L'économie prédit la performance aux Jeux Olympiques

19 Juillet 2012

Décidément, les Jeux Olympiques de Londres occupent les esprits de tous. Comme en 2008, la banque d'affaire Goldman Sachs et le cabinet d'audit PwC publient deux études qui prévoient les résultats des Jeux 2012 à partir de données économiques. Sur le podium, les USA, la Chine et la Russie.

L'économie permet d'expliquer, du moins en partie, le nombre de médailles remportées. Pour autant, d'autres facteurs plus surprenants rentrent en jeu comme, par exemple, le régime politique et le fait même d'organiser les jeux.

Classement	PwC	Goldman Sachs
1	USA (113 médailles)	USA (108 médailles)
2	Chine (87)	Chine (98)
3	Russie (68)	Russie (74)
4	GB (54)	GB (65)
5	Australie (42)	Australie (46)
6	Allemagne (41)	Allemagne (41)
7	France (37)	France (41)

Les modèles de Goldman Sachs et de PwC avaient été efficaces lors des Jeux Olympiques de Pékin en 2008.

Le PIB compte, mais pas seulement

De façon générale, les modèles économétriques permettent de faire des prévisions économiques à partir de statistiques. Dans le cas des Jeux Olympiques, c'est le nombre de médailles obtenues qu'ont cherché à prévoir les deux études.

En outre, obtenir des prévisions est intéressant mais connaître les critères expliquant le succès d'un pays l'est également. Assez intuitivement, un pays plus riche pourra investir dans des infrastructures perfectionnées et, ainsi, offrir une bonne préparation à ses athlètes.

Pourtant, dans les prévisions, certains pays obtiennent des pronostics assez mauvais par rapport à leur PIB par habitant, comme par exemple la Norvège.

Finalement, voici les paramètres qui comptent :

- les résultats lors des années précédentes
- la taille de la population
- l'appartenance à l'ancien bloc soviétique
- le statut de pays organisateur

+54% de médailles d'or pour le pays organisateur des JO

Source: Sports Reference.
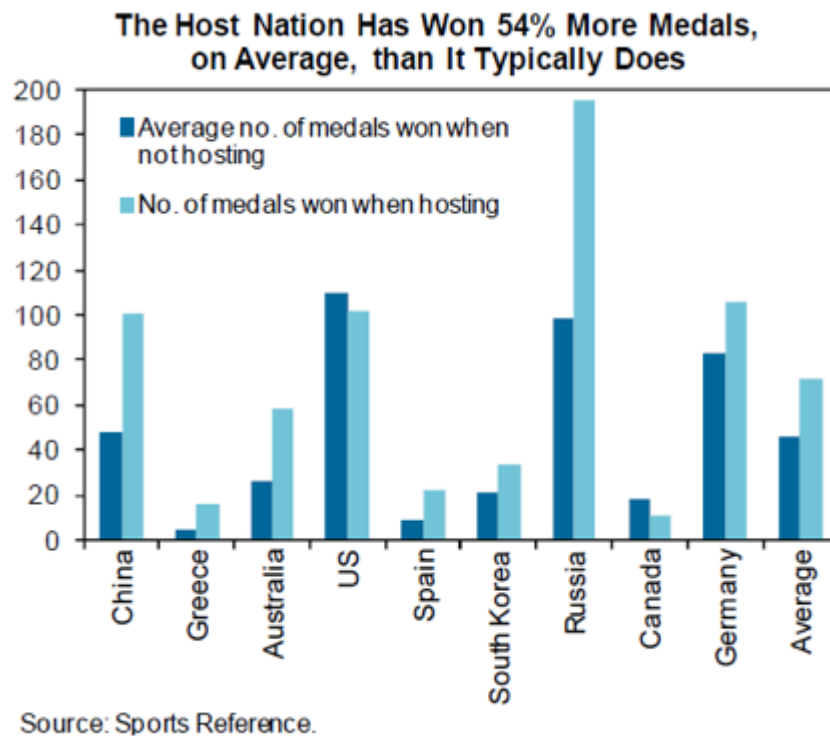
Nombre de médailles remportées
En bleu foncé, le nombre de médailles remportées lorsque les pays n'étaient pas hôtes. En bleu clair : le nombre de médailles remportées en tant que pays hôtes.

