the Olympic Games on a host city is spread over time, and can broadly be split into three phases:

- **Pre-Games impact** – Impacts first start to occur soon after the city has decided to bid for the Games, up to a decade prior to the actual event, but become more significant after the Games is awarded. The impacts here relate mainly to the investment and other preparatory activities required to stage the Games, but tourism could also start to pick up in advance in some cases due to the higher profile of the host city.
- **Games impact** – The impact of the Games and the associated events immediately surrounding them.

- **Post-Games impact** – The longer-term impact, often referred to as the “Olympic legacy”, can last for at least a decade after the Games. This mainly relates to post-Olympic tourism and infrastructure effects.

The main economic benefits and costs associated with the Games are summarised in Table 3.1 and discussed further below.

### Demand-side benefits

Looking at the direct effects of hosting the Olympic Games, tourism is the only activity whose impact may be felt in all three of the above phases. The Olympic Games provide a unique event that attracts visitors both from within the host country and around the globe. Visitors directly linked to the Games include participants (athletes, coaches, team officials), spectators, sponsors and the media. Moreover, the promotion of the city creates an induced tourism effect as further visitors are attracted by the city's additional media exposure and enhanced international reputation. While the number of additional visitors reaches a peak during the year of the Games, this latter effect can sustain increased tourism flows for several years after the event.

Additional tourists bring additional demand to the regional (and national) economy as visitors spend money on purchasing food, accommodation, transport and tickets for the Games themselves. Broadcast revenues and corporate sponsorship may also accrue in part to the host city, although the IOC will generally also take a significant share of these revenues. Moreover, there is an additional secondary effect as the new money is re-spent within the borders of the host economy (although the effects here will differ at local, regional and national level). This “multiplier effect” includes additional Games-related employment and purchasing by local companies, as well as the impact of everyday household spending by employees of the companies benefiting from increased sales.

It should be stressed that it is the net economic impact that is of importance here; only money that would not otherwise have been spent is relevant. Some tourists would have visited the city even without the Games, while some who would otherwise have visited the city may have gone elsewhere for their holiday so as to avoid the large crowds attracted to the event (this is, for example, a concern in relation to London, a possible host for the 2012 Games, given the pressures that already exist on the City’s transport infrastructure in particular). Indeed, the additional congestion during the Games period could also induce some city residents to leave the region to take a holiday elsewhere<sup>1</sup>.

### **Supply-side benefits (legacy effects)**

Whilst the financing of construction projects may be costly, the host city should also benefit in the longer term from the additional infrastructure. Productivity should be raised, for example, by the improved transport facilities for handling passengers and freight. The creation or enhancement of sports facilities also increases the city’s ability to host other major national and/or international sporting events, provides opportunities for residents to participate and can generally make the city a more attractive place to live. It may also help to regenerate rundown areas. While the positive impact from some of these developments may be difficult to measure in economic terms, they are, potentially, an important legacy of the Games.

Many of the other legacy effects of the Games are also hard to quantify statistically. For instance, Olympic-related business contracts may help create longer-term business partnerships. The extensive media exposure during the Games may enhance the reputation of the city as an attractive business centre, further attracting new investment and trade from global companies. Preparations for the Games may also raise the city’s stock of human capital as employees are given additional training in areas such as telecommunications and languages.

### **Direct costs of the Games**

While additional consumer demand surrounding the Games is the most immediate source of benefit to the local (and national) economy, the most obvious cost of hosting the Games relates to the operating costs of hosting the event, as well as the construction of the necessary Olympics infrastructure, such as the Olympic village, stadia, media centre and transport facilities. The high level of Games-related expenditure on construction creates a huge demand in the sector, which may also displace other investment projects<sup>2</sup>. Rents could also be affected indirectly if housing construction is displaced by other building projects. A city such as Athens, for example, may find such costs greater and more difficult to manage due to the need for more extensive investment in infrastructure. These cities would also be more likely to experience the adverse effects of crowding out and price increases due to resource scarcity in certain sectors in the years before the Games.

### **Opportunity costs and additionality**

In addition to weighing up the aforementioned costs and benefits of hosting the Olympics, it should also be asked whether alternative uses of public funds might generate greater benefits for the city. Even if the economic benefits from hosting the Olympics exceed the financial costs, it is possible that public money spent on other projects would have yielded a higher net return. This is the so-called ‘opportunity cost’: the benefit of the best alternative project(s). In standard economic appraisals, this cost is

reflected in the discount rate used to calculate the net present value (NPV) of costs and benefits, but it may also be that, given limits on the availability of public funds, there may be a range of alternative projects with positive NPVs between which governments need to choose in determining the best use of government funds.

