The Economic Impact of Major Sporting Events

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Abstract

In this thesis we investigate the economic impact of hosting the FIFA World Cup by looking at the long run growth consequences and the driving factors hereof. The interest of this thesis was awoken by the vigorous competition to host the World Cup and the claimed possibility of an economic windfall. This competition could be argued to have lead to a necessity of enormous investments.

In the first chapter we explain the macro economic theory of investments and fiscal policy in the business cycle and on the long run growth. This we use in the following chapter to analyze the World Cup investments and the effects of these on the nations’ economy. Based on this we set up hypotheses to empirically test the findings of our analysis based on a longitudinal study of 13-20 countries.

Here it was found that the hosting country will suffer a negative economic effect on growth in the longer run. This is caused by differences in productivity for the private and governmental investments where private investments have been found to be of significantly higher productivity than governmental. Furthermore we find that the governmental investments crowd out private investments which we argue to lead to lower overall productivity. The World Cup related investments was found to be of the lowest productivity and to a higher extent crowd out private investments. This is what leads to the negative economic effect.

The model of this thesis differs from previous literature by including investments in both the theoretical and empirical analysis. We have estimated a model that resembles those of existing literature and when adding investments to the model, all variables become more significant. The effect, from hosting the event, changes from an insignificantly negative coefficient to a highly significant positive effect. This hints that the previous models of this literature suffer from omitted variable bias.

Finally, we look at the other intangible aspect of hosting the World Cup; such as international perception, national feel good and the political incentives and time horizon.
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Chapter 1

Introduction

In recent years there has been a vigorous competition to host the World Cup. Nations promise to invest billions of dollars to raise the chances of being elected. Why? There could be many reasons why nations are very keen to invest so much capital in stadiums etc. but none more compelling than the promise of an economic windfall.

For the previously held World Cups there has been a great deal of focus on the economic impact. There have been written many positive articles on how the world cup can boost the host nation’s economy. In South Africa 2010 it was estimated that the preparation for the world cup would boost the growth by 0.5% annually (The Economist, 2010), which is a huge chunk of the estimated 3% annual total growth. This very positive effect from the World Cup seems to dominate the newspapers. These articles are often based upon estimations made by accountant and consultant companies for the host country. These reports do not seek explicitly to explain these very positive effects. Furthermore the newspaper articles do not seem to comment on the conflict of interest that might arise as the politicians are the advocate for the World Cup but also the one paying the report bill. This of course could offset a conflict of interest as the public want a report stating the “truth” and the politicians might want a report backing their political pro World Cup arguments. All the ex-post reports made by the organisers state a positive effect from hosting the World Cup. Khoza¹ (2000), cited in (Baade & Matheson, 2004), on which the South African bid was based, estimated that the event would bolster the economy with approximately $6 million and create 129,000 new jobs. Similar results were found by Grant Thornton² (2003), cited in (Allmers & Meannig, 2009), who claimed that the World Cup 2010 would have a predicted economic impact of R21.3 Billion ($2.5 billion) or “an equivalent of 159,000 jobs”. These estimates were of course based upon some assumptions about the visitors. The Grant Thornton report made the following assumption about the tourism behaviour: “On average they will stay for 18 days, go to five matches and spend R30,200 (nearly $4,000) each” (The Economist)

¹ Dr. Irvin Khoza, Chairman of the South African World Cup Organizing Committee.
² Grant Thornton, Global accounting and consulting firm.
³ Union Thorton Global Associationd consulting firm.
⁴ English Football Association.
When the financial markets crashed, there were voices in South Africa that worried that these estimates were too optimistic, as the world had changed (The Economist, 2010). Another report was then again done by Grant Thornton (2008). In this report the number of visitors was sharply down but the average period that each visitor would stay was longer and the average spending was higher than in the former report. This meant that the estimates were actually more optimistic in the post financial crisis report (Allmers & Meannig, 2009). These reports are often made using input-output models, cost-benefit analysis or computable general equilibrium models. Which use have been heavily criticised by the academic literature for being too optimistic.

"Investigator bias, data measurement error, changing production relationships, diminishing returns to both scale and variable inputs, and capacity constraints anywhere along the chain of sales relations lead to lower multipliers. Crowding out and price increases by input suppliers in response to higher levels of demand and the tendency of suppliers to lower prices to stimulate sales when demand is weak lead to overestimates of net new sales due to the event. These characteristics alone would suggest that the estimated impact of the mega-sporting event will be lower than impact analysis predicts. When there are perfect complements to the event, like hotel rooms for visitors, with capacity constraints or whose suppliers raise prices in the face of increased demand, impacts are reduced to zero."

- Porter (1999)


The above states the critique of methods used by the ex ante investigators and the used methods. It is a long list of characteristics that makes their estimates biased at best. Generally seen, the ex ante studies seems to not give notice to the consequences which are not beneficial to the host country. Like the price increases because of the higher demand. This price increase was empirically found to be very substantial by Maennig and Du Plessis (2007) on German data from the World Cup 2006. The same was found on French data from the world cup of 1998 by Allmers and Maennig (2009). This alone makes the use of a multiplier based method inappropriate.

There is more to the ex post literature. One of the main articles is by Baade & Matheson (2004) in which they used regional data from the US. It was found that 9 out of 13 venue cities experienced a negative effect. The total negative effect was estimated to $9 billion. This study was confirmed on German data from 2006 by Hagn and Maennig (2008) who also found a significant lower output in the
year of the tournament. Sterken (2006) found that there was a positive economic impact on growth by hosting the Olympics, but no sign of such when hosting the World Cup. He outlined that the higher economic growth of the Olympics host nations could be due to selection bias.

A different study was done analyzing the stock markets of the countries that bid for the World Cup and the Olympics (Martins & Serra, 2007). They found that when controlling for anticipation, winning the right to host had a positive effect on stock markets and a negative when losing.

“The market reaction we observe seems to reflect only a part of the overall perceived economic benefit of these mega-events. It is thus not correct to extrapolate these results to judge the economic merit of hosting these mega-events.”

- Martins and Serra (2007) p. 36

This was confirmed in a study of World Cup 2002 in South Korea (Kim et al, 2004). It was found that the perceived economic gain of the World Cup was much higher previous to the event than after. This also meant that the investments in stadiums seemed much higher after the event since the economic gain never came.

1.1 Purpose and Research Questions

All in all the ex post empirical research suggest that there is no empirical evidence of an economic impact of hosting the World Cup. At best there is a negative effect. Neither the ex ante nor the ex post literature seems to be very interested in explaining these effects. They only offer very vague arguments that the negative impact may be caused by tourism crowding out and the coach potato effect. In which the local resident change their behaviour spending less during the event (Baade & Matheson, 2004; Maennig & Du Plessis, 2007; Allmers & Maennig, 2009). This is very telling of the existing literature on this subject, as it is mostly made by researchers affiliated with either the sports- or the tourist industry. This means that they often fail to include macroeconomic factors. Models constructed to estimate growth are consequently made autoregressive without any variables that could induce growth. The purpose of this paper will thus be to bring some more macroeconomic factors into the area of World Cup economic impact.

In conclusion this thesis seeks to answer the following two research questions:

1. What is the economic impact of hosting a major sporting event such as the FIFA world Cup?
2. Which are the underlying mechanism of the FIFA impact and how do these affect the business cycle and long term growth?

1.2 Delimitations

This paper investigates the economic impact of major sporting events. We have limited this to the FIFA World Cup in the time period 1970-2009. This was in part done because of comparing the Olympics and the World Cup would be difficult in terms of investments. Furthermore the time period was because of missing data. Further limitations regarding data will be discussed in a later chapter. There have throughout been difficulties finding specific data on this subject. As the bid books that in which the investments are stated are strictly confidential. Therefore information on the investments each country commits to is mostly from the daily press. It is not known to us whether these figures are based on estimations, guesses or the actual numbers. We are aware of this problem and it is not of great significance to the paper. Further delimitations will be discussed when appropriate.

1.3 Introduction to FIFA & the World Cup

Fédération Internationale de Football Association, commonly known as FIFA, was founded in Paris in 1904 (FIFA Statutes) by several European countries. Because of the growing number of international fixtures there was a need for a single governing body to oversee the game. Only a couple years’ later countries from Africa and continental America were added to the organization. As shown on figure 1.1 the growth have been large scale ever since. Today FIFA has an impressive 207 member countries which is 15 more than the UN (UN, 2011).

FIFA is first of all the organization behind the World Cup. The World Cup has in recent times been in high growth in terms of both spectators and earnings for the organization. The World Cup 2006 had an accumulated audience of over 26 billion viewers. This gives the organization some financial and political power or influence on politics on future host countries.

FIFA has had a major influence on the game we today know as football. It has been a major influence in making football a world sport. There are today double as many teams In the World Cup compared to before 1982, where only 16 teams attended (all-soccer-info.com). They also use their political power to influence some political and legal aspects in the host countries. A host country need to pass a whole act that FIFA require in order to protect its interest, in terms of ticket
scalping, marketing, use of official marks, brands or anything associated with FIFA (NZLawyer). FIFA are very protective around these commercial partners and do not want to be associated with other brands or products that are not official partners. A famous example of this was during the 2010 World Cup when a Dutch beer company practiced “ambush marketing” by having some blond Dutch girls wearing commercial T-shirts at the Denmark - Holland match, hoping to get this group of girls broadcasted to the world (NZLawyer). They succeeded in doing this and the girls were in fact seen by millions of potential beer drinkers. As a consequence the girls were arrested under South African law, as FIFA and official sponsor Budweiser were far from amused by this stunt. This is only an example of the power that they possess over the host countries. This is in regard to the major interest that FIFA holds in the World Cup, from which 26% of their total annual revenue comes from marketing rights associated with the World Cup.

FIFA is a sort of umbrella organization under which there are continental associations such as the UEFA. Again under these divisions there are all the national associations such as the English FA and the Italian FIGC. The executive committee is the organ in FIFA that decides where tournaments are held (FIFA executive committee). The committee consists of 24 members all of which are presidents or vice-presidents of either continental associations or national associations. They are elected into the committee by the congress, in which there is a member from each of the 207 national associations (FIFA Congress). There are regulations that secure that the members are diversified with respect to continents. When all bids has been received for a World Cup, it is then up to an inspection team to check out facilities etc. This is done through several rounds. If certain conditions are not up to standard, FIFA will demand them changed or the bid is cancelled. When all bids are accepted it is up to the executive committee to agree on a host country. This is done through an exhaustive ballot system. The 24 members have each one vote and vote for his favourite. The bidding country that gets more than half the votes is then accepted, as host. Often this is done through several rounds. The country with fewest votes is then subtracted from the candidates for each round. Often there are only two countries left. In this case of these two countries getting 12 votes each, it is up to Sepp Blatter to decide. Recently there has been a lot of controversy, because of allegations of corruption in the executive committee. Members were allegedly willing to sell votes. This might implicate that it is not always the best country that wins, but the one that pay the most bribes (BBC).

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3 Union European Football Association  
4 English Football Association  
5 Federazione Italiana Giuoco Calcio  
6 President of FIFA
FIFA is unlike most organizations not born to make a profit. As mentioned, FIFA was founded by a few European countries because of a growing need for some common rules for the game and an institution to regulate the international games. The reason for why FIFA has become the institution that we know today, (Eisenberg, 2006) argues that some of the new nations (mainly African), argued that their economic situations gave them “a right to obtain higher financial assistance corresponding to the real needs of our continent” (Eisenberg, 2006 p 59). These arguments were related to article 2, regarding objectives, of FIFA’s Statutes from 1904 stating the objectives of the organisation “to improve the game of football constantly and promote it globally in the light of its unifying, educational, cultural and humanitarian values, particularly through youth and development programmes”. (FIFA Statutes, p7) So FIFA was never intended to be anything but a governing body, however it has become so much more. In 2009 they had a positive annual result of USD 196 million. This came of positive revenue of $1,059 million, which of 97% was event related. (FIFA Financial report) $650 million of this revenue came from TV-rights, out of which $623 million was from the World Cup. Another $277 million came from marketing rights as mentioned earlier. This has all given FIFA an astonishing equity base of $1.061 billion at the 31st of December. This goes to show how dependent FIFA as an organization is on events. Of course with great emphasis on the World Cup as it is their biggest event without a shadow of doubt. FIFA still consider itself an NGO and “73% of expenditure is directly invested in football” (FIFA Financial report, p12).

These high earnings have recently been debated in the lights of the low than expected earnings in South Africa and higher than expected expenses from building stadiums and infrastructure. The latest estimates state that South Africa has spent around $8.6 billion to host the World cup, which is a lot in a country where 40% of the population live for less than $2 a day. The results are still unpublished, but estimates state that FIFA have had a positive result of $2.5 billion, which is the equivalent of 0.7% of South Africa’s GDP. FIFA does not pay any tax in the country in which the World Cup is held since it registered in Switzerland and enjoy a tax heaven (The Independent).

FIFA initially started out as a governing body of football but has become so much more, due to pressure from less developed countries. FIFA enjoy great power over their host nations. In the recent World Cup South Africa had very large expenses and the positive income is hard to measure.
1.4 Structure

The thesis is structured in six chapters first giving an overall introduction. The following chapters cover the theoretical framework of the thesis, the connection to the FIFA World Cup investments and an empirical test of the economic consequences. This is followed by a discussion of other aspects of hosting the World Cup leading up to a conclusion in the final chapter.

Therefore, the rest of the thesis looks the following

1. **Introduction** - This chapter frames the thesis based on previous literature within the area followed by research questions and the delimitations of the thesis. The introduction ends with a section about the FIFA organisation.