C'est le résultat étonnant que présente le rapport. Le pays organisateur remporte en moyenne environ deux fois plus de médailles que les autres années. Reste à voir si cela se vérifiera pour le Royaume-Uni cette année.

Les Etats-Unis toujours en tête

Les Etats-Unis remporteront 108 médailles d'après Goldman Sachs et 113 d'après PricewaterhouseCoopers. Pour Tim Hollinghsworth, directeur général de l'association paralympique britannique, "un environnement de haut niveau a beaucoup plus de probabilités d'engendrer des athlètes de haut niveau".

Le sport, domaine d'efficacité des économies planifiées

La Chine et la Russie arrivent en deuxième et troisième positions, l'Ukraine fait son entrée dans le top 10 des pronostics 2012 et la Biélorussie se classe de façon honorable autour de la douzième place.

De façon générale, être un pays de l'ex-Union Soviétique est facteur de réussite au Jeux. C'est le soutien et l'implication de l'État dans le domaine du sport qui expliquent le phénomène.

Verdict final le 13 août !

Lydie Berget

Rapports :

- *The Olympics and Economics* (PDF), Goldman Sachs
- *Modelling Olympic performance* (PDF), PricewaterhouseCoopers

http://www.cafedelabourse.com/archive/article/economie-performance-jeux-olympiques/#

Impact on the UK: 2012 Olympics Likely to Provide Economic As Well As Sporting Benefits

A number of factors help to determine the economic and sporting legacy of hosting an Olympic Games. The management and cost effectiveness of the development and preparation for the Olympics is clearly an important factor and, in this respect, the UK appears to score relatively highly. But other factors are important in determining the overall success of an Olympics and some of these—such as the weather—are largely beyond the control of the organisers.

In terms of the economic impact of hosting an Olympics, there are short-term benefits that derive from the additional expenditure in and around the Games itself and long-term benefits that are less tangible (such as the promotion of the UK as a tourist venue and a potential location for investment). We estimate that the additional expenditure will boost UK Q3 GDP by around 0.3-0.4ppt qoq (+1.2%-1.6%qoq annualised). The less tangible benefits are, by their nature, more difficult to estimate but this doesn't mean that they are less important.

Sporting enthusiasts will (fairly) argue that a narrow focus on the economic costs and benefits of hosting an Olympics misses the point. For competitive sporting enthusiasts, perhaps the most important 'bottom line' of hosting the Games is this: over the past 10 Olympics, the host nation has won 54% more medals on average than it has won in Games it did not host. If medals are your preferred currency, this represents a high return on investment.

Olympics Preparation: On Time and Largely Below Budget

hosting the Games was estimated to be around £3bn. This increased sharply to £9bn when the first detailed estimates of the total cost were provided in 2007 (including detailed provisioning for the construction of facilities and infrastructure, together with security and other ancillary costs). Since then, the estimated total cost has fallen to £8.5bn, partly reflecting the impact of the recession in reducing overall construction costs.

The £8.5bn represents 0.55% of annual UK GDP or 1.4% of annual government revenues (although the spending itself has been spread over a number of years). Of that total, a little less than one-quarter has come from the UK National Lottery rather than from central government receipts.

Over time, a significant portion of the government's £8.5bn bill will be recouped through the sale of land and other facilities. However, as yet there is no publicly-available estimate of the likely proceeds from those sales.

The Economic Impact of the Olympic Games

While financial management and good preparation are clearly important in establishing a successful Olympics, a narrow focus on the *financial* performance of the Games misses the wider economic impact that hosting the Olympics can have on the host nation.