On the other hand, it is also possible that the Games may act as a catalyst to important infrastructure projects that would otherwise remain on the drawing board for several years or not proceed at all (i.e. there could be so-called ‘additionality’ benefits, although these will be less significant if it is just a matter of affecting the timing of projects). Of course, it cannot necessarily be assumed that the Olympics will generate worthwhile investments, rather than leaving so-called ‘white elephants’ with little lasting value to the economy. Success here requires Olympic investments to be fully integrated into a long-term vision for development of the host city (as was, for example, the case with Barcelona, as discussed further below).

## **III.2 – Evidence from past Games**

### **Financing the Olympics**

The macroeconomic effect of hosting the Olympic Games received little serious attention prior to the first economic impact study conducted for the Los Angeles Games of 1984. Interest in the wider economic effects of hosting the Olympics developed after the city of Montreal declared a considerable financial deficit from the 1976 Games (see Table 3.2, although it should be noted that this refers only to the direct financial effects of the Games, not their overall economic impact). The Montreal Olympics were financed almost entirely with the city’s own public funds, with a considerable amount spent on improving infrastructure and sports facilities in a relatively small area of the city. Such was the extent of the ensuing budgetary shortfall that Montreal’s taxpayers are still paying a supplementary tax on tobacco that is not expected to pay off the Olympic deficit until 2005/6.

Indeed, the Montreal Games were so financially disastrous that other cities were

<sup>1</sup> Although this may not involve any negative economic impact at the national level if these people still take holidays within the host country. This is one illustration of the inherent complexity involved in capturing the true net economic impact. In addition, one must also consider the complex matter of leakages, as money spent by tourists on imported goods, for example, would not be adding to the local economy.

<sup>2</sup> Although Los Angeles was an exception, due to the use of existing facilities for the Games.

deterred from bidding for some time due to the apparent risk of financial disaster (see Figure 3.1)<sup>3</sup>. Little information is available regarding the financing of the Moscow Games of 1980, but when Los Angeles hosted the Games of 1984, the citizens voted against public financial support and it thus became the first almost entirely privately-financed Games. This marked the beginning of the commercialisation of the Games and the development of global Olympic sponsorship deals. Only a very small amount was invested in upgrading the city's infrastructure. The Games proved a financial success and generated a budgetary surplus (see Table 3.2), although it may have had less of a positive long-term economic impact given the lack of new infrastructure spending.

Following the commercial success of the Los Angeles Games, cities were once again attracted to bid to host the event. Moreover, the Games of Seoul 1988 and, especially, Barcelona 1992 showed that a city could significantly improve its infrastructure by hosting an Olympics that was also financially viable. The cities upgraded their transport and telecommunications facilities as well as constructing new urban centres with housing, retail and other community facilities that have been fully integrated into their metropolitan areas. The possibility of benefiting from such legacy effects encouraged more cities to bid to host the Games. Increasing attention was focused on the wider economic impacts of the Games, looking at benefits stretching beyond the financial viability of the event itself.

### Cost-benefit analyses

Since the Los Angeles Olympics of 1984, a number of cost-benefit analyses have been conducted into the economic impact of hosting the Games (see Table 3.3 for some examples). In order to quantify the various impacts of hosting such an event, it is necessary to build a model of the economy in question. This necessarily involves making a number of simplifying assumptions in order to make the model tractable. Unfortunately, these assumptions may not always be suitable for the region or country in question and will thus limit the validity of the analysis. For instance, most studies to date have been based upon the classic input-output (I-O) modelling approach, which assumes that linear relationships hold between major

**Table 3.2 – Financial balance of Olympic Games Organising Committees**

US\$m, 1995 prices	Operational costs	Revenues	Balance excluding investments	Overall balance
Munich 72	546	1090	544	-687
Montreal 76	399	936	537	-1228
Los Angeles 84	467	1123	656	335
Seoul 88	512	1319	807	556
Barcelona 92	1611	1850	239	3
Atlanta 96	1202	1686	484	0
Sydney 2000	1700	1900	239	0

Note: Data is presented on a PPP basis, so as to allow comparison across territories.  
Source: Preuss (2004)