2. **Theoretical framework** - Here the macroeconomic theoretical foundation is presented. First we look at the fiscal policy effects in the business cycle and the empirical implications herein followed by the crowding effects in the medium run by governmental investments. Here after the growth model for later empirical testing will be presented and long term consequences of alterations in governmental investments will be discussed.

3. **Investments for the world cup** - This chapter presents the implications of World Cup related investments and the expected productivity of these. Furthermore the choice of financing are approached and finally the effects of the actual event are analyzed through criticism of previous forecasts.

4. **Empirical tests and implications** - The chapter starts with a discussion starts out with a discussion on the link between theoretical growth and empirical test of this. Hereafter the hypotheses, which are based upon chapter 2 and 3, are presented. Before we test these a thorough description of the data and variables is presented. The chapter is ended with a section regarding the implications of the findings.

5. **Pride, expectations and political time span** – This chapter discusses the other non economic aspects of why nations bid to host the World Cup. These aspects are used to approach the unexpected findings of chapter 4.

6. **Conclusions** - The final chapter summarizes our findings and concludes on our study.
Chapter 2

Theoretical Framework

“The long run is a misleading guide to current affairs. In the long run we are all dead. Economists set themselves too easy, too useless a task if in tempestuous seasons they can only tell us that when the storm is past the ocean will be flat again.”

- John Maynard Keynes, A tract on monetary reform, 1923
  Cited in Feenstra & Taylor (2008) p. 549

In the Keynesian framework it is basic knowledge that either one of the two types of expansionary fiscal policies will generate a higher output. The more important questions are which of the two has the largest impact on output and how long lasting are the positive output effects. There is quite clear consensus amongst the different macro economics that,

“Fiscal policy has short-run, medium-run, and long-run effects on output. Higher budget deficits are likely to increase output in the short-run. They leave output unaffected in the medium run. And they are likely to decrease capital accumulation and output in the long run.”

- Blanchard (2009) p. 612

This chapter starts out by looking at fiscal policy in the business cycle and the consequences of these. Further we will look at the implications of these on private consumption and whether a fiscal expansion cause crowding in or crowding out of private investments. There will be no in depth regards to monetary policies, since it is not in the interest of this paper. Hereafter the effects on long term growth will be introduced and analyzed. The chapter ends with a short summary.

The framework will lay the foundation for the analysis of the investments which the nation commits to when hosting the FIFA World Cup.
2.1 Fiscal Policy & the Business Cycle

When looking at an economic impact, we think of it as fluctuations from the longer term economic growth path as a part of the business cycle. We have to consider the movements in the economic activity from year to year depending on production, income and demand and the relationship between these, because economic growth is not a straightforward linear process. In Keynesian theory government can try to boost economic activity. Either by an increase in governmental spending where money is added to the economy through the government’s purchase of goods and services or by lowering taxes, this is characterized as a expansionary fiscal policy. Keynes suggests expansionary fiscal policy in the case of recessions to get the economic activity to return faster to the natural rate of output. This policy leads to an increase in domestic demand for both goods and money which leads to increases in the activity as well as an upward pressure on the nominal interest rate.

Depending on the exchange rate system of the nation the central bank can choose to keep the interest rate and exchange rate fixed by increasing the money supply through purchasing back government bonds. Otherwise they can choose to keep the money supply fixed and thereby letting the interest rate increase and the exchange rate fluctuate. Increasing the money supply will lead to the highest level of activity of the two alternatives described, however it will also lead to the highest trade deficit as the imports will increase. Therefore the choice will be between higher activity and a worsening of the trade balance or less of an increase in the activity but also a smaller decline in the trade balance. As mentioned earlier this paper will not be focused on monetary policies, but the above mentioned dynamics is worth noticing.

In theory we always assume that we are at the natural rate of output, for which there are corresponding fixed rates of government spending and tax. This is just for simplistic reasons. In reality government spending and taxes are highly correlated with fluctuations in the business cycle. Taxes are not lump sum but fluctuate along with GDP, as does some government expenditure such as welfare benefits e.g. social security. This makes it a lot harder to analyze a rise in government spending since it is often followed by other shocks to the economy, making the ceteris paribus impossible to observe in real life. Therefore this section will be focused on going through the Keynesian-theoretical teachings of Blanchard macroeconomics and discussing these with some empirical research papers. The areas of discussion will lay the foundation for further World Cup specific analysis.
In the Keynesian framework an expansionary fiscal policy will stimulate demand. This will mean that a new and higher level of output is found, where prices are above the expected prices. Only after, the rising prices through deterioration of the competitiveness, higher interest rate and appreciated exchange rate have suppressed so much demand that it corresponds to the rise in government spending, will the natural rate of output be met again. But it will be with a deteriorated net export, higher prices and higher wages. The general results will differ a bit when some assumptions are changed. As an example, when the country is below the natural rate of output, the rising prices will not be as evident. This makes a great incentive for countries which are below the natural rate of output to make expansionary fiscal policies, which is also why this is suggested by Keynes.

2.1.1 Empirical Implications on Output

As the quote from Keynes suggests, the “economic waters” are never quiet, therefore empirical studies of fiscal expansion is a delicate subject on which many papers have been written. A major challenge in this literature has been identifying exogenous and unexpected fiscal shocks to the economy. Much of earlier research has been focused on defence spending and an analysis of the effects on the economy. However Perotti (2007) argues that even though these studies fill the two stated requirements, these are not normal events, and therefore might be biased.

Two of the more respected papers in recent years are those of Blanchard & Perotti (2002) and Mountford & Uhlig (2009). These two papers differ from other papers with respect to their method on actually detecting the shocks.

“A fiscal policy shock is a surprise change in fiscal policy. However, there is no such thing as a fiscal policy shock per se. Fiscal policy encompasses a wide variety of policies: there is an endless list of types of incomes, for which the tax rules could be changed, or categories of government spending, where changes could occur.”


Since the fiscal policy is much affected by the business cycle they both use a VAR\(^7\) approach to detect the fiscal shocks, by finding the values which are more than 3 standard deviations away from the predicted value, and is orthogonal to the business cycle. Both articles are much focused on isolating the fiscal policy shock and not getting the fluctuations caused by the business cycle. In order to do this

\(^7\) VAR: Vector Auto Regression
they use specific data on tax and spending adjusted for the expenses and income which correlate highly with the business cycle e.g. social security. Mountford & Uhlig (2009) who imposes theory motivated sign on the impulse variables find some slightly different results, or though in general they both point at the same general conclusion. Namely effects on output are larger when giving a tax cut than they are when given a rise in government spending although they are quite different in their estimates. The numerical difference between effects is found larger by Mountford & Uhlig than Blanchard & Perotti, see table 2.1. Though the point estimates are not of the interest, because of the great uncertainty in these, the signs and the relation between them are and will be used for further discussion. The results mainly differ in regards to how the governmental spending affects GDP after the first impact of the shock. Mountford & Uhlig (2009) find that the spending shock turns into a negative effect within a few years. That is not found by Blanchard and Perotti (2002) though they also find that it is less preferable to raise government spending, since tax-cuts offer a far better multiplier effect.

Table 2.1 Impact multipliers on GDP of fiscal policy

<table>
<thead>
<tr>
<th></th>
<th>1 qt</th>
<th>4 qt</th>
<th>8 qt</th>
<th>12 qt</th>
<th>20 qt</th>
<th>maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tax-Cut</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mountford Uhlig</td>
<td>0.28</td>
<td>.93</td>
<td>2.05</td>
<td>3.41</td>
<td>2.59</td>
<td>3.57</td>
</tr>
<tr>
<td>Blanchard perotti</td>
<td>0.70</td>
<td>1.07</td>
<td>1.32</td>
<td>1.30</td>
<td>1.29</td>
<td>1.33</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(7 qt)</td>
</tr>
<tr>
<td><strong>Government Spending</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mountford Uhlig</td>
<td>0.65</td>
<td>.27</td>
<td>-0.74</td>
<td>-1.19</td>
<td>-2.24</td>
<td>0.64</td>
</tr>
<tr>
<td>Blanchard perotti</td>
<td>0.90</td>
<td>0.55</td>
<td>0.65</td>
<td>0.66</td>
<td>0.66</td>
<td>0.90</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1 qt)</td>
</tr>
</tbody>
</table>


It is also worth noticing that the spending has a lot more short lived effect on GDP than the tax-cut. Making the assumption that these results can be transferred to the scenario of a balanced budget leads to some implications when implementing a balanced budget expansion. The tax-cut multiplier is larger in both of the articles and keeps increasing, whereas the spending multiplier peaks faster and thereafter declines to a level below the other. Therefore if implementing a one dollar spending financed by one dollar of taxes, this would indicate that within the first couple of quarters it would have the positive effect that they were aiming for. But after a few quarters the negative effect would dominate and therefore have an overall negative effect all else being equal. This makes balanced budget spending an extremely short sighted solution to stimulate demand. It could therefore work more as a contractionary fiscal policy than expansive. A more expansionary way

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8 The table features only the estimates (Blanchard & Perotti, 2002) where stochastic time trend is assumed, for comparative reasons, since it is what the other article uses. No great changes in the estimates are observed.
of financing via a balanced budget is by cutting government transfers to finance
the investments instead of through increased taxation. This would also have some
(isolated) negative effects, but the overall effect would be assumed to be positive
as the investment would be assumed to be more productive than the transfer.

For contractive fiscal policy, the same point estimates are used, only with the
opposite signs. Therefore after having had government spending at a certain level
for a given number of years, lowering it would cause a negative effect of
somewhere between zero and one per dollar lowered government spending,
everything else being equal. The same argument could be made for increasing
taxes.

2.1.2 Crowding Effects on Private Investments

In every economy total investments is a variable that is influenced by many
factors. The following will analyze how government policy can influence
investments. When looking at a closed economy such as the world economy, one
can write the total GDP in two different ways. These two ways can be set equal to
each other, isolating the investments to see what determines investments, such as
in equation 2.3.

\[ C + I + G = GDP = C + S + T \]  \hspace{1cm} (2.1)
\[ C + I + G = C + S + T \]  \hspace{1cm} (2.2)
\[ I = S + T - G \]  \hspace{1cm} (2.3)

The above states that total investments are positively influenced by savings and
taxes. This is quite intuitive as the invested money will always come from saved
money, one way or the other. It is also noted that it is negatively influenced by
government spending. One could also look at the relation as if government runs
budget surplus, they then influence investments positively by contributing to total
savings. Contrarily if they run a deficit they will influence it negatively. When
government have a surplus it contributes to the capital market and therefore the
financing of investments. Its savings must be added to private savings. When they
run a deficit they will instead compete with private spending. Government saving
or dissaving can influence the capital markets in two different ways, one direct
one indirect (Parkin, 2003). These two theories have different effects on the
economy. The direct effect consists of a framework in which there is a world
savings supply and an investment demand. These will in traditional supply and
demand determine the cost of investments (the interest rate), the amount of
savings and thereby investments. If the government decides to spend more, it will
not matter if they are running a surplus or a deficit. They will decrease world
savings and increase the interest rate. Investments will therefore be crowded out by the interest rate, hence the direct effect. Investments will not decrease by the full amount as private savings will rise as of the greater incentive to save because of the interest rate. In reality this increase could be quite small especially in the short run.

The indirect effect is also called the Ricardo-Barro effect. It was first suggested by David Ricardo and in the 1970s further elaborated on by Harvard professor Robert Barro. The Ricardo-Barro effect states that government deficit has no effect on real interest rate or investments. The reasoning behind the argument is the following. If government borrows it will have to issue bonds to pay for goods and services that are not financed by taxes. Therefore they have to pay interest to the private investors. They must also collect more taxes in the future. Taxpayers are rational and have good foresight and know that there must be paid higher taxes in the future. Therefore they will start saving now for these taxes in the future. These effects are offset by a rise in government spending, and will ultimately mean that investments are not crowded out by government spending, instead consumption is crowded out (Parkin et al., 2008; Feldstein, 1976). This Ricardo-Barro theory have been highly criticised by Feldstein and Buchanan in 1976. The criticism was mainly about Barro’s lack of consideration to the tax and debt implications and not showing empirical evidence (Feldstein, 1976; Buchanan, 1976).

In the previous section we saw that a balanced budget by raising taxes is not a very good idea, but there are also other reasons why it is not a very good policy to use a balanced budget.

“We find that private investment is consistently crowded out by both government spending and, to a lesser degree by taxation; this implies a strong negative effect on private investment of a balanced-budget fiscal expansion.”


In Keynesian theory there is also consensus that there will be some crowding out of the private investments, when the government use expansionary fiscal policy, because of the higher interest rate. This means in other words that some private investments, which would have been made at the lower interest rate without the fiscal expansion becomes unprofitable. The impact of the crowding out is of cause influenced by the impact on the interest rate and the interest sensitivity of the private investments. Crowding out may be partial or complete. At complete crowding out one dollar of government investments crowds out private investment one by one, it is quite unlikely that the result will be so substantial. Partial
crowding out only crowds out some of the private investments. S. Ahmed (1986) estimates in an analysis on UK data that the crowding out effect is 0.4, meaning one dollar of government spending crowds out 0.4 dollars of private investment. Therefore the conclusion here is that there is partial crowding out of the private investments.

The crowding out of private investments is also found by Blanchard & Perotti (2002) as viewed below in table 2.2.

### Table 2.2 Fiscal policy effects on private investments

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>- Tax raise</td>
</tr>
<tr>
<td>-0.35</td>
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<tr>
<td>- Gov. Spending</td>
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The surprising element of this is that raise in tax also decreases the private investments. This is not a knowledge that we normally get out of the AS-AD or IS-LM frameworks. Since, the contractionary fiscal policy should have the opposite effect. The result is found empirically. This has of course the implication, which is quoted in the start of the section, that a balanced budget investment is a quite bad idea in regards to private investments.