In analysing this wider economic impact, it is useful to separate the short-term effects (which are relatively easy to measure) from the long-term benefits (which are less tangible in nature).

Olympics Preparation: On Time and Largely Below Budget

Historically, the financial reward of hosting the Olympics has been mixed: the 1972 Munich Olympics and the 1976 Montreal Olympics made significant losses, while the Games held in Los Angeles (1984), Barcelona (1992) and Atlanta (1996) each made a profit. It is too early to tell whether the 2012 London Olympics will make a profit or loss and, if one fully accounts for all of the costs related to hosting a Games, it is questionable whether an Olympics ever truly makes a profit.[1] In general, however, the management and cost effectiveness of the development and preparation for the London Games have been a success, with the infrastructure for the Games completed on time and below (the 2007) budget.

The implications for the public finances of hosting the London Olympics have been small. At the time of London's successful bid in 2005, the provisional cost of

tangible in nature).

- **The short-term effects** derive from the expenditure on goods and services related to the hosting of the Olympics, which are recorded as output when the expenditure occurs. The London Organising Committee of the Olympic Games (LOCOG) estimates that it is likely to spend around £2bn in total—in temporary employment of staff, security, etc.—with more than half of this amount (around 0.3%-0.4% of GDP) likely to be spent within Q3 itself.[2] Hoteliers, restaurateurs and retailers are also likely to witness an increase in output as they cope with the additional demand from overseas visitors. Set against this, however, some tourists may avoid coming to the UK because of the Olympics and the output of other businesses is likely to suffer as a result of transport disruption related to the Games.
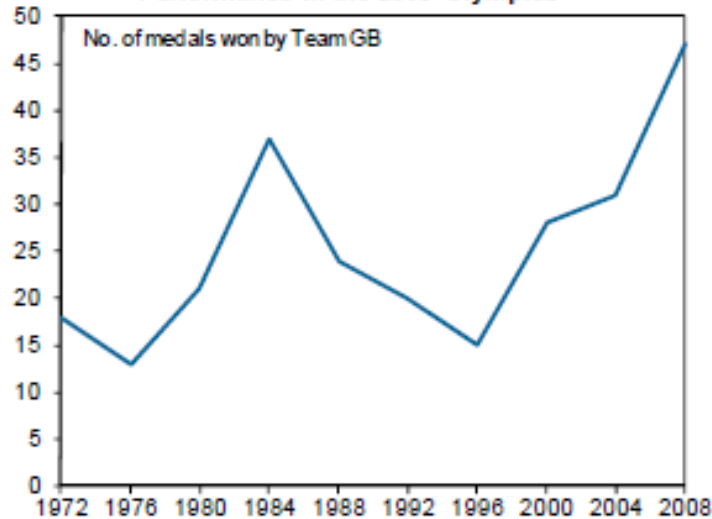
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1. In accounting for the cost of hosting an Olympics, most countries (including the UK) have treated the cost of constructing facilities and infrastructure, together with security and other ancillary costs, as being separate from the cost of running the Games themselves. The London Games are expected to make a profit (in the sense that revenues will exceed the cost of running the Games) but this will still leave the government with a significant (£8-9bn) bill from construction, security and other costs.
2. In the GDP data, the production of LOCOG and others will be registered as higher output from the services sector. On the expenditure side of GDP, the cost of Olympic tickets will be treated as expenditure at the time of the Games (even though the tickets themselves were mostly sold in 2011). The organisers expect total ticket revenue to come in at £500m, or 0.15% of quarterly GDP.