**Figure 3.1 – Number of cities bidding for Olympic Games**



**Table 3.3 – Economic impact studies of past Games**

Summer Olympics	Reference	Total economic impact	Impact as % of GDP*	Tourists	New Jobs	Period	Modelling Approach
Sydney 2000	Andersen, 1999	A\$6.5 bn (1996 prices)	2.78	n/a	90,000 (Australia)	1994-2006	CGE
Atlanta 1996	Humphreys & Plummer, 1995	US\$ 5.1bn (1994 prices)	2.41	1.1m	77,026 (Georgia)	1991-1997	I-O
Barcelona 1992	Brunet, 1995	US\$ 0.03 bn	0.03	0.4m	296,640 (Spain)	1987-1992	None
Seoul 1988	Kim <i>et al.</i> , 1989	WON 1846bn	1.40	n/a	336,000 (S. Korea)	1982-1988	None
Los Angeles 1984	Economics Research Associates 1984	US\$ 2.3bn (1984 prices)	0.47	0.6m	73,375 (South California)	1984	I-O

\*GDP in Olympic year; regional GDP levels used, except for Seoul where comparison is with national GDP.

economic variables even in the presence of a major shock such as hosting the Games. Such analyses fail to take account of features such as supply-side constraints or the existence of economies of scale, for example, and may thus produce misleading results<sup>4</sup>.

More recent studies for the Sydney Olympics were based on a computable general equilibrium (CGE) framework. This combines the input-output structure for the production side of the economy with behavioural functions that allow dynamic adjustment to

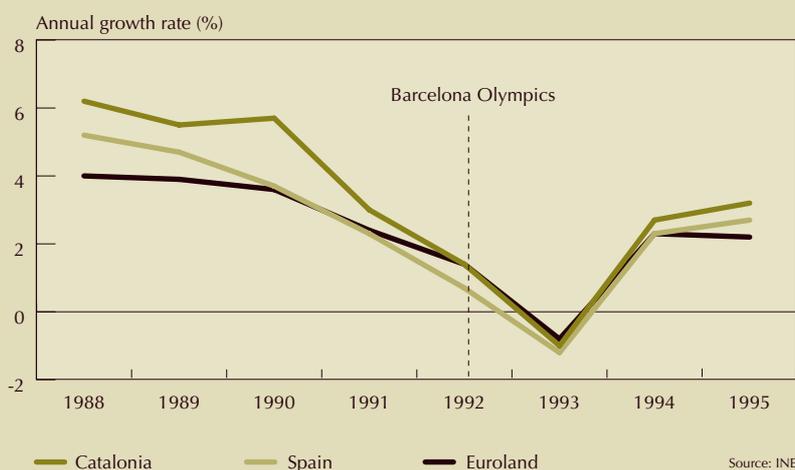
<sup>3</sup> Other factors may also have influenced these bidding decisions given that the number of bidding cities was already low and declining prior to the decision to bid for the 1984 Olympics.

<sup>4</sup> To the extent that the major effects are at regional/local level, moreover, these may not be adequately picked up by a national input-output (or indeed CGE) model.

Figure 3.2 – Spanish National Accounts



Figure 3.3 – Spanish and Euroland growth



equilibrium. This is a much more complicated approach than the I-O framework, which may explain why it has been utilised more rarely for studies of the Games. Nonetheless, even the dynamic CGE models must incorporate many simplifying assumptions, and cannot hope to take account of all the possible economic impacts that might arise from the Games, thus potentially limiting their validity. For example, the 1999 Andersen study predicted substantial tourism revenues for the Australian economy from hosting the Games, but these may well have been exaggerated due to the failure to take adequate account of those tourists who would avoid the region because of the Games.

It is worth noting that most of the economic impact studies of the Olympic Games were conducted *prior* to the actual Games. As such, this research is attempting to forecast the likely impact of the Games rather than conducting an *ex-post* economic assessment,

hence the estimates are likely to incorporate a wide margin of error in relation to both the costs and benefits of the Games. Unfortunately, there have been very few detailed studies carried out after the Olympic Games that would allow the predictions of *ex-ante* studies to be tested in a rigorous way. We are aware of an *ex-post* study<sup>5</sup> of the Los Angeles and Atlanta Games, which suggested that the employment effects were significantly lower than projected in *ex-ante* studies and that any increase in activity was temporary. It has also been reported that only 0.4m tourists<sup>6</sup> actually visited Los Angeles during the 1984 Games, just two-thirds of the 0.6m originally forecast. On the other hand, a 2001 study by PricewaterhouseCoopers for the New South Wales Department of State and Regional Development concluded that the Sydney Games had generated significant additional business and infrastructure investment in the city/region, increasing tourist inflows, and building up local expertise in managing large public-private

projects. This study did not, however, attempt to put an overall value on the net economic benefit from the Sydney Games that could be compared with the results of earlier pre-Games studies.