2.1.3 Government and Private Consumption

Consumption and government spending has also been a subject of much debate, especially the effect of government spending on private consumption. Karras (1994) argues that it depends on whether the investments are complementary or substitutes. Besides the logic in the argument he makes a microeconomic model. Were the following equation is the fundamental part of the model.

$$ U_0 = E_0[\Sigma_0^\infty \beta^t u(c_t + \theta g_t)] $$

(2.4)

The argument is that one worker supplies one unit of labour every period. He will then maximize his lifetime utility of two goods c consumption and g government spending. Whether if they are substitutes or complementary is noted by $\theta$. In order to allow $\theta$ to attain negative values, they add an extra function of g where $\partial \phi / \partial g > 0$, and under a usual assumption that the household has no control over g.

$$ U_0 = E_0[\Sigma_{T=0}^\infty \beta^t [u(c_t + \theta g_t) + \phi(g_t)]] $$

(2.5)

The larger $\theta$ is the better government spending substitute consumption. A negative sign would then be interpreted as a complementary relationship.
Therefore if \( \vartheta \) is negative, an increase in \( g \) would raise the marginal utility for \( c \), in the given time period. However if it is positive, it would have the opposite effect. Karras also assess an empirical investigation in which he estimates the value of \( \vartheta \). He finds that it is negative in by far the most countries, meaning that they enjoy a positive relationship. He further finds that there is complementary relationship between \( \vartheta \) and government size. With a large public sector, the sign will turn positive resulting in a substitution effect. He offers the following very rational explanation:

“In other words, it is plausible that as the government expands, it starts offering more and more services (like school lunches) that substitute for, rather than services (like national defense) that complement private consumption.”

- Karras (1996) p. 18

Meaning that the government first and foremost should invest in those investments of greatest benefit to society in general such as infrastructure and establishing a legal system etc. Those that government will make when all these are in place will not be of the same benefit to society and furthermore crowd out some of the private consumption.

These findings are not in accordance with the permanent income hypothesis. Which states people will spend money at a certain level consistent with their long term expectations of long term income. This means that as in the above mentioned article an increase in government spending would make the agent safe up a part of his income in order to pay taxes with these savings, because he knows that an increase in government spending now will result in an increase in the tax level in the future. The hypothesis further states that increases and decreases in consumption are not predictable because they are based on individual expectations (Friedman, 1957).

“The most distinguishing feature of the neo-classical model is that it tends to predict a fall in private consumption following an increase in government purchases, while a large part of the empirical literature (discussed below) finds the opposite effect.”

- Beetsma & Giuliodori (2011) p. 6

Most of the literature is not in accordance with this hypothesis thus it does not totally hold in this context as most the literature states. This is also more in accordance with reality since one does not hold perfect information about the future. The permanent income hypothesis was also rejected by Campbell and
Mankiw (1990) using a cross section of countries. Here they estimated variables that could predict current consumption. They found that consumption reacted not only to changes in permanent income but also to changes in current income. There by rejecting the Permanent income hypothesis in its core form however some elements from the hypothesis might still be theoretical useful why we will not dismiss the use hereof.

2.1.4 Summarizing and Sticky Prices

In the medium run output returns to the same level after a fiscal injection, by crowding out other areas. This is typical for a Keynesian theory that if the economy is left to itself it will always return to its natural rate of output. The reason why this might take some time is that prices are ‘sticky’, for example are nominal wages said to be sticky in the short run. Real wages will adjust in medium run but only though inflation, by nominal wages not following the inflation. This is because the employer does not have the ability to set wages in accordance to economic activity because of sticky prices and sticky wages (Mulligan, 2010). This means that it will take some time for the economic business cycle to come back to the long term trend. This has the implication that an expansionary fiscal policy can boost output above the natural rate of output but only in the medium run. Furthermore empirical findings have implied that a tax-cut is generally more effective than an increase in government spending to increase output. In the long run both of these could however have far worse effects, because they are deficit financed, further elaboration on this topic further on. Balanced budget can hardly be described as efficient for inducing demand, along with having a large crowding out effect on private investments.

2.2 Economic Growth

The theory of growth has developed over time going from classical growth theory to neoclassical growth theory and to new growth theory. The classical theory based on the work of Adam Smith, Thomas Malthus and David Ricardo where it is believed that GDP growth is temporary and will eventually be brought back to the subsistence level by an explosion of the population. However the neoclassical school of thought, initially by Frank Ramsay and later Robert Solow, states that the growth of GDP is due to technological change which makes capital per hour of labour grow. Thus there will be economic growth as long as there are technological advances. The new classical growth theory states that the growth of an economy depends on the choices of people to make discoveries and can therefore grow indefinitely, as people pursuit higher profits. This school of
thought was developed by Paul Romer in the 1980’s but based on Joseph Schumpeter’s previous work (Parkin et al., 2008).

The government’s role in the growth of the economy has as well been of the interest of many economists who look at how the spending of the government affect the long run growth. One of the main contributions to this area of study Barro (1990) argues that it will only be useful for the country to invest more public funds until a certain point. He argues that the right level of spending from the government could induce endogenous long run growth without changes in technology or population. In this paper we will work out of the neoclassical school of thought based on a Solow growth model as Barro. Where production is dependent on labour, capital stock and Hicks neutral technological advancement:

\[ Y = AF(L, K_P, K_{G1}, K_{G2}) \]  (2.6)

We assume production to be specified in a Cobb-Douglas form with production \( Y \) dependent only on labour \( L \) and capital stock \( K \), as the type of technological progress is irrelevant for the aim of this study and have no effect on the conclusion. Therefore we assume \( A \) to be equal to one. Further the skill level of the labour force is not implemented in this model, as we assume this to be more or less constant over the time period of our interest:

\[ Y = L^{1-a-\gamma_1-\gamma_2}K_p^{\gamma_1}K_{G1}^{\gamma_2}K_{G2}^{\gamma_2} \]  (2.7)

Where \( L \) is the total employment and \( K \) is the capital stock denoted by \( P \) for private capital stock and \( G \) for public or governmental capital stock. As Carboni and Medda (2011) we consider two different kind of public capital defined by their productivity. Therefore we have public capital with high productivity, \( K_{G1}^{\gamma_1} \), and public capital with low productivity, \( K_{G2}^{\gamma_2} \).

\[ \frac{Y}{L^{1-a-\gamma_1-\gamma_2}K_p^{\gamma_1}} = K_{G1}^{\gamma_1}K_{G2}^{\gamma_2} \]  (2.8)

By the above rewriting of equation 2.4 we see that the output per invested labour and private capital depend on the public invested capital.

For simplicity we assume that all three different kinds of capital stock depreciate by the same rate, \( \delta_k \):

\[ K_t = (1 - \delta_k)K_{t-1} + (P_t + G1_t + G2_t) \]  (2.9)

Where \( K_t \) as mentioned earlier is a stock variable assessed by the end of the year and \( P, G1 \) and \( G2 \) are flow variables adding to the capital stock in the year they
are invested. Therefore the inflows from earlier years are added to the capital stock form the previous year from which the depreciations are subtracted.

For simplicity we further assume that the government follow a balanced budget where their investments are financed by the taxes from the same year. By the Permanent income hypothesis the medium run effect of a balanced budget expansion and a deficit-financed expansion will be more or less be the same as the private agents know that the deficit-financed expansion will lead to tax increases later. The government’s budget constrains therefore looks as follows:

\[ G_t = \phi G_{1t} + (1 - \phi)G_{2t} = \tau Y \]  

(2.10)

With \( \phi \) defining the part of the total governmental investments being invested in relatively the highly productive and the less productive capital stock. Whereas the budget constrain looks as follows for the private sector’s investments as they invest all of their savings:

\[ P_t = (Y_t - C_t)(1 - \tau) \]  

(2.11)

Within the model framework described above the representative household’s objective is to maximize their discounted sum of utility:

\[ \text{Max } U = \int_0^\infty u(c) e^{-\rho t} dt \]  

(2.12)

Where \( \rho \) is the discount rate of how the household values future consumption relative to current consumption. We therefore see that the greater the \( \rho \) the less the households value future consumption. As Barro (1990) and Carboni & Medda (2011) the utility function of consumption is a constant-relative-risk-aversion utility function:

\[ u(c) = \frac{c^{1-\sigma}}{1-\sigma}, \quad \sigma > 0 \]  

(2.13)

Here \( \sigma \) is the coefficient of relative risk aversion and independent of \( c \). Leeper et al. (2010) includes the disutility of labour to their utility function however we have in this model chosen to assume that the households have no labour-choice and therefore works a given amount of time.

2.2.1 The Right Combination of Investments

The aim of the government is to maximize the growth as growth in production leads to higher consumption and therefore higher utility of the households. As the

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9 The hypothesis is still used for the theoretical model despite it was argued earlier to be dismissed empirically.
model implies growth can be caused by increases in labour, technology, private investments, and the two kinds of public investments.

If we first look at the productivity of the three different kinds of investments it is obvious that the investments with the highest productivity are to be invested in. Therefore the government should invest in the public investments with highest return. Shieh et al. (2006) however discuss that the public investments crowd out private investments why there should only be invested in public investments if these are of higher productivity. They further look at the results if the investments by the government complement the private sector in which situation the government should increase their level of investments. Instead of looking at it as either or it is more realistic that the very first investments by the government may complement the private sector if these are in infrastructure and in basic social needs such as a small health sector and police and fire stations. As the public sector continues to grow its investments will at some point start to substitute the private sector instead of complementing it. This could for example be the case when the incremental investments are in an additional hospital close to a private hospital (Karras, 1994). The difficult part is therefore to know whether additional investments will crowd in or out private investments and lead to additional growth or a decline in the level of growth. The crowding out effects and consequences will be further discussed in section 2.3. Furthermore different investments may be necessary for the different countries. One country may benefit substantially from extra investments in infrastructure instead of investments in education whereas other countries may benefit substantially from the opposite. The choice of public investments is therefore not just by level but also by allocation which the model implies by containing governmental investments that are different in productivity from each other. So as mentioned by the previous two sentences for country A investments in education may be of high productivity whereas they are of low productivity in country B.

To insure growth in this framework the government therefore has to focus on the overall level of private and governmental investments in capital stock. By this we see a clear link between the business cycle investments and the long run growth effects though these are often overlooked. Saint-Paul (1997) discusses the point of most economists believing the business cycle fluctuations to be irrelevant for growth.

We therefore see several factors that are important for whether or not extra governmental investments will lead to growth which will be discussed in the following section.
2.3 Consequences of Governmental Investments

The overall level of investments as discussed previously depends on the relationship between the private and governmental investments. If the two types of investments are complementary resulting in a crowding in effects whereas substituting investments will result in crowding out effects as discussed in section 2.1. If there however are no relationship between private and governmental investment there should be no crowding in or out effect and we would by the neoclassical school of thought find a positive growth effect by increased governmental investments as capital stock will increase. Complementing and substituting investments will differ from country to country depending on their economic and industrial development. There is a certain level of governmental investments necessary for a society, these being infrastructure, social security through health care, police, fire departments and basic education. A country with a low level of infrastructure will therefore have a higher marginal return on infrastructure than a more industrialized country with a highly developed infrastructure system.

2.3.1 Implementation Delays and Productivity of Investments

Fiscal policy is often used to offset business cycle variations as discussed in section 2.1 about business cycle effects. However if there is a long implementation delay of the investments the extra investment may worsen the short term effects. This can partly be caused by the authorization and planning process. With large scale investments the period from the idea to the authorization of the budget for the project and until the actual costs are realized may have an implementation period of a couple of years. This is for example seen with large scale infrastructure investments such as bridges. Furthermore the total amount of cost does not get realized at once but can be assumed to be realized gradually with maybe 25 % a year for 4 years. However the population will by the Permanent income hypothesis know that the cost will follow later and therefore decrease the consumption at time t though the realization of the investments cost might not benefit the economy until time t+2 as no money are added to the economy until this point of time. These are of course short run effects so why are these described regarding long run and growth? Well the expectations are important as positive expectations about the investments made by the government may influence the willingness of the private companies to invest as well in capital stock further leading to higher future growth. Implementation delays therefore have biggest impact in the business cycle however the productivity of the investments has an importance for the long run growth. The typical perception is that there is no link
from the business cycle fluctuations to the long term growth however it can be argued that the incentive for private companies to invest in research, development and productivity improvements depend on the business cycle’s ups and downs. Improvements done by the companies hereafter have a long run effect as productivity improves leading to a higher return to invested labour or capital (Saint-Paul, 1997).

**Figure 2.1 Impulse responses to governmental investments**

![Graph](image)

**Note:** Impulse responses to an increase in government investment under various financing methods. Solid lines: all adjust under mean estimated debt financing parameters (as in Table 2); dotted-dashed lines: only transfers adjust ($\gamma_x = 0.154$, $\gamma_{cc} = \gamma_K = \gamma_L = 0$); dashed lines: only income taxes adjust ($\gamma_K = 0.142$, $\gamma_L = 0.077$, $\gamma_{cc} = \gamma_Z = 0$). The total increase in government investment is one unit of good. Variables include consumption (C), private investment (I), and output (Y). All variables are in percentage deviations from the steady state. X-axis is in years.

**Source:** Leeper, et al., (2010) p 1007.

As mentioned the productivity of the investments are of importance to the growth effects hereof. This is displayed in the graphs of figure 2.1. Leeper et al. (2010) finds that governmental investments with low productivity have higher immediate impact on output than an investment assumed to be twice as productive. However the time horizon of the higher productive investment is significantly longer as the less productive investment’s impact will be crowded out within the first couple of years. For the higher productive investment the impact is still at more than 1 %
after 40 years. This could be caused by the both the productivity but also the complementary effect between the governmental and private investments as the private investments are seen to be crowded in reaching a positive level again after 10 years.