The Host Nation Has Won 54% More Medals, on Average, than It Typically Does

- Average no. of medals won when not hosting
- No. of medals won when hosting
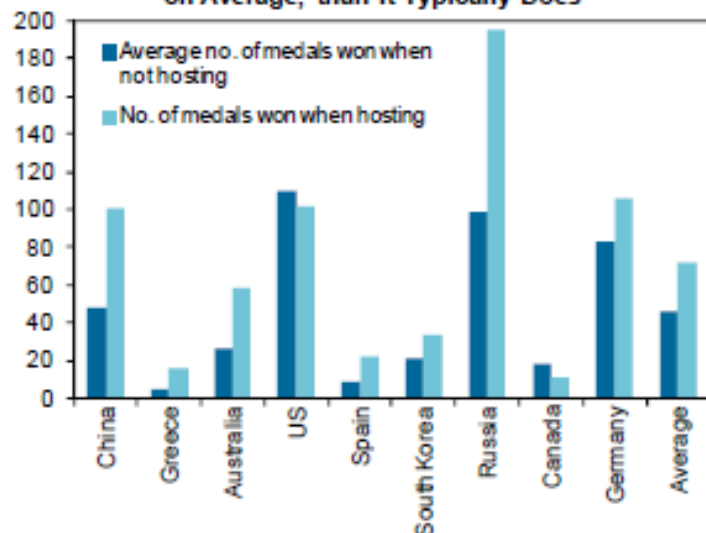
Source: Sports Reference.

Team GB Already had an Unusually Good Performance in the 2008 Olympics

No. of medals won by Team GB

Source: Sports Reference.

Annex: technical details of regression models

Table 2 below shows two alternative regression equations that we have estimated. The first model variant excludes past Olympic performance from the set of explanatory variables and so provides a purer indicator of the ability to explain variations between countries purely on the basis of economic and political factors. The second model variant includes performance at the previous two Olympic Games as an additional independent variable and has much higher overall explanatory power (as indicated by the respective adjusted R-squared coefficients of 0.96 for the second model, as against 0.51 for the first model). This second model therefore forms the basis for the London 2012 medal estimates quoted in Table 1 above. Since the unadjusted model estimates for medal shares in London did not add up exactly to 100%[11], a small scaling factor was applied to given the results shown in Table 1.

Table 2: Alternative model specifications (dependent variable = % medal share)

Explanatory variables	Model without past Olympic performance variables	Model with past Olympic performance variables
Constant	-0.02	0.0006
Log (population: millions)	0.0057 (6.3)	-
Log (GDP per capita at PPPs : $000s)	0.0051 (4.2)	-
Level of GDP at PPPs ($ trn)	-	0.0022 (5.2)
Ex-Soviet bloc dummy	0.012 (3.2)	Not significant
Host country dummy	0.06 (4.1)	0.02 (5.0)
Medal share in previous Olympic Games	-	0.422 (3.5)
Medal share in previous but one Olympics Games	-	0.353 (3.2)
Explanatory power (adjusted R-squared)	*0.51*	*0.96*
Standard error of model	*0.013*	*0.004*
Number of countries covered	*101*	*101*

Note: t-statistics shown in brackets for explanatory variables

Source: PwC analysis using data from 101 medal-winning countries in 2000, 2004 and 2008 Olympics, plus IMF data on population and GDP per capita at PPP exchange rates. For the London projections in Table 1 above, the 2008 Beijing Olympics results were factored into this model together with the latest IMF GDP and population estimates for 2011.

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[11] The unadjusted medal shares added up to around 102%, so these were all scaled down by a factor of 1.02 to give the published results with the total number of medals set to 958, the same as were awarded in Beijing.

As indicated by t-statistics greater than 2, all explanatory variables in both model variants were statistically significant at the 99% confidence level. When the lagged dependent variable is added, however, we find that the level of GDP is the best economic variable to include while the ex-Soviet bloc dummy is no longer statistically significant because it is already captured in the past performance variables. The home country advantage variable remains highly significant statistically but smaller in magnitude than in the first model (where it is actually implausibly large). The explanatory power of the second model rises significantly and the standard error of the model is reduced by more than half.

In general, the first model is most interesting as a guide to the underlying economic and political drivers of past Olympic performance, while the second model is better for setting benchmarks against which to assess current and future Olympic performance. We have therefore used the second model to derive the medal projection results in Table 1 above, but the results of the first model are also discussed in some detail in the main text.