It is beyond the scope of this article to carry out a detailed *ex-post* study of past Games (or, indeed, a detailed *ex-ante* study for the Athens Games), but one issue that merits discussion is the extent to which economic activity falls off sharply after the Olympics.

### Is there evidence of a post-Olympic slowdown?

It has been argued that the Olympic Games merely provide a one-time impulse to the domestic economy. The effects of a non-recurring boost to expenditure weaken over time and the multiplier works in the opposite direction as demand falls and the economy returns to the equilibrium income that existed before the Games. Indeed, Figure 3.2 would appear to support such a hypothesis for the case of Spain. Both public consumption and investment slowed as preparations were finalised in the run up to the Barcelona Olympics, and the subsequent contraction in investment expenditure proved particularly sharp. Consumer spending held up well until the third quarter of 1992 when the Games were held, but then fell back in subsequent quarters.

But although this may appear to provide anecdotal evidence of a post-Olympic slowdown in Spain, one should be hesitant to draw any conclusions without reference to the wider economic situation. In fact, the 1992 Olympics coincided with a wider economic downturn in Europe, related in part to the aftermath of German reunification. Figure 3.3 compares GDP growth in Euroland with that of Spain and the Catalonia region, illustrating how the slowdown in Spanish growth rates largely reflected a wider European trend. One could perhaps argue that the slowdown proved somewhat more abrupt in Spain, particularly in Catalonia, which may have been connected to a post-Olympics hangover, but the effect should not be exaggerated and could reflect other factors (e.g. different industry structures).

Indeed, this conclusion is borne out by Figure 3.4, which illustrates how the growth

<sup>5</sup> Baade and Matheson (2002)  
<sup>6</sup> Data quoted in Papanikos (1999, p2)

rate of GDP in the state of Georgia exhibited little significant fluctuation in the years surrounding the Atlanta Games of 1996. On the other hand, a more significant effect does seem apparent at the sectoral level, within those industries most closely related to the Games. This is particularly clear in the hotels sector, where there is very strong growth in the year of the Games followed by a relatively sharp contraction in the subsequent year<sup>7</sup>. A similar slowdown also seems apparent in the construction and transport & utilities sectors following strong growth in the run up to the Games, although the effect is more muted. Given that hotels account for less than 1% of the state's GDP, while construction and transport & utilities together account for only around 15% of state GDP, it is perhaps not surprising that any effect on aggregate GDP from fluctuations in these sectors seems to have been overshadowed by other sectors unaffected by the Olympics.

Turning our attention to the 2000 Olympics held in Sydney, Figure 3.5 illustrates growth rates for the major components of domestic demand in the New South Wales region of Australia. Clearly there appears to have been a sharp slowdown in investment expenditure following the Games, following on from several years of strong growth. Consumer spending and overall GDP growth also slowed after the Games, although public spending picked up. Once again, however, considerable caution must be exercised in drawing any inferences from these broad trends as the Sydney Olympics preceded a downturn in Australian and global economic growth rates in 2001.

Overall, the evidence for a significant post-Olympic slowdown is not clear. One may expect some deceleration of growth rates in sectors linked closely to Games-related activity, but as these sectors generally account for a relatively small proportion of the economy, overall output growth seems unlikely to be significantly affected. Of course, this will also depend somewhat on the size of the host city's economy and the amount invested in Games preparations. As we will see below, these factors could make the post-Olympics slowdown relatively more significant in the case of Athens.