We can therefore expect that the right investments with high productivity will lead to growth in the long run as they complement private investments whereas the hardly effective investments will only lead to short run effects and no explicit long run growth.

Summing up we see that implementation delays are a business cycle effect however it may affect the long run growth through the private sectors incentive to invest in research, development and productivity improvements. The productivity of the investment has an impact on the long run growth. So do the fact whether the investment complements or substitutes private investments. Also depends on whether the country is already at its Pareto optimum or not and if it move closer or farer away due to the extra investments.

2.4 The Important Bits & Pieces

Governments use fiscal policy to straighten out business cycle fluctuations and invest in capital stock to insure future growth. However the assessment of the theoretical framework leads to several implications. Public spending affect output less than tax-cuts and therefore a balanced budget spending expansion have very little boosting effect on the economy as it has a double crowding out effects of private investment, both from tax-cuts and public spending. Government spending has a crowding in effect on consumption, but only until a certain point, since after this point the investment will start competing with the private spending instead of encouraging it. The crowding effects in the medium run influence the economic growth as extra governmental investments crowding out private investments will decrease future growth if the private investments are of higher productivity. To insure growth the government therefore has to focus on industry complementing investments increasing the total capital stock and the productivity hereof. The implementation period of governmental investments is important in the business cycle but have no direct effect on the long run where the productivity of the investments is of importance.
Chapter 3

Investments for the World Cup

In this chapter we change the theoretical framework to a more World Cup specific context; this allows us to analyze the investments in a fiscal expansionary context. The conclusions drawn from this chapter will lay the foundations for the derivation and empirical testing of hypotheses in chapter 4.

The following chapter starts out by outlining the scope of the investments and to which extent they are World Cup related and the usability of them afterwards. Hereafter we describe the different types of investments, their respective productivity, and how well they support the private sector. The investments require financing, this is discussed and it is emphasized that the choice of financing is irrelevant to outcome; there will be crowding out regardless. It will be shown why the so called event boost is unable to justify the spending.

3.1 Scope of Investments and whether they leave Legacy or White Elephants

As mentioned in the section about FIFA and the bidding process, there has been a substantial increase in the number of applications for the World Cup. This increasing competition could be argued to be the main reason for the increasing investments. However a reason may also be that the scope of the cup has increased significantly. FIFA has some fundamental requirements; 8 but preferable 10 modern stadiums capable of seating 40,000 - 60,000 people. But in many events there have been much larger investments. In 2002 Japan and South Korea each provided 10 stadiums. Neither of the two countries had the sporting infrastructure to host such an event in advance. South Korea spend nearly $ 2 billion on these 10 new stadiums, Japan spend more than $ 4 billion on 7 new stadiums and refurbishing 3 old ones (Baade & Matheson, 2004). These figures are not very informative let alone. In comparison with the gross domestic product, this was about 0.13% of Japans GDP in that year and about 0.28% of South Koreas. This goes in comparison with the government share of the annual GDP respectively for Japan and South Korea 1.1% and 3.17%10. This shows that these

10 Calculations were done using data from Penn world table 6.3
were in fact substantial investments and that Korea made far larger investments relative to the size of its economy and GDP. The world cup in Japan/South Korea is generally viewed as the largest event in terms of investments, until South Africa. Besides making investments in stadiums there were also made investments in infrastructure etc. It is believed that Japan made total investments of over $4.7 billion.

The previous and the following World Cup were both held in European countries with a bigger football legacy. Therefore these did not have to invest quite as heavily in stadiums. In France 1998 there was only built one new stadium, Stade de France, which is in sharp contrast to the 17 newly constructed in the Japan/Korea only four years after. Reports state that; France spent only $1.5 billion building and renovating the stadiums (Plotz, 2002). This is only around one third of what Japan spent alone. In Germany 2006 there built 2 new stadiums (Stadiums 2006) and renovated a total of ten other stadiums at a total estimated cost of around $4.6 billion (Deutche Welle). This is in nominal terms about the same as spend by Japan.

All in all there has been a rise of the investments needed to support the World Cup. This is partly because of an increased number of teams in the World cup compared to years ago. Which of course have resulted in additional matches and therefore a necessity for more stadiums. Since Italy was elected host, the election has ended 6 years in advance to the hosting of the World Cup. Figure 3.12 shows a simple plot of the government percentage share of gross fixed capital formation (GFCF), with time T being the year where the country is elected host.

From the graph below it is seen that the ratio of the governmental share of investments in capital stock do not vary much in the years after they are elected host. It is important to notice that the ratio of the Korean governments investments can be due to the fact that T+1 for Korea was the year of the beginning of the Asian Crisis. The fluctuations for Korea can therefore be caused by a decline in private investments due to the crisis instead of indicating a crowding out effect. However as the investments will not lead to an immediate crowding effect so these can be difficult to infer from the graph.

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11 World cup of 1998 was held in France. World cup of 2006 was held in Germany.
12 Italy has been excluded because of missing values. There are missing values from Japan before 1996(T)
**Figure 3.1 Government percentage of total Gross fixed capital formation**

![Graph showing government percentage of total Gross fixed capital formation for various years and countries.]

**Note:** Time T shows the year where the countries were officially announced host for the World Cup. Germany 2000: 8.32%, Japan 1996: 22.72%, Korea 1996: 14.12%, France 1992: 17.9%, USA 1988: 12.59%.

**Source:** Data extracted from OECD, 29th of March 2011.

It was shown earlier that these investments are of some significance compared to the annual spending by the government, but does it really makes sense to hold these investments up against the annual GDP for comparative reasons, since they are definitely more than one year projects. When the world cup bid is announced it comes with a bid book, in which it is stated what investments will be made and how they will be financed. The authors have not had any luck finding these. Judging by the academic literature so have none. These bid books would contain the projected costs, which might differ from the actual costs. Since these are only budgets. The prime example, of how the projected cost can be very different from the actual, is the case of Italy as host in 1990. This was heavily influenced by the very corruptive political climate at the time. The overall stadium related costs nearly doubled with the outstanding example of Stadio Olympico (in Rome) where costs increased from budgeted €80 mill to €220 mill. All this helped to increase Italy’s public debt, which is still among the highest in Europe (Rebeggiani, 2006). The total costs differ in the literature, but was not as expensive as in Japan and Korea. Italy already had a lot of stadiums, though they needed renovating, like France, Germany and USA.
Another important aspect of these investments in stadiums is whether they would have been held if the country would not have been elected host. If the investments would have been held anyway it would not be correct to describe it as an investment only related to the World Cup. Instead only the costs related to moving the costs forward should be accounted for. An example could be if the government intends to build a highway and the investments are moved forward to have this completed before the World Cup. Then the World Cup should of course not answer for the total of this cost, but only the extra costs in terms of interest and maybe the cost for speeding up the process etc.

In the case of Germany there had not been investments in stadiums for many years. Since the UEFA Euro 1988 was help in West Germany there had not been build any new stadiums and only few substantial renovation had taken place (Rebeggiani, 2006). This caused the Bundesliga clubs, which had to play in obsolete conditions to suffer. Especially the clubs enrolled in the European club tournaments. Fig. 3.2 shows statistics regarding the need for stadium renovation in Germany.

**Figure 3.2 Stadium renovations 1988 - 1998 in Europe**

![Graph showing stadium renovation in Europe](image)

- **Average period since the last substantial renovation***
- **Number of substantially renovated stadiums* 1988-1998**
- **Investment amount in substantially renovated stadiums* 1988-1998 (DM)**

**Note:** *Minimum renovation investment of 20 million Deutsche Mark.

*Source: Rebeggiani (2006) p.400*

Here it is seen that the need for better stadium facilities is great in Germany. Since it is common practice that government support investments in stadiums in some way it could be argued that the stadiums build in Germany for the 2006 World Cup would have been renovated and built anyways (Baade et al., 2006). This might change the basis upon which one should judge these expenses. As only
some of them are directly related to the world cup. The same argument cannot be made to same extent for Japan and South Korea.

“After the 2002 world cup, only five out of ten new stadia in South Korea had regular tenants.”

- Barclay (2009) p. 65

When only half the stadiums could actually be used afterwards a big part of the investment is directly related to the World Cup. Investing in infrastructure would be more usable for all countries afterwards.

There could also be some degree of rent seeking in this area too. As lobbyist for the attempt to host the world cup, might have some other preferences in terms of what infrastructural investments should be made. It is very likely that the preferences in infrastructural investments might be different, from what is generally in the interest of the broader public. That rent seeking is hurtful to economic growth was first shown by Anne Krueger in 1974. This paper is regarding import licences but she further argues that rent seeking is a far more general phenomenon. This preferential treatment of certain investments can certainly be described as being rent seeking, as certain agents attempt to achieve rent by influencing politicians. These agents could for example be football clubs, construction firms, and hotel owners etc. who would expect to profit from a World Cup. Therefore their attempt of lobbyism to change the policies of the nation would have the effect that most preferential investments will not be the one that are invested in. This will have a negative impact on growth (Krueger, 1974).

It was shown that these investments differ from countries with some sporting culture already in place. Renovation of stadiums is not as expensive as building new ones from scratch. Although these investments are of large scale, there is no real trend to spot in governments spending. There is also a difference between countries in terms of whether these investments would have been held, if they were not to host the World Cup.

3.2 Productive or Unproductive Governmental Investments

There is not much research on the return of investments on capital stock though the researchers within the field agree upon that there is a positive return to these investments (Aschauer, 1989; Berndt & Hansson, 1992; Haughwout, 2002). Haughwout (2002) finds that public infrastructure investments benefit both the firms but also the private households and have spill over effects on neighbouring
areas. Therefore this section will mainly be a common sense discussion of which productivity one would expect of the different World Cup related investments.

We will in this section and the rest of the paper divide the FIFA World Cup hosting investments into infrastructure and stadiums. By some definitions stadiums may be included in infrastructure such as the definition of Hansen (1965) where stadiums can be argued to enhance social overhead capital in similar ways as police and fire departments. When using the term infrastructure we therefore referring to the transportation and communication system that helps upon moving economic goods.

3.2.1 Infrastructure

It is commonly perceived that investments in infrastructure have a direct economic impact as it reduces firms’ costs in production and transaction. For example an expansion of the national highway system would lead to lower direct transportation cost if the distance becomes shorter due to a new highway or simply because of the reduction in time necessary to transport the goods. These saved costs can be invested by the private sector to produce even higher output. Berndt & Hansson (1992) using dual cost functions finds that public capital is significant for reducing costs in private production. However they look at infrastructure as consisting of highways, airports, mass transit facilities, water supplies, sewer systems, police and fire stations, courthouses and public garages etc why the effect may be partial due to the interaction between economic overhead capital and social overhead capital. It is fair to assume that these different investments are complements and therefore would not be significant if they were invested in by themselves.

Further the public has a utility benefit from the transportation infrastructure as the disutility from time spent on e.g. transportation decreases. Another form of infrastructure investments is in public transport systems such as mass rapid transportation systems and railway systems. These could in the same way reduce the costs for companies and people as well as lower the disutility.

The above argumentation is quite intuitive to how investments in infrastructure can be cost reducing for firms. However these investments can also be seen as a method of making an area more attractive for future companies and thereby increase business in that area in which investments is implemented. First of all the area becomes attractive for business as the infrastructure is improved in the area and further more the private sector may see it as a previously undiscovered area for business.
The marginal return of extra investments in infrastructure largely depends on the state of the country. Less developed countries will have a higher return of the infrastructure investments as their existing infrastructure is less developed and therefore is less supportive for their production, maybe even creating bottle necks in the economy. Countries that already have highly developed infrastructure may not benefit from additional investments in infrastructure as these are improved to complement the World cup and not the different industries. Furthermore countries with highly developed infrastructure may not need to invest as heavily in infrastructure before the event. This was for example the case of Germany and France as mentioned previously, why an FIFA World Cup effect may not follow in these cases (Allmers & Maennig, 2009). This leads to the proposition that less developed countries would benefit more of the infrastructure investments. Therefore countries such as South Africa which hosted the World Cup in 2010 should have higher economic growth due to these investments in infrastructure which is also in accordance with the neoclassical growth theory presented in chapter 2. However these countries might have bigger difficulties financing all of these investments as the investments make up a larger part of their GDP.

Though not handled in previous literature there is a dual causality as the public investments depend on the tax revenues and thereby depends on the production and the production depends on the public investments. Investments in capital stock with high marginal return should therefore lead to a higher multiplier effect within this setting than capital stock with lower marginal returns.

3.2.2 Stadiums

Investments in stadiums when hosting the World Cup is more seen as social overhead capital investments though probably not enhancing human capital then adding to the society by leisure in similar ways as police and fire stations adds a sense of security. However police and fire stations are a necessity unlike extra sport facilities. Since almost none research have been done on the return of stadium investments we can only assume that these investments have a lower direct return for the firms however they may attract business to a local area.

Stadium construction may not directly support the industries in the same way as the economic overhead capital investment however the stadiums can be seen as a feature attracting business to a certain area. In accordance with the theory presented in chapter 2, the consumption caused by the stadium do not add to the economy, as the money still would have been spend within the economy for another kind of entertainment. Baade et al. (2006) look at the different local effects of the location of a stadium on the local area. Stadiums located in the cities experience a synergistic commercial relationship with the neighbourhood in
which it is located whereas stadiums build in solitude far away from shops and restaurants that can benefit from the location support the local area less. The loss of synergy effect is however mostly due to the construction of the newer stadiums which contains their own restaurant, shops and is surrounded by a parking lot making it unnecessary to enter through the neighbourhood. This shows the argument for hosting the matches within a region during the World Cup, though it means investing heavily in a new stadium. Thus there can on a regional basis be a great economic benefit from constructing a stadium and hosting matches during the World Cup. However on a national level this effect is more or less cancelled out (Maennig & Du Plessis, 2007).