Figure 1 below gives a visual indication of how closely our preferred second model fits the actual Beijing 2008 results. We can see from this chart that there are a large number of countries clustered around the bottom left of the chart who won only a few medals and this is in line with the model estimates. The model also fits well the performance of China and the US at the top right of the chart, although Russia was a slight underperformer in Beijing relative to what the model would have suggested, as was Germany. The largest 'outperformer' in Beijing, however, was Great Britain, whose medal haul of 47 was well above the model estimate of around 30. France outperformed but by a smaller margin than Great Britain, while Australia delivered a par performance according to the model.

Figure 1: How well does our model fit the actual models won in Beijing?
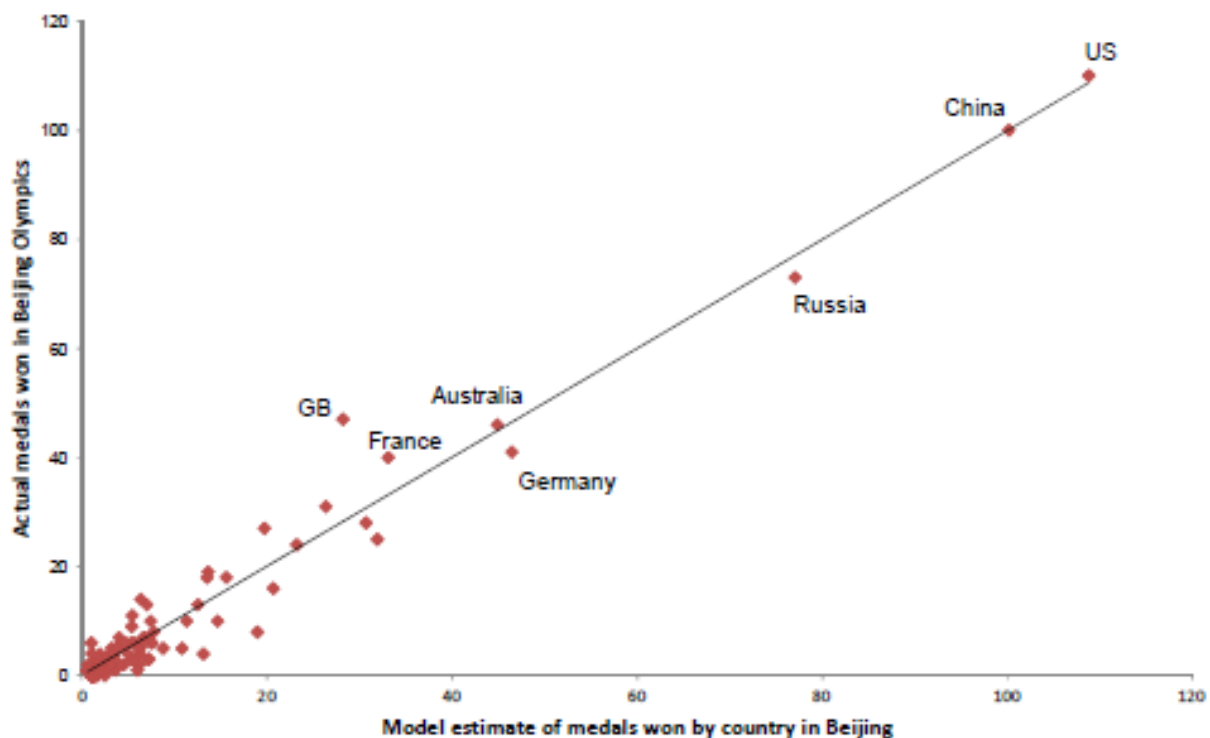
Modelling Olympic performance (**PDF**), **PricewaterhouseCoopers**   *pp 8-9*
http://www.pwc.fr/assets/files/pdf/2012/06/pwc_etude_medailles_olympiques_2012-06-14.pdf