Figure 3.4 – Georgia State Accounts

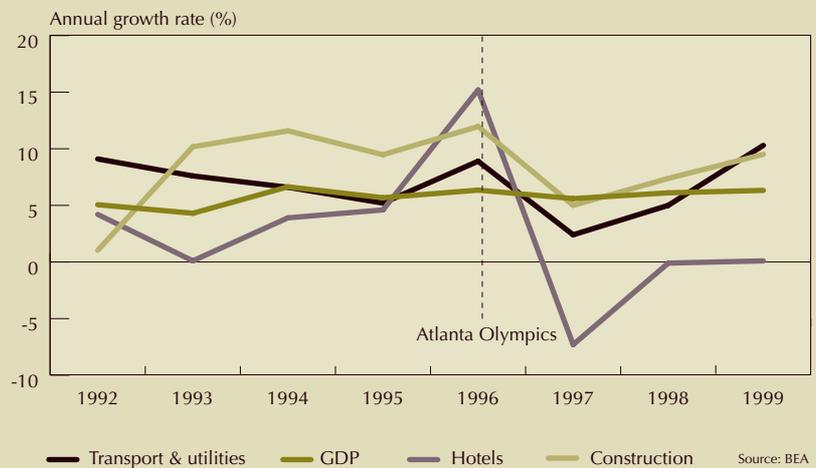
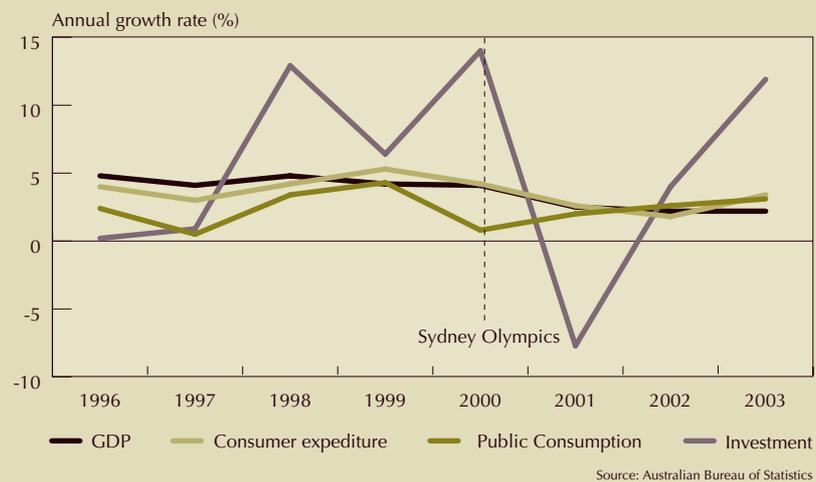


Figure 3.5 – New South Wales State Accounts



### III.3 – The Athens 2004 Olympics and the outlook for the Greek economy

We begin here by providing some background on the preparations for the Athens Olympics and then review past studies and other evidence relating to the potential economic impact of the Games on the Greek economy<sup>8</sup>. We conclude by looking at whether there is likely to be a significant slowdown in the Greek economy after the 2004 Olympic Games.

#### Preparations for the Athens 2004 Olympics

Greece is the smallest country to host the Olympics in over 50 years<sup>9</sup> and the financial burden of the project is proving significant. The operating costs of running the Games

have grown from an initial estimate of €500m to close to €2 billion, with the state covering at least 14% of the total. With responsibility for all infrastructure projects, the Greek Government's budget for its share of costs rose from €2.5 billion to €4.6 billion. Yet even this larger estimate has now been exceeded according to the newly elected government, which has blamed the previous administration for "losing control" of Olympic spending. Indeed, it has been suggested in media reports that the true total for Olympic spending may be closer to €10 billion. The divergence of these estimates may depend upon how the budget is calculated, particularly in relation to which construction projects are attributed to the Olympics budget. For example, the state is spending over €1.3bn on transport improvements that include connections to the stadiums and athletes' village, yet this expenditure does not appear to have been

<sup>7</sup> It should be noted that the scale of the contraction in 1997 is accentuated by the abnormally high levels of the previous year. Relative to more 'normal' pre-Games trends, the reduction does not seem so dramatic. The same point is true when considering the trends in investment in Figure 3.5.

<sup>8</sup> Since the Greek economic outlook is only considered briefly in the country reports in Section V below, which follow the standard format for this publication, we take the opportunity to provide further details here.

<sup>9</sup> Finland, as host country of the 1952 Helsinki Games, had a significantly smaller population than Greece (although Finnish GDP is similar to that of Greece at present, it would have been much lower in real terms in 1952)

included in the Olympic budget. The €600m athletes' village has also been excluded, on the grounds that it is being built by the Workers Housing Organisation and will later be sold off to low-income families.

In addition to the escalating costs of the project, concerns are also mounting over whether construction will be completed in time for the start of the Games on 13th August. Despite winning the contract to host the Olympics in 1997, major construction work did not commence until 2000. Work has been behind schedule and several projects have had to be scrapped, including a proposed rail link to the airport and the roofing of the Olympic swimming pool. The main stadium complex is scheduled for completion on 20th July, just three weeks before the Games open. Security costs, given terrorist fears, have escalated. Nonetheless, following victory in the March general elections, the new Prime Minister Costas Karamanlis was quick to dispel fears that construction projects for the Olympics would not be ready by August and has taken personal responsibility for the preparations.