The productivity of the stadiums can also be seen as the use of the stadiums afterwards. If a stadium is or becomes the home of an international competing football team the benefits may be higher as international fans will come to watch the matches of their home teams when playing abroad. Therefore a unique and highly used stadium can be turned into a legacy for the local area. This however is often argued not to be the case in especially South Korea where five out of the ten new stadiums turned out more as white elephants (Barclay, 2009).

3.2.3 Summarizing: Lower Productivity of World Cup Investments

The right investments in infrastructure will thus lead to economic growth whereas World Cup specific investments not complementing the industry may lead to less economic growth.

If the governmental investments are supporting the private sector and households their costs and disutility will decrease, leading to an overall higher level of utility. However it has en this section been argued that the World Cup specific investments are not likely to do this.

If the country were not to invest in the transportation systems and stadiums in what would they then invest instead? If the government instead would have invested the same amount in industry supporting infrastructure the return of the capital investment would probably be even higher. Or the host investments may just have been future investments moved forward why the real capital accumulation over ten years may have been the same. So the only sound purely economic incentive for bidding for the hosting right would be that the government expects the marginal return of the World Cup investments to yield a higher return than the investments that could otherwise have been done.
3.3 Crowding Out regardless of Financing Choice

In the previous section the investments were discussed, in the following the financing of such investments will be discussed. It will be a general assumption that the tax-payers will pay the bill, one way or the other. We will ignore the literature stating that the event (World Cup) will be able to lift the investments.

Because of the mentioned trouble finding data on the various investments and how they are financed. This section will be of a more theoretical discussion; regarding what the effects would be in different scenarios.

The very basic decision in how to finance these investments is how big a fraction should be financed by the government. This very basic decision actually says a lot of the investments. If it would be possible to attract private investors, it probably is worth investing. According to investment theory investments will flow to the projects which earn the highest return. If no one will invest in these projects it means that the capital would probably earn a higher return somewhere else.

Germany succeeded in getting the clubs and other private investors to pay a large part of the deal by engaging in Public-Private-Partnerships (PPP). The German citizens only paid around one third of the total bill, besides making some loan guarantees to better the conditions for the private investors. This was not found neither in Italy nor Korea/Japan, as government ended up financing everything. This very simple and logic argument is a quite good indicator as to if the investments are worthwhile financing. As mentioned earlier, the German stadiums are full at least once every week while half of the South Korean stadiums are empty all year. Actors in the German private sector had interest in making these investments on the contrary no one in Korea would have interest in such stadiums as they would have no use of them. The only thing really speaking against this argument is that the government’s job is not to maximize its own return, but to maximize utility for the citizens. There are surely some “feel-good” from the World Cup which is not quantifiable, but do they really lift the event, this will be discussed later in the thesis.

When government do finance these investments there are generally three ways they can finance them. Either they increase taxes, redistribute; either by cutting some other government investment or moving some investments forward in time,

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13 Might be as much a case of much rent seeking behavior, as many Italian clubs where doing very well in the eighties.
or they can finance though deficit spending. The most common way to finance government investments is though deficit spending. Since fiscal expansions often work as a macroeconomic stabilization tool. This is not the case with these investments, although Japan and Korea started investing right around the Asian crisis and might have acted to counter this negative shock. This was definitely not planned by the two countries. Therefore these investments are thought to be independent of movements in the business cycle, which expansionary fiscal policy often is not. When financing expansionary fiscal policies, in order to counter a recession, it might be a very bad idea to run a balanced budget as you do not stimulate demand and just end up crowding out private investments as shown in chapter 2.

When financing world cup investments it is not the primary purpose to stimulate demand. Therefore making balanced budget investments could be a scenario for the government, although it would have a quite negative effect on private investments. Furthermore a balanced budget would also be negative for output since the increased tax is generally thought to be more powerful than the increased investments. In the long run it could have a positive effect as through the Barro (1990) framework. In which economic growth can be instigated though the right level of government investment, so if the country is below what is optimal it could have a positive long run effect. In this framework it could make sense for the government to invest more, although it would probably not be an instant success but could be able to ensure higher economic growth in the long run.

Redistributing could also be a possibility; taking some of the resources from one part and making the investments for them. From a growth point of view this is only a good idea as long as there is a higher marginal return to investing in stadiums instead of the alternative. In previous section it was argued that investments in stadiums do not earn a very high return, this would not necessarily make it unattractive to invest in from a growth perspective, since it depends on the marginal growth that such an investment would yield. The same argument goes for infrastructure, only that infrastructure is not as unproductive as stadiums.

If the country has federal-reserves it could very well use these to finance the investments. If there are not sufficient funds available, there is the possibility of loaning either from the population or from abroad. These funds will fundamentally have to be paid back, which will mean either a higher tax or less

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14 Another possible way could be to sell of some assets e.g. land or they might have reserves to finance the investments, but we have chose not focused on this, as it is not of such relevance for the study, besides none of the countries of interest have got a surplus except Korea.
service from government in the future. This could have the same effect as an instant increase in tax on demand if permanent income hypothesis where to hold, as people would then know that they would have to either pay higher taxes in the future or having to pay for some services previously provided by the government. As argued in previous chapter the PIH does not seem to hold, so the stabilizing effect would not prevent the short run higher output (Campbell & Mankiw, 1990).

The short run result of this fiscal expansion, as the investments for the world cup is, would no matter the financing result in a higher output in the short run. This higher output will though the effects mentioned in chapter 2 have the implication that in the medium run there will not be any effect of these government investments. It is hard to define in years how long the medium run is, and when it is reached. But when the crowding out effect starts to take out the private investments we are certainly on the way to the medium run equilibrium. The crowding out of the private investments and the deterioration of the trade balance will of cause have a negative effect on the output. When the investments in stadiums then stop these negative effects could then be thought to dominate setting output below normal. As also discussed in chapter 2 Mountford and Uhlig (2009) actually found that the effect of a fiscal expansion after a few years actually turned negative. If these results are transferable this would mean that after a few years of investment the economic output would be worse of all else being equal. Redistributing though time; moving some future investments forward, in order to have them ready before the world cup. This would make the drop from world cup investments more massive. Other than that how these investments are financed will not have a great effect of their impact on output, certainly not one that would change the analysis. Therefore it is not a great lack to the paper that these financing plans are not available. The main effect is that these investments are substantial and that they are time-limited and is thought to crowd out some part of the private investments and when they are then stopped they will leave the country with lesser investment and therefore lower growth.

This discussion is ignored by the literature on the World Cup. As mentioned many researchers have statistically confirmed that the in the World Cup year there is a negative effect or at least not a positive. They fail to discuss that there might be other factors in common for these countries, than the actual event. They only find the negative effect empirically without describing why there might be this negative effect. The above analysis could be a reason why this negative effect is found. As the investments in infrastructure and stadiums are thought to stop one year ahead of the actual event and therefore they might catch a negative short-run effect of a fiscal policy change, which they conclude to be an event specific negative effect. There is not really any attempt to explain this negative result other
than crowding out of tourism (Baade & Matheson, 2004; Maennig & Du Plessis, 2007; Allmers & Maennig, 2009).

From a growth perspective, as argued in the previous chapter it all depends on whether the country moves toward or further away from the Pareto optimum. Therefore if there is lower growth in connection to the world cup, it would indicate that the allocation of resources has moved further away from a Pareto optimum, which of cause is not good as the best allocation of the resources is in the Pareto optimum.

For summing up we therefore see that no matter how these investments are financed there will be a crowding out of the private investments they can be more or less substantial depending on the financing. The reality could probably be somewhere between the different ways of financing. There is no existing literature on estimating neither the financing nor the density of these investments.

3.4 The Event & the 2*Optimism biased Multiplier

As mentioned in the introduction much of the ex ante studies predict very high returns to the investments during the event. In this section it will be discussed why we see this extreme case of optimism bias. This will be done together with an analysis of what we would theoretically expect from an event like the World Cup.

Many of the so called event studies conducted on the FIFA World Cup is economic impact studies. To make any comments of the results that these economic studies get, it is as crucial to understand how these ex ante input-output studies are executed, as to why they are done. Hosting the World Cup is best described as a demand shock. Where there will be a higher demand for the country’s goods and services for a limited amount of time. It is of great importance to understand how the local economy will respond to this. When the money the visitors spend comes from outside the economy, it is equal to exporting goods and services. Therefore there will be an injection of capital into the local economy. This is of course only the first ‘round’ in a multiplier context. The economic argument for using such analysis is that households, which have received the money, will also spend them locally. Therefore the capital injection will circulate for an amount of time until leakages, and taxes will have absorbed it all. It is also of great importance to know what assumptions that an input output model basically requires, in order to judge the results that you get from it.

An application of the multiplier would start of by estimating the number of attendees to the World Cup, how much they will spend etc. Care is (or should be
taken to) assuring that this is a net figure rather than a gross figure, meaning that tourists who would have come to the country anyway and any change in behaviour from the local population should be accounted for. This estimate is called the *direct economic impact* \(^{15}\) and is best described as a proxy for the increase in demand (Porter & Fletcher, 2008). The estimate should represent the spending which is directly attributable to the event. The optimism bias is often obvious here, as many reports fail to make this a net figure, failing to subtract the negative consequences or at best severely underestimate them (Crompton et al., 2001; Crompton, 2006).

The next step is estimating the multiplier, or the *indirect impact*. There are three critical assumptions which need to hold when employing the input-output model. Production is characterized by a fixed-factor production function, factor supply is perfectly elastic and leakages from the economy do not vary over time.

When production is characterized by fixed factors, a doubling of input would also double output. That factor supply is perfectly elastic means that expenditures and not quantities must be perfectly elastic. Since it would be impossible, to see if quantities of all goods would be elastic in a real measure. This has the implication that if prices were to rise during the event there would be less demand for input and labour per input. This would mean that the increase would only be nominal rather than real, as there would not be sold more goods. They would only become more expensive, making it seem like there is an expansion in output. If prices were to rise this would cause third assumption to break. If prices increase during, this event it would indicate that more of the injected capital would flow to the owners of capital, instead of the households, that would put them in circulation. As owners of capital in many hotels, restaurants etc. which would gain from such an event are pension funds and stockholders which of many would be abroad. Other leakages could occur when resources are purchased outside the economy, and therefore never will have a calculative effect.

When the world cup is held there will often be a shortage of hotel rooms and other input. Making it quite unlikely that there will be a perfectly elastic supply, thus it would be more likely that the opposite would hold. A perfect inelastic supply is more likely to hold, since the world cup is in the summer period where the tourist industry is already running near full capacity, thus a increase would likely be more of a nominal type than of a real, since supply is fixed in the very short run, making it possible for suppliers to charge a higher price.

\(^{15}\) Definition: “The net economic impact change in the incomes of host residents that results from spending attributed to tourists” (Crompton, 2006, page 1)
Figure 3.3 Supply and demand changes

Note: Difference between a nominal increase and a real increase. Depends on how the slope of the demand curve is. Here is a perfectly elastic and inelastic; the truth is probably somewhere closer to the inelastic.


This was indeed also the case in South Africa 2010, the overall inflation was lower than normal, but the visitors do not buy the same basket of goods as the residents. The visitor’s main expenses would be to travelling to and around South Africa, staying in a hotel in South Africa and expenses to restaurants etc. There was in fact substantial inflation on hotels in this period. In June 2010 the hotel prices in South (Seria, 2010) had a price increase of some 17.6%, which would indicate that the supply elasticity is closer to being perfectly inelastic than the contrary. The flight cost in this case did not rise; actually they declined by 3.3% while restaurants prices remained approximately constant with a modest rise of 0.3%.

These theoretical arguments and the observations from South Africa are also backed by empirical findings by (Maennig & Du Plessis, 2007) and (Allmers & Maennig 2009) these articles confirm the theoretical argumentation. The first find that even the tourist industry, had both positive and negative effects from the event and that there was a jump in prices during the event which is deflated after

16 Based on respectively German and German & French data.
the event. Allmers & Maennig agree upon this result, that there is hardly any impact effect on tourism since normal tourists are crowded out by the World Cup tourists and normal behaviour from residents is changed.

Another very basic fault as to why this input-output model will never work; it is by nature a long run model.

“The I-O model is long run in nature (every input varies with output) and the importance of timing is ignored.”

- Porter & Fletcher (2008) p. 474

This of course implies that the model is totally inappropriate for studying a 3-week event. This is ignored by the companies who make these estimates. This (and probably also other reasons) means that they make the multiplier much higher or optimistic than it should have been. Both the direct economic impact and the indirect impact are overly optimistic, they then multiply these two optimistic estimates. Thereby they get not only an optimistic estimate, but a squared optimistic estimate.

The reason as to why these reports are made is (or could be argued) to give politicians an argument to allocate so many resources to hosting an event like the World Cup. This is very neatly described by Crompton (2006), in Economic Impact Studies: Instruments for Political Shenanigans? Which is written upon impact studies as a whole although the arguments do hold also for the World Cup. As these reports is a tool for the rent seeking behaviour and take reservations regarding their own results, they are hardly worth the paper on which they are printed. Below is cited one of the reservations that a report printed by PricewaterhouseCoopers, on the benefits from the Green bay Packers.