With expenditure on the Olympics project having been concentrated in the years 2003 and 2004, this has contributed to a widening of the government's budget deficit. The 2002 deficit was 1.4% of GDP, but this rose to an estimated 3.2%<sup>10</sup> of GDP last year, exceeding the limit permitted under the EU's Stability and Growth Pact and significantly in excess of the original 0.9% target. In its Spring 2004 forecast, the European Commission predicts the Greek budget deficit will remain at 3.2% of GDP in 2004 before falling back to 2.8% of GDP in 2005, assuming GDP growth of 4% in 2004 and 3.3% in 2005. But there are clearly risks that the deficit could remain above 3% of GDP if the economy slows down more rapidly after the Olympics, or if public spending growth exceeds plans, as has tended to be the case in recent years<sup>11</sup>.

## Impact of the Olympics on the Greek economy

A 1999 study by Gregory Papanikos, concentrating only on the tourism impact of

Figure 3.6 – GDP growth in Greece and the EU



Table 3.4 – Components of Greek demand

(%) growth	2000	2001	2002	2003	2004(f)
GDP	4.4	4.0	3.8	4.7	4.0
Private consumption	2.0	2.8	2.8	4.0	3.6
Public consumption	2.2	-1.0	5.1	6.0	2.0
Investment	10.0	5.5	6.1	11.6	6.0
Exports	14.1	-1.1	-7.7	1.6	7.3
Imports	8.9	-3.4	-4.7	3.7	5.6

Source: Greek Statistical Service, European Commission forecasts for 2004

the Olympic Games, estimates that Athens could receive an additional 450,000 tourists annually on average until 2011, giving a total boost to the Greek economy averaging 1% of GDP each year for the entire period 1998-2011. In total, the study estimates that 6m additional tourists will be attracted to Greece, adding US\$ 10.6bn to the national GDP. A separate study by the state-financed Centre for Planning and Economic Research (KEPE) suggested a similar total benefit of €10.3bn over the period 1998-2010. This would be of a broadly similar order of magnitude to the higher estimates of the financial cost of the Games of around €10bn quoted above, although these two sets of estimates are not strictly comparable, so care should be taken in interpreting such figures. Moreover, as discussed above, any such estimates are subject to great uncertainty and may tend to overstate the ultimate benefits of the Games. There is a particular concern that terrorist fears could put off some potential visitors, notably from the US. On the other hand, there are likely to be other non-tourism-related benefits that are not captured by these studies.

These studies may not give clearcut answers, but it does seem, on the face of it, that the Greek economy has done relatively well in the run-up to the Games. As shown in Figure 3.6, Greek GDP growth was not significantly out of line with the EU average for most of the 1990s, but in 2001-3 growth averaged close to 4% in Greece at a time when it decelerated sharply to an average of only just over 1% in the EU as a whole. Various factors help to explain this, including the sharp reduction in Greek interest rates in the run-up to EMU entry in 2001, as well as the benefits of progress on macroeconomic stabilisation and structural reforms (e.g. privatisation and liberalising product markets) in earlier years. Large EU fiscal transfers have also boosted the Greek economy. Nonetheless, it is plausible to argue that the economic activity associated with preparation for the Olympics has also had a positive effect on Greek growth over the past 3-4 years, even if it is very difficult to disentangle this effect from other important factors.

Most recently, official estimates indicate that Greek GDP expanded by 5% in the year to

<sup>10</sup>This 7 May 2004 estimate was sharply up on the earlier estimate of 1.7% of GDP, causing some concern about the validity of the new figures also.

<sup>11</sup>Greece also faces major long-term fiscal sustainability problems related to the cost of its state pension system given an ageing population, but this is outside the scope of this article to discuss.

the fourth quarter of 2003, leaving average annual growth for the year as a whole at an impressive 4.7%<sup>12</sup>. Activity in 2003 was driven largely by domestic demand (see Table 3.4 for details), particularly investment and construction linked to the Olympic Games and assisted by financial flows from EU Structural Funds. Consumer expenditure has also been strong, supported by expanding credit, wage increases, and lower taxes, although it is difficult to link this directly to the Olympics.

The divergence from the EU norm has been particularly marked in the Greek construction industry, where confidence rose significantly after Athens was awarded the Games in 1997 (see Figure 3.7), in contrast to the generally depressed levels of confidence in the sector in other major European countries (notably Germany) in recent years. Consumer confidence has been much more muted in Greece, as in other EU member states, although there was a strong pick up in Greek consumer confidence in March 2004, as shown in Figure 3.7.

Greek tourism increased steadily during 2000-2, but suffered a setback in 2003 as the Iraq War, the SARS outbreak and the EU recession reduced tourist numbers. It is too early to be sure exactly how the sector will perform in 2004, however, and earlier trends seem likely to be primarily due to factors other than the Olympics.

Overall, therefore, the pre-Games economic situation in Greece has been healthy, but this is only partly linked to the Olympics itself and other factors such as EU transfers and EMU entry have been important. But a more significant question is what will happen after the Games.

### Post-Olympic economic prospects

Even if the Games themselves are a success, there is certainly a major risk that Greek economic activity could slow significantly in 2005, especially as the government will have to deal with the significant deterioration of the budget deficit (which could turn out to be greater than currently estimated, as discussed above). The Greek parliament is also due to elect a new President next year and, if the current administration fails to gain sufficient support

Figure 3.7 – Greek confidence indicators



Table 3.5 – Greek GDP growth forecasts

	2004	2005
Consensus (a)	4.2	3.0
IMF (b)	4.0	3.0
OECD (c)	4.1	3.6
European Commission (d)	4.0	3.3

Forecast date: (a) April 2004 (b) April 2004 (c) Dec 2003 (d) April 2004

for its candidate, there will have to be new elections. Such political uncertainty could cause growth to decelerate.

On the other hand, an expected gradual upturn in the rest of Europe should help support the Greek economy, while public investment will need to remain reasonably high if the government is to absorb all of the structural fund aid available under the third Community Support Framework (CSF III). Much depends on whether confidence remains strong among households and businesses. The view of independent forecasters, as summarised in Table 3.5, is that Greek GDP growth will decelerate from around 4% in 2004 to around 3% in 2005. The risks, however, would appear to be weighted towards the downside.

In the longer term, there could clearly be some benefits from the fact that Athens was certainly in need of the additional infrastructure that the Games has caused to be built. One should also not forget the potential positive legacy of the Games for the image of a city, as in the case, for example, of Barcelona and Sydney, assuming that the Games go smoothly in Athens. But, as other past experience shows, hosting an Olympic Games is not in itself a guarantee of future economic success.

### III.4 – Summary and conclusions

While the financial outcome from hosting the Olympic Games can be identified reasonably clearly after the event, the analysis in this article shows that it is much more difficult to generalise about the overall economic impact of the Olympic Games. In terms of the financial impact, the contrasting examples of Montreal, where taxpayers are still meeting the financial costs of the Games, and Los Angeles, which ran a large financial surplus, can be quoted here. In terms of the wider economic impact, the legacy of the Barcelona and Sydney Games is generally regarded as positive, but quantifying this effect is difficult. Most ex-ante studies tend to indicate significant net economic benefits, but there are great uncertainties around many of the assumptions underlying such analyses. There is also a lack of rigorous ex-post studies that have assessed whether the predicted gains from past Olympics have in fact been achieved. There is some evidence of post-Games economic slowdowns, particularly in the most affected sectors such as construction and hotels, but it is difficult to demonstrate a causal link here given that there are so many other factors that influence overall economic performance during such periods.

<sup>12</sup>The European Commission's Spring 2004 forecast instead quotes an estimate of 4.2% GDP growth for Greece in 2004, but the Greek National Statistical Service ([www.statistics.gr](http://www.statistics.gr)) gives an estimate of 4.7% in its national accounts press release of 11 February 2004.

In the case of the Athens Olympics, preparations for this event appear to have contributed materially to the relatively strong performance of the Greek economy over the past three years. This has been sustained during a period when most of the rest of the European economy was suffering a marked slowdown, although there are other important factors (including lower interest rates due to euro entry and sizeable EU fiscal transfers) that have helped to boost the Greek economy over this period.

Significant concerns remain, however, about construction delays and the increasing estimated cost of staging the Athens Olympics. Cost overruns have contributed to a projected budget deficit for Greece of over 3% of GDP in 2004, which will need to be corrected in subsequent years. Together with the expected decline in investment spending after the Games are completed, there is clearly a risk that Greek GDP growth could slow more rapidly than suggested by the current consensus forecast of around 3% growth in 2005. The new infrastructure constructed for the Games should be a positive legacy for Athens, but it may be associated with a debt overhang that could take many years to pay off.