“We have not audited or verified any information provided to us and as such will take no responsibility for the accuracy of the information which was provided by third parties . . . Some assumptions inevitably will not materialize and unanticipated events and circumstances may occur; therefore actual results achieved during the analysis period may vary from those described in the report, and the variations may be material.”

- Cited in Crompton (2006) p. 69

The above listed cite from an economic impact report shows that the researchers themselves have great doubt in their findings when using impact studies. These
reservations were not found on any World Cup related reports. But it is believed that the results are transferrable; that the researchers are aware of their optimism bias. There have been numerous examples of results that were not even close to materializing, as the introduction to the thesis also stated. In fact no predicted results known to the authors have been realized.

It is a common view in much of the critical literature that these impact studies are made, not to investigate or research the matter, but to find a positive economic effect. There are a lot of arguments regarding why hosting a major sporting event would seem so appealing, but none seem more appealing than a windfall economic gain. Why these reports should be looked upon with caution.

3.5 Summarizing: creating the “Flow” to the empirical evidence

The investments should only be seen as World Cup related if these are truly only brought on because of the event. If investments are moved forward in time it is only the incremental cost hereof that should be accounted for. The scope of event related investments differ substantially for the different host countries depending on the state of their existing football facilities and culture. This is also reflected in the private sectors interest in financing these investments. The productivity/return of the investments also plays a role herein of which it has been discussed that the stadium investments are of low productivity whereas the conclusion of the infrastructural investment’s productivity is more ambiguous, due to the fact that there might be some degree of rent seeking in these investments. Hence the fact those investments to support the World Cup might not be the most beneficial for the private sector. The private sector’s participation in financing might tell us about the usability of the investments; if none is interested in investing then benefits are probably of great utility. Crowding out will occur regardless of the choice of financing though balanced budget might give a double impact. The crowding out of private investments is the reason why a positive growth effect is unlikely to occur for the host nation in the years surrounding the World Cup. Since the supply is fixed in the event period the so-called event boost is more of a nominal than a real boost.
Chapter 4

Empirical Testing

This chapter will test hypotheses based on the theory presented in chapter 2 and the analysis of the investments and the event in chapter 3.

We will start off the chapter with a section about the generalities of empirical growth models and variables. This goes to show how our model is different from those in the existing literature. Hereafter the hypotheses will be listed and the models for testing will be presented. However, before we test the hypotheses a section about the data selection and variables will be presented to discuss the selection bias. There will in principle be tested two different hypotheses. The first will be divided into several sub-hypothesis in order to show the full scope of the findings. The findings from each of the sub-hypothesis explain little on their own; however the joint results are more informative. The interpretation of the results point at the same conclusion although the models are different in specification.

4.1 Assessment of Empirical Growth

A recent trend in the theoretical approach to growth theory is that it is more concentrated on spill-over effects and attendant nonlinearities of the new endogenous growth theory. The empirical growth is still very focused on the linear models whose specification is suggested by the neoclassical exogenous growth model of Solow. This is commented on by Durlauf (2001) in an essay called “Manifesto for growth econometrics”, why it would also be too optimistic for us to specify a new and improved model within empirical growth theory. Therefore, we will concentrate on making a linear model. Our main focus is not the economic growth as such but the impact on growth, of the investment made to entertain the world for three weeks. For this purpose the conventional growth models suit our purpose.

There are basically three sets of variables that need to be in place in order to make an empirical growth model. The first set is variables like initial output, savings, investments, average years of schooling, population growth rates. All variables suggested by Solow’s theoretical growth model. Another group of variables are those which are also related to growth but not through the theoretical model. A
study by Durlauf & Quah in 1999 found that over 90 different variables have been tested, in academic papers, to have an effect on growth. It is hard to imagine that they would all be of value to a regression, as many of them certainly represent the same underlying factor. Democratization, political stability, openness are a few of the variables that are quite common in the literature (Durlauf, 2001). Durlauf (2001) argues that these variables are not direct factors for growth but only “proxies” that still allow for the variables to suffer from endogeneity. They might not perfectly explain the underlying factor, and will therefore still be slightly correlated with the error term. A way of solving this could be to apply instrument variables. An attempt on this was done by Frankel & Romer (1999), using size of country to explain the causality between trade and income here using country size, since it works as a natural experiment. Hence country size is not a consequence of government policy. They find that trade raises income and not the other way around. But even this paper is criticized by Durlauf. Geographical area might be correlated with military spending, which is correlated with democracy and tax levels; hence area is therefore an invalid instrument variable. He further argues that this is quite general; that this problem cannot be solved using instrument variables.

“Because so many factors are related to growth, it is problematic to identify instruments that simultaneously are correlated with those growth determinants that are included in a regression and uncorrelated with the models residuals.”

- Durlauf (2001) p. 66

The problem of endogeneity is a serious one as it could make the model non consistent. As model exogeneity is one of the assumptions for the analysis. This could be of importance when choosing amongst the different techniques for estimation. For the purpose we could apply either fixed effects or random effects. Fixed effects are the most used and the more convincing tool for estimating ceteris paribus effects. Random effects are mostly used when one has the belief that some omitted variable is constant over time but might vary between cases, and other might vary over time but fixed between cases. This allows for the variables, though they are fixed, to have explanatory power. This is a clear advantage over the fixed effects when key explanatory variables are fixed over time or cases. This is in turn also the advantage of fixed effects as it takes out the constant part of the error term. If one could assume that all of the unobserved effects would be constant over time it would give exogenous explanatory variables. Random effects does not allow for the explanatory variables to have any correlation with the error term. This gives us a theoretical foothold that
indicates fixed effects would be better, since the random effect does not allow endogeneity and it was stated above that growth models are prone to suffer from endogeneity. This will be further tested when applying the model, as random effects has more efficient estimators, and therefore produces more precise p-values. Hence we should run a random effects model if it is justifiable to do so. There will be used White heteroscedastic robust standard errors as homoscedasticity cannot be assumed. These will be listed below coefficients in the outputs.

In the above it was stated that there are some general problems in regards to growth models. This paper does not seek to attempt solving these problems, but only address them as they will need to be taken in consideration when concluding on the results of the model. As we might take out some of the unobservable effects using fixed effects there will (probably) still be some degree of omitted variable bias as we cannot address or observe all explanatory variables.

It was previously argued that growth models need basically three different types of variables. The first group of variables we need to include are the variables from the theoretical school of growth. Since labour growth is of no interest to this study, the analysis will be based on output or growth per capita. This should make the analysis simpler as we do not have to control for population growth.

\[
y \frac{Y}{L^{1-\alpha -Y1-Y2}} = K_{\rho}^{\gamma} K_{g1}^{\gamma1} K_{g2}^{\gamma2}
\]

(4.1)

The dependent variable that will be used for this growth model is therefore; growth per capita in GDP which will be regressed using both capital flow variables which are related to this very simple model. Government capital in different classes of productivity cannot be observed; therefore the core model will be formulated as the following. The core of our model will still be the Solow model and will therefore empirically begin with the same components.

\[
GDP \text{ growth}_{it} = \beta_0 + \beta_1 \text{Private Investments}_{it} + \beta_2 \text{Governmental Investments}_{it} + \beta_3 X_{it}
\]

Other variables are known to be strongly related to economic growth. These are shown in model as a vector \(X_{it}\) representing these other relevant macroeconomic factors. It was previously mentioned that trade openness is another variable often associated with economic growth. It has been shown by Franklin and Romer (1999) that openness leads to growth. Therefore a variable showing trade openness will be included in the study. In the above it was also argued that such a variable could be correlated with variables such as democratization, political
stability etc. Therefore these variables will only be included if there is a lack of explained variance, to keep the model simple in order to avoid multicollinearity.

Another task will be to control for fluctuations in time and differences between countries. For this a variable measuring average growth of the countries will be added to the analysis. This will work as an attempt to correct for the differences in the business cycle. This variable will account for trends and shocks that apply for all the countries. However the variable is not region specific why it does not account for as for example the Asian Crisis which began in 1997 and ended somewhere around 1999. This sure had effects on many of the countries in the sample but none of them where hit as hard as Korea. Therefore it will only be able to correct for the most obvious fluctuations away from the long term growth trend. These variables will be further discussed in the following section about the data selection.

For the different purposes we will need to rearrange this simple equation and making other manoeuvres, as some of the effects will not be directly observable in this model. But this will be the main model for the empirical testing.

As mentioned in the first chapter the existing models used to find the economic impact of the event, is primarily auto regressive. That output growth depends mostly on output growth. Baade & Matheson (2004) uses however some different variables to control for some shocks and differences. Besides lagged values of the dependent they apply a dummy for the oil crises. So no variable that theoretically induces growth is used for this and other studies.

4.2 Presenting the Hypotheses

In the literature review it was stated that there is a negative or at least not a positive effect on growth from hosting the FIFA World Cup. This has been confirmed by several papers, but few of these have tried to explain this negative effect on output or growth. The purpose of the following hypotheses will be to confirm and seek to explain these results, though some different sub-hypotheses. The main hypothesis is still whether there is a negative effect on growth from hosting the world cup.

**Hypothesis 1** There is a significant negative effect on growth from hosting the FIFA World Cup.

To test this hypothesis two models will be estimated. The first having GDP growth per capita as the dependent variable and the second having a rolling GDP growth per capita as the dependent variable. These are similar in many ways to
the models estimated in existing literature. The existing literature is so focused on the event that there has never been found any proof of an effect the years after the event.

\[
\text{GDP growth}_{it} = \beta_0 + \beta_1 \text{Average GDP}_{it} + \beta_2 \text{Years of school}_{it} + \beta_3 \text{Host}_{it} + \beta_4 \text{Openness}_{it}
\]

\[
\text{Rolling GDP}_{it} = \beta_0 + \beta_1 \text{Average GDP}_{it} + \beta_2 \text{Years of school}_{it} + \beta_3 \text{Host}_{it} + \beta_4 \text{Openness}_{it}
\]

The above hypothesis is not very informative on its own. As mentioned above this negative effect has been empirically confirmed by many in the existing literature. If the following hypotheses are true, this could essentially implicate that also the above hypothesis is true. The following hypotheses will also approach explaining this negative effect.

**Hypothesis 1.1** There is a crowding out effect on private investments in the years between a World Cup is accepted and the event is held.

For this purpose a regression model with private investments as the dependent variable will be constructed featuring an interaction term between government investments and construction years.

\[
\text{PrivInv}_{it} = \beta_0 + \beta_1 \text{PrivInv}_{it-1} + \beta_2 \text{GovInv}_{it-1} + \beta_3 \text{Construction years}_{it-1} + \beta_4 \text{GovInv}_{it-1} \times \text{Construction years}_{it-1} + \beta_5 \text{Average GDP}_{t} + \beta_6 \text{GDP growth}_{it} + \beta_7 \text{Openness}_{it-1}
\]

We expect this interaction term to have a negative sign as it would allow us to conclude that there is significant crowding out in the FIFA related construction years. The extra crowding of the World Cup related investments is due to their lower productivity argued for in chapter 3. The following hypothesis will test this claim:

**Hypothesis 1.2a** The productivity of governmental investments is significantly lower than that of private investments.

The purpose is to test the difference between the productivity of the two types of investments.
In chapter 3 it was argued that stadiums are not productive. Therefore if funds have been reallocated from productive government spending to stadiums then the overall productivity of government spending should be significantly lower.

**Hypothesis 1.2b** World Cup investments are less productive than the normal government investments. Hence productivity of government investments is lower during the construction period.

Here an interaction term between the construction years and governmental investments and its effect on GDP growth are of interest. The sign and significance of the coefficient will show whether the FIFA related investments have a different productivity or not and in which direction.

\[
GDP_{\text{growth}}_{it} = \beta_0 + \beta_1 PrivInv_{it} + \beta_2 GovInv_{it} + \beta_3 Openness_{it} \\
+ \beta_4 Openness_{it-1} + \beta_5 AverageGDP_t + \beta_6 Years of School_{it}
\]

Based on the above hypothesis it will be possible to come forward with some explanation for the negative effect on growth from the world cup.

**Hypothesis 2** There will be World Cup effects when we control for investments.

\[
GDP_{\text{growth}}_{it} = \beta_0 + \beta_1 AverageGDP_{it} + \beta_2 Years of school_{it} \\
+ \beta_3 Host_{it} + \beta_4 PrivInv_{it} + \beta_5 GovInv_{it-1} \\
+ \beta_6 Openness_{it}
\]

The model for hypothesis 2 will be controlled for investments as it is then possible to see the real event specific effect.

### 4.3 The Data Selection

To test the hypotheses stated above a data set is necessary. This section is dedicated to describe the chosen data and the data selection. Panel data has been chosen as it allows us to include lagged values in our models and control for some unobserved characteristics. The data is by nature retrospective.
The final data set consists of 13 to 20 countries however the selection process started with all countries that have previously hosted the World Cup or given bids to host the event since 1970. Out of these countries Greece, Switzerland and Colombia was eliminated. Greece and Switzerland were eliminated from the sample as they failed to fulfil the requirements stated by FIFA. Colombia was eliminated as they withdrew their bid in 1982 for the 1986 World Cup. After this the sample size consisted of 22 countries out of which it is important to notice that some of these countries handed in joint bids. This is seen as the countries by them self could not act as host for an event of this scale. These countries are South Korea and Japan who co-hosted the World Cup in 2002, Holland and Belgium who bid to host the World Cup in 2018, the same year of which Spain and Portugal also gave in a bid to become joint hosts. Furthermore Libya and Tunisia made a bid to co-host the 2010 World Cup (FIFA World Cup host announcement decision). Due to data gathering it has been necessary to scale down the data set to only 13 countries as it have only been possible to find investment data on OECD countries. This will be further elaborated when discussing the selection bias of the data set.

4.3.1 Selection Bias

For the sample a few biases occur. First of all the countries have not been randomly selected and clearly have an overrepresentation of European/western countries compared to the world. This overrepresentation however is due to the previous selection of host countries where the locations have mostly been European and Latin American countries. Japan and South Korea were the first Asian countries to host the World Cup. South Africa was in 2010 the first African country and Qatar will in 2022 be the first Middle Eastern country to host the event. In the sampling period from 1970 to 2009 there have been 1 Asian hosted World Cup, 2 Latin American, 5 European and 1 North American. The choice of host by the executive committee is not random neither as the countries bid to become hosts and hereafter go through bidding rounds with the executive committee voting for a host country. Furthermore many articles have been written on the level of corruption within the election of the host country as it is discussed that countries buy the votes of the members of the executive committee (BBC). In accordance with the argumentation of rent seeking this has a negative effect on growth why it may disturb the results of the tests as there might an overrepresentation of corrupt countries. However this corruption may only be correlated with the growth of a country if it the country is generally corrupt. Due to the lack of investment data for all countries only 2 European hosts of the World Cup, 1 Asian and 1 North American are included in the period of the data set. These being the United States in 1994, France in 1998, Japan/South Korea in
2002 and Germany in 2006. The remaining 8 countries are still included as they are used as controls. It will be stated how many countries are included in each regression. For the 5 World Cup host countries we do not assume a higher level of corruption than average why it will not be controlled for in the models.

Furthermore due to the scope of the event only larger economies can handle the necessary investments excluding the smaller economies as possible host countries. Furthermore there might be a bias as the same countries that are possible World Cup hosts are also possible host for other major sporting events such as the Summer Olympics for which a synergy effect could be expected. Since the investments are similar in scope. Controlling for this has not been done as only USA has hosted the Olympics in a ten year period before the World Cup.

Due to the overrepresentation of western countries we may not see the different crowding effects described in the previous two chapters. Here we discussed that developed countries might experience a higher degree of crowding out on their investments compared to less developed countries if investing in infrastructure and not stadiums. By the empirical test it is therefore not possible to conclude whether less developed countries may benefit more from hosting a major event.

In the previous section it was argued that fixed effects will be the method of estimation for the test of the models. For this estimation method the coefficients can be biased when using panel data if the number of countries is large relative to the number of time periods when estimating dynamic models (Nickell, 1981). No further consideration will be taken to this Nickel bias as it decreases with T.

4.3.2 Variables

The growth rate of real GDP and the openness in current prices have been extracted from Penn World Table 7.0 whereas Gross Capital Formation (GCF) as a percentage of GDP has been extracted from World Development indicators. The percentages of GCF for private households, companies and the government are from OECD Statistics. The data on average years of school has been extracted from Education Statistics. Furthermore we have generated dummy variables based on official FIFA documents regarding the different hosts and the years in between winning the bid and hosting the event. All data have been gathered in the period from ultimo January till primo April. For definition and calculations of the different variables please see appendix A. These will in the following be shortly described.

Growth rate of real GDP in chain has been chosen as it a chain index derived by relating the value at the given period by the value in the previous. This insures
that the index show us the true growth from one year to the next and not based on
the growth compared to a base year such as for example a Laspeyeres index.
Furthermore the variable Rolling GDP average has been created to look at the
longer run effects on growth. The variable is calculated by the average of the three
following years. Equal weights have been chosen since we only want to even-out
some of the business cycle effects and use more long run data. Openness is
calculated as the export plus the import divided by GDP showing the openness of
a country’s trade.

The investment data has been calculated by using data from both OECD Statistics
and World Development Indicators as no database was found which had the direct
numbers. Therefore the governmental investments as percentage of GDP are
calculated by multiplying the governmental percentage of gross capital formation
with gross capital formation percentage of GDP and dividing by 100. This was
necessary as the Penn World Table data on investment level are the aggregate of
both private and public investments and the separated data are necessary for
testing the crowding effects and productivity differences.

Average education has been calculated as the average of the Barro-Lee indicator
of average years of schooling and the IIASA/VID projection of the mean years of
schooling. This method has been chosen as they are both estimated by five years
of interval however not always the same. For the missing years a weighted
average has been calculated.

Instead of controlling for year fluctuations by year dummies a FIFA average
variable has been generated. This variable show the average GDP growth for the
22 countries included in the original data selection. Furthermore two World Cup
relevant dummy variables been created. First of all there is a host dummy
equalling 1 in the year a nation host the World Cup and 0 when they are not
hosting the event. The next dummy is construction years indicated by being 1 in
the years in between a country winning the bid and actually hosting the event.
This period has been chosen as the World Cup related investments are realized in
this period.

4.4 Test of Hypotheses

In this section we will test the hypotheses separately. As argued previously the
optimal method would be random effects estimation, since it has more efficient
standard errors, conditioned by no endogeneity and allow us to include variables
fixed over time such as certain country specific characteristics. This might be a
very hard assumption; making the Hausman test necessary with fixed effect being
the consistent estimation. Tests have been run on the different regressions during this section. There have been quite different results, depending on the specification. This could be due to the fact that the Hausman test is not a very robust testing method. This leads to the choice of fixed effects for all specification as it allows us to compare the different results between regressions. Therefore all tests will be executed by fixed effects estimation as it is the more conservative choice. Furthermore White robust standard errors will be applied throughout the empirical tests. By this the probability of making a type 1 error are minimized though we might make type 2 errors of dismissing coefficient as being insignificant despite of truly being significant.

4.4.1 Test of the First Hypotheses

As mentioned at the presentation of the hypothesis this model has been created on the basis of the models done in the existing literature of sports economics.

**Hypothesis 1** There is a significant negative effect on growth from hosting the FIFA World Cup.

We have previously argued this model to have misspecifications for why it should be interpreted with caution.

**Table 3.1 Regression Results for test of Hypothesis 1**

<table>
<thead>
<tr>
<th></th>
<th>GDPgrowth_{it}</th>
<th>Rolling GDP_{it}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avarage GDP_{it}</td>
<td>0.985***</td>
<td>0.221**</td>
</tr>
<tr>
<td></td>
<td>(0.131)</td>
<td>(0.091)</td>
</tr>
<tr>
<td>Years of school_{it}</td>
<td>-0.101</td>
<td>-0.501**</td>
</tr>
<tr>
<td></td>
<td>(0.257)</td>
<td>(0.183)</td>
</tr>
<tr>
<td>Host_{it}</td>
<td>-1.047</td>
<td>-0.989**</td>
</tr>
<tr>
<td></td>
<td>(1.259)</td>
<td>(0.443)</td>
</tr>
<tr>
<td>Openness_{it}</td>
<td>0.003</td>
<td>0.017</td>
</tr>
<tr>
<td></td>
<td>(0.021)</td>
<td>(0.018)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.639</td>
<td>4.689***</td>
</tr>
<tr>
<td></td>
<td>(1.306)</td>
<td>(0.981)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Number of Obs</th>
<th>Number of groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>910</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>857</td>
<td>20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>R² Within</th>
<th>R² Between</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.1889</td>
<td>0.0183</td>
</tr>
<tr>
<td></td>
<td>0.1234</td>
<td>0.0023</td>
</tr>
</tbody>
</table>

**Note:** ***, ** and * indicates significance at respectively a 1%, 5% and 10% level. White standard errors are stated by parentheses below the coefficient.
The choice as not to include investments figures in this model is based on that if private investments are lower in the World Cup year investments variables will explain the lower output, making the host insignificant.

In the above output we see the simple growth model with both regular GDP growth and a three year rolling average as dependent variable. The first model will catch the effects in the event year and the rolling average in the three years after the event. In the output we see the coefficient for the average years of education to have a negative sign opposite of what would be expected based on the theory presented in chapter 2. This opposite sign we see as an indicator of the short term implications rather than a dismissal of existing theory. An increase in the educational level of a country will not immediately show return to GDP and may even take several years why it is not caught by the rolling GDP model either.

In both the models the coefficient of the host dummy has a negative sign showing a negative host effect on GDP growth in both the same year but also in the following years. Only in the rolling GDP model we see this variable to be significant at a 5 % significance level. The interpretation leads us to conclude that a host country will have nearly 1% lower growth on average in the following three years after the world cup year. The coefficient is higher in the first model even though quite close. This is not significant although it points at the same conclusion. It could be argued that it is not significant due to the fact that there is too much unexplained variation from year to year.

This effect should be interpreted as explained in chapter 2 when the allocation of resources is moved further away from a Pareto optimum it will mean less growth. However many of the underlying factors, leading up to the event, are not included in the model and therefore many of the true mechanisms are lost in interpretation. Therefore we are only able to conclude that there is significantly lower growth in the years after the World Cup. This leads us to the following hypothesis in the attempt to catch the driving factors for the World Cup effect. The host dummy in the model with rolling GDP as the dependent variable is insignificant even though it carries a negative sign. In this model the host dummy is interpreted as the effect on the average growth of the coming three years.

It has been argued that when the World Cup is held and all investments are complete it would work as a contractive fiscal policy. After years of big governmental investments this will have had a negative effect on several factors. As mentioned in the theoretical framework, this will lead to a level of output above the potential, where prices and interest rate is above the natural. This will appreciate the exchange rate and worsen the competitiveness, but also crowd out a part of the private investments. All these will in turn have a negative effect on
demand, and only after these effects have suppressed demand, will the level of output be met again. It is not of interest when the natural level of output is met again, but more if we can observe these effects. This will give an indication of what we expect to see.

The below hypothesis will attempt to test this, as it will give a basis of explaining this negative effect.

**Hypothesis 1.1** There is a crowding out effect on private investments in the years between a World Cup is accepted and the event is held.

Below the estimated model is shown with coefficients and standard errors. The independent variables explain a high degree of the variation in the dependent variable resulting in a high $R^2$. This however can also be due to the high number of variables and the lag structure. As mentioned previously this may also be a sign of multicollinearity. The following outputs are only based on 13 countries due to the data selection problems described in the previous section.

<table>
<thead>
<tr>
<th>Table 3.2 Regression Results for test of Hypothesis 1.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIVINVT</td>
</tr>
<tr>
<td>PrivInv_{it-1}</td>
</tr>
<tr>
<td>GovInv_{it-1}</td>
</tr>
<tr>
<td>(0.267)</td>
</tr>
<tr>
<td>Constructionyears_{it-1}</td>
</tr>
<tr>
<td>(0.520)</td>
</tr>
<tr>
<td>GovInv_{it-1} * Constructionyears_{it-1}</td>
</tr>
<tr>
<td>(0.145)</td>
</tr>
</tbody>
</table>

Number of Obs: 268  
Number of groups: 13  
$R^2$ Within: 0.791  
$R^2$ Between: 0.975

**Note**: ***, ** and * indicates significance at respectively a 1%, 5% and 10% level. White standard errors are stated by parentheses below the coefficient.

As expected the coefficients for the lag of private investments and the GDP growth are all highly significant and display a positive sign. This means that an increase ceteris paribus in for example GDP growth will lead to higher investments. The coefficient of the lagged governmental investments variable shows a negative sign meaning that higher governmental investments in a year
will have a negative impact on the following year’s level of private investments. However the sign of the construction years dummy is positive indicating that the private investments may increase right after the construction years. This coefficient is however highly insignificant. Openness displays a negative effect of the lagged variable. This could be due to the fact that we in our sample mainly contain industrialized countries, whose capital might earn a higher return abroad in less developed countries. Since the marginal return to capital is higher in less developed countries. Normally it is due to risk aversion that capital does not flow to less developed countries (Feenstra & Taylor, 2008). So if the country becomes more open trade-wise they might invest more abroad and thus this negative effect. The purpose of average GDP is to stabilize business cycle effects and display a quite high degree of significance. The constant is of very little interpretive value since it is unimaginable that all variables could be set to zero.

To identify the true impact of government spending on private investments we differentiate the model subject to governmental investments. Hereby we see that the impact depends on the coefficient for governmental investments, for the interaction term, and for the construction years:

\[
\frac{\partial PrivInvt}{\partial GovInvt} = \beta_2 + \beta_8 \text{Constructionyears}_t
\]

The test impact for the lagged value is similar, or though differentiated subject to the lagged value of governmental investment instead. The test impacts are calculated and displayed below.

<table>
<thead>
<tr>
<th>Table 3.3 Test Impact of Interaction Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coefficient</td>
</tr>
<tr>
<td>-0.410</td>
</tr>
</tbody>
</table>

Note: the standard errors in the test impact are based on calculations of the true standard error of the interaction term.

It is noted that the test impact is negative for the level of private investments. We interpret this as a clear sign of crowding out. This is what was expected based on the analysis. As government spending will need to use either their own savings or private saving though issuing of bonds. Either way, this will lead to crowding out since this interest rate as the price of capital will rise. Additionally the crowding out in the construction years can be caused by the nature of the incremental investments if these support the private sector less. This implies that for any given level of government spending, the crowding out of private investments is higher during the construction years. As there might be higher government spending is not the effect that we see above as the effect from government spending is already
controlled for. This implies that one percent of government investment relative to GDP will crowd out 0.41% private investment the year after. Even though the crowding out effect is more substantial in the years of construction, it is still held within the very broad confidence interval of government investments effect on private investments \([-0.899; 0.266]\). This goes to show that the joint coefficient is still somewhere in the middle, and it is not possible to conclude that there are significantly higher crowding out in the construction years than normal.

Though not being statistical significant the effects may still be economical significant.