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## Box 3.1 – Modelling Olympic performance

While the Athens Olympics will have important effects on the Greek economy, most viewers will be interested in who wins the medals. In this box we consider, as a rather more light-hearted exercise, how far statistical models can help to explain the number of medals won by each country. We published the results of a similar modelling exercise after the Sydney Olympics and have now updated this analysis, taking into account also the results of other recent studies in this area.

Our 2000 analysis focused only on relating the results of the Sydney Games to population, relative income levels and political factors. We have now extended our model to include data on medal performance from the four Olympic Games since 1988. We find that, in explaining the share of the total medals awarded won by each country, the following factors are statistically significant:

- population;
- average income levels (measured by GDP per capita at PPP exchange rates);
- whether the country was previously part of the former Soviet bloc (including Cuba in this case);
- whether the country is the host nation; and
- medal shares in the previous Olympic Games.

In the case of both population and average income levels, we found that the best fit was obtained by using the logarithm of these variables as the explanatory factor, which implies that the number of Olympic medals won rises less than proportionately as population and/or income levels increase. The coefficients on the population and income variables were similar, suggesting that it is total GDP that matters most in predicting Olympic performance rather than how this splits down between population size and average income levels.

Table 3.1.1 – Model estimates of Athens Olympics medal totals as compared to Sydney 2000 results

Country	Model estimate of medal total in Athens 2004	Medal total in Sydney 2000	Difference
1. US	70	97	-27
2. Russia	64	88	-24
3. China	50	59	-9
4. Germany	45	57	-12
5. Australia	41	58	-17
6. France	31	38	-7
7. Greece	29	13	+16
8. Italy	28	34	-6
9. Great Britain	25	28	-3
10. South Korea	24	28	-4
11. Cuba	23	29	-6
12. Romania	23	26	-3
13. Ukraine	21	23	-2
14. Netherlands	21	25	-4
15. Japan	20	18	+2
16. Poland	17	14	+3
17. Hungary	17	17	0
18. Belarus	15	17	-2
19. Canada	15	14	+1
20. Brazil	15	12	+3
21. Spain	13	11	+2
22. Bulgaria	13	13	0
23. Sweden	12	12	0
24. Mexico	11	6	+5
25. Indonesia	11	6	+5
26. Switzerland	10	9	+1
27. India	10	1	+9
28. Norway	10	10	0
29. Czech Republic	10	8	+2
30. South Africa	9	5	+4
<b>Top 30: total medals</b>	<b>701</b>	<b>776</b>	<b>-75</b>
Other countries	228	153	+75
<b>Total medals</b>	<b>929</b>	<b>929</b>	<b>0</b>

Source: PricewaterhouseCoopers model estimates (assuming same total number of medals in Athens 2004 as in Sydney 2000)

We found that whether a country was formerly in the Soviet bloc was highly significant, given the high political importance given to sport in many of these countries. Evidence from the Sydney Olympics suggested that these effects were still significant around a decade after the

dissolution of the Soviet bloc, although they might be expected to decay gradually over time in the future. We found, however, that it was worth distinguishing here between the group of ex-Soviet countries where a particularly high priority was given to sport (e.g. Russia, Ukraine, Poland, Bulgaria,

Romania and Cuba) and other ex-Soviet or planned economies where this was less of a priority. For unified Germany, we included a dummy variable value of 0.5 here to allow for the influence of the former East Germany.

We also found the home country effect to be significant. On average, we found the medal share of the host nation to be around two percentage share points higher than would otherwise have been expected (although in practice, this effect may vary across countries).

Finally, we found that the explanatory power of the model was increased significantly by including medal shares at the previous Games, which can be interpreted as

reflecting the fact that sources of comparative advantage in sport tend to persist over time. The coefficient on this lagged dependent variable was around 0.6.

If we apply the model to the latest available data for each country, we get projected medal shares for Athens 2004 as shown in Table 3.1.1 (assuming that the total number of medals awarded is the same as in Sydney to allow direct comparison with results from 2000). These results are not necessarily the best available predictions of performance, but they do represent one possible benchmark against which actual performance can be judged. In some cases, such as the US, Russia and Germany,

performance at the Sydney Olympics may represent a more realistic (and challenging) benchmark, but in other cases the model estimates may prove useful as a standard against which to calibrate how well a country really does at the Athens Olympics given its size, income levels, political history and past performance. For Greece as host nation, the medal target according to our model is much higher than in Sydney, while Australia is expected to drop down the medal table without its home country advantage.