As the governmental investments crowd out private investments we will now test the productivity of each of these two types of investments. Previous analysis suggested that the private investments should be of higher productivity and lead to higher growth than governmental.

**Hypothesis 1.2a** productivity of governmental investments is significantly lower than private investments.

In order to test this hypothesis we need the standard error for the difference between the two types of investments. In order to obtain these standard errors we can write the equation, in such a way that the test is readable from the output. The overall equation on which we want to test this hypothesis is the following. GDP growth as the dependent variable and only lags on Openness as the lags on private and government investments are of no real interest for this specific purpose.

\[
\text{GDP}_{\text{growth}}_{it} = \beta_0 + \beta_1 \text{PrivIn}_{\text{v}}_{it} + \beta_2 \text{GovIn}_{\text{v}}_{it} + \beta_3 \text{Openness}_{it} + \beta_4 \text{Openness}_{it-1} + \beta_5 \text{AverageGDP}_{t} + \beta_6 \text{Years of School}_{it}
\]

The hypothesis which we want to test is whether there is a difference between private and government investments against the alternative hypothesis of the same productivity:

\[
H_0 : \beta_1 = \beta_2
\]

\[
H_A : \beta_1 \neq \beta_2
\]

Therefore we might also state the hypothesis as the following, substituting \(\theta\) instead of the proposition.

\[
H_0 : \beta_1 - \beta_2 = 0 \ \vee \ \beta_1 - \beta_2 = \theta \rightarrow \theta = 0 \rightarrow \beta_1 = \theta - \beta_2
\]

Then this is then substituted into the equation.
By rearranging the equation the correct standard error is directly observable in the output. The test is then whether \( \frac{\theta}{SE(\theta)} \) is significant and is clearly readable from the following output.

Table 3.4 Regression Results for test of Hypothesis 1.2 a

<table>
<thead>
<tr>
<th>GDPgrowth_{it}</th>
<th>PrivInv_{it}</th>
<th>Openness_{it}</th>
<th>-0.100</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.350**</td>
<td>0.488</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.488)</td>
<td>(0.118)</td>
<td></td>
</tr>
<tr>
<td>PrivInv_{it} + GovInv_{it}</td>
<td>-1.073**</td>
<td>Openness_{it-1}</td>
<td>0.047</td>
</tr>
<tr>
<td></td>
<td>(0.465)</td>
<td>(0.124)</td>
<td></td>
</tr>
<tr>
<td>AverageGDP_{it}</td>
<td>0.679***</td>
<td>Constant</td>
<td>1.530</td>
</tr>
<tr>
<td></td>
<td>(0.157)</td>
<td>(3.438)</td>
<td></td>
</tr>
</tbody>
</table>

Number of Obs 281
Number of groups 13
R^2 Within 0.300
R^2 Between 0.002

Note: ***, ** and * indicates significance at respectively a 1%, 5% and 10% level. White standard errors are stated by parentheses below the coefficient.

The \( \theta \) is then the coefficient for the PrivInv, which is highly significant. Therefore there is a highly significant difference on the effect on growth from government and private investments. As the coefficient is positive this implies that the productivity of private investments is significantly higher as the test was specified as private – government investments. This is much in line with both common sense and previous research. Openness displays a negative impact effect and a positive lag. This is taken as evidence opening an economy more might have some negative short-run effects. As when a country becomes more open its companies becomes less protected against international competition. This could have the implication that in the short run some companies will not survive the tough competition. This could be the reason for the negative sign. In the longer run it is considered to have a positive effect on growth. Therefore we see signs of a J-curve (Feenstra & Taylor, 2008).
Let us now test the difference in productivity of the regular governmental investments and the World Cup related.

**Hypothesis 1.2b** World Cup investments are less productive than the normal government investments. Hence productivity of government investments is lower during the construction period.

To compare the regular governmental investments with the FIFA related investments an interaction term between governmental investments and construction years have been included in the model. The investments in the periods where the dummy criterion is satisfied are by this assumed to be FIFA related.

**Table 3.5 Regression Results for test of Hypothesis 1.2b**

<table>
<thead>
<tr>
<th>GDPgrowth&lt;sub&gt;it&lt;/sub&gt;</th>
<th>0.025</th>
<th>AverageGDP&lt;sub&gt;it&lt;/sub&gt;</th>
<th>0.685***</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDPgrowth&lt;sub&gt;it-1&lt;/sub&gt;</td>
<td>0.100</td>
<td>AverageGDP&lt;sub&gt;it&lt;/sub&gt;</td>
<td>0.162</td>
</tr>
<tr>
<td>GovInv&lt;sub&gt;it&lt;/sub&gt;</td>
<td>-0.972*</td>
<td>Openness&lt;sub&gt;it&lt;/sub&gt;</td>
<td>-0.102</td>
</tr>
<tr>
<td>(0.525)</td>
<td></td>
<td>(0.116)</td>
<td></td>
</tr>
<tr>
<td>Constructionyears&lt;sub&gt;it&lt;/sub&gt;</td>
<td>0.121</td>
<td>Openness&lt;sub&gt;it-1&lt;/sub&gt;</td>
<td>0.048</td>
</tr>
<tr>
<td>(0.814)</td>
<td></td>
<td>(0.123)</td>
<td></td>
</tr>
<tr>
<td>GovInv&lt;sub&gt;it&lt;/sub&gt;*Constructionyears&lt;sub&gt;it&lt;/sub&gt;</td>
<td>-0.156</td>
<td>Constant</td>
<td>1.886</td>
</tr>
<tr>
<td>0.183</td>
<td></td>
<td>(3.954)</td>
<td></td>
</tr>
<tr>
<td>PrivInv&lt;sub&gt;it&lt;/sub&gt;</td>
<td>0.244</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(0.154)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Number of Obs 281
Number of groups 13
R^2 Within 0.303
R^2 Between 0.002

**Note:** ***, ** and * indicates significance at respectively a 1%, 5% and 10% level. White standard errors are stated by parentheses below the coefficient.

The negative sign of the coefficient for regular governmental investments means that there is a negative return on these investments to growth in GDP. This is similar to the findings of several economists who have also found negative returns to public investments (Leeper et al., 2010). To test whether the FIFA related investments are of lower productivity we test the combined impact in similar way as in the test of hypothesis 1.1 by differencing GDP growth subject to governmental investments:
\[
\frac{\partial GDP\ growth_{it}}{\partial Govlnv_{it-1}} = \beta_2 + \beta_3\ Constructionyears_{it-1}
\]

This test impact is displayed below where we see the test impact being significant at a 5% level.

### Table 3.6 Test Impact of Interaction Term

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>Std. Err.</th>
<th>T-Test</th>
<th>prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1.128</td>
<td>0.484</td>
<td>-2.332</td>
<td>0.026</td>
</tr>
</tbody>
</table>

*Note:* the standard errors in the test impact are based on calculations of the true standard error of the interaction term.

However the difference between the two types of investments is not statistically significant. This is displayed in both the insignificant interaction term and by the confidence intervals [-2.12; 0.172] of the governmental investments in which the test impact coefficient lies. Therefore we cannot statistically conclude that the FIFA related investments are of lower productivity even though this is indicated by both theoretical reasoning and the above model. These findings are in clear accordance with the theory and FIFA context presented in chapter 2 and 3 as we argued that the FIFA related investments are unlikely to support the private sector and therefore leading to a lower return on growth.

**4.4.2 Recap of the First Conclusions**

In hypothesis 1.1 it was found that there is substantial crowding out of private investments, because of government investments. The crowding out was higher in the world cup years even though it was not significantly higher. This is also what one might expect based on the works presented earlier by Leeper et al. (2010), since the investments in stadiums are not productive they will have a larger crowding out effect.

Hypothesis 1.2a showed that the effect on growth from private investments is significantly higher than that of governmental investments. In 1.2b it was seen that a 1% increase in government investments relative to GDP have a negative effect on GDP growth of -1.13% during the construction years, which is higher than the normal estimate of 0.97%, though the coefficient of the period was not significantly different.

These two hypotheses might help to explain the negative effect on growth that we observed in hypothesis 1 as we know that if the government increases their investments in the years prior to the World Cup. A 1% increase in the governmental World Cup investments therefore crowd out private investments by
0.4 relative to GDP. As government investments are significantly lower in their positive contribution to growth, it could be this substitution from private investments to government investments that induces significantly lower growth.

If the government instead redistributes their investments from normal investments to World Cup specific investments, this would also be negative for growth. The growth induced by government spending was lower (although not statistically significant) in the construction years prior to the world cup. Furthermore the same argument could be used for the crowding out. There was a higher degree of crowding out in the construction years compared to the normal years. Therefore there would be crowding out of private investments and lower growth from government investments, even if it was only a matter of redistribution.

As argued previously the truth would probably be somewhere in between.

The effects are not that different as there will no matter the financing be crowding out and lower growth induced by governmental investments. However the choice of financing influences the scope of the effects.

4.4.3 Test of Hypothesis 2

The previous hypotheses are taken as evidence, that at least some of the negative effect from the World Cup on growth is explained by crowding out of private investments.

**Hypothesis 2** There is no World Cup effect when the model is corrected for investments

Previously in hypothesis 1 it was argued that investments were not included as they would perhaps explain the difference in GDP that we wanted the host-dummy to explain. In this model we include the investment variables to see whether they will absorb the negative effect. This would give us evidence that it in fact is the crowding out of the private investments which are the reason for the negative effect. GDP growth is regressed on the macroeconomic variables and a dummy representing the country being host to catch the immediate effect if any.
Looking at the output we see a clearly significant positive coefficient for the host dummy indicating that hosting FIFA World Cup has an impact on the host country’s growth in the given year. In the above model we have controlled for the growth effects from both private and governmental investments. This positive effect should however not be misinterpreted into a long term positive economic impact on a nation’s GDP, as it is only in the host year. Openness was subtracted from the model as it was highly insignificant. This is also taken as evidence toward that the negative effect found by for example (Baade & Matheson, 2004) is more due to crowding out of investments than it is due to the event itself. As we here control for the level of investments and find a highly economically and statistically significant effect from the event year. This high impact is not what one would expect on the bases of the analysis and therefore it might need to be taken with a grain of salt. This still serves as a clear evidence of the negative World Cup effect. However, as discussed previously the models of the existing literature may suffer from omitted variable bias which is hinted by the above results.

Table 3.7 Regression Results for test of Hypotheses 1 & 2

<table>
<thead>
<tr>
<th>GDPgrowth_{it}</th>
<th>Hypothesis 1</th>
<th>Hypothesis 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average GDP_{it}</td>
<td>0.985***</td>
<td>0.564***</td>
</tr>
<tr>
<td>(0.131)</td>
<td>(0.056)</td>
<td></td>
</tr>
<tr>
<td>Years of school</td>
<td>-0.101</td>
<td>-0.541***</td>
</tr>
<tr>
<td>(0.257)</td>
<td>(0.168)</td>
<td></td>
</tr>
<tr>
<td>Host_{it}</td>
<td>-1.047</td>
<td>2.048***</td>
</tr>
<tr>
<td>(1.259)</td>
<td>(0.480)</td>
<td></td>
</tr>
<tr>
<td>PrivInv_{it}</td>
<td>0.307**</td>
<td></td>
</tr>
<tr>
<td>(0.134)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GovInv_{it}</td>
<td>-1.095**</td>
<td></td>
</tr>
<tr>
<td>(0.395)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Openness</td>
<td>0.003</td>
<td></td>
</tr>
<tr>
<td>(0.021)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.639</td>
<td>3.120</td>
</tr>
<tr>
<td>(1.306)</td>
<td>(3.685)</td>
<td></td>
</tr>
<tr>
<td>Number of Obs</td>
<td>910</td>
<td>268</td>
</tr>
<tr>
<td>Number of groups</td>
<td>20</td>
<td>13</td>
</tr>
<tr>
<td>Within R^2</td>
<td>0.1889</td>
<td>0.3084</td>
</tr>
<tr>
<td>Between R^2</td>
<td>0.1234</td>
<td>0.0599</td>
</tr>
</tbody>
</table>

Note: ***, ** and * indicates significance at respectively a 1%, 5% and 10% level. White standard errors are stated by parentheses below the coefficient.
4.5 Implications of Findings

These results will need to be taken into account when a country is considering a bid for the World Cup as the above results show signs of substantial crowding out of private investments. As mentioned in the introduction, in the case of South Africa (The Economist), the bill of $8.6 billion was generally justified by the “fact” that they received an extra annual growth boost of 0.5% (The Independent) around the event. The results of the above analysis are very much against that positive growth effect. Even though there was a positive effect when controlling for investments, this only confirm that private investments, which have a positive effect on growth, are crowded out by the government’s investments in stadiums. Therefore the bill of these stadiums will be even harder to justify in a country where 40% of the population lives for below two dollars a day.

As mentioned earlier assuming that all endogeneity in the model is constant over time might be too optimistic. Therefore the results might be biased though they are consistent through different specifications. Another problem they might suffer from is nickel bias as the investment data for several of the countries is only available for a limited number of years.
Chapter 5

Pride, Expectations and the Political Horizon

The macroeconomic consequences of hosting the FIFA World Cup have been discussed and analyzed throughout this paper where no long term positive growth effect has been found. So why are nations still so keen to bid for and hosts these events? Several sport economists argue that intangible benefits can be caused by a well executed event. The chief executive of the South African World Cup 2010 Organizing Committee puts it as following:

“The World Cup is about nation building, it’s about infrastructure improvements, it’s about country branding, it’s about repositioning, it’s about improving the image of our country, and it’s about tourism promotion. It’s also about return on investments, job creation and legacy”

- Danny Jordaan
- Cited in Allmers & Maennig (2009) p. 500

The lasts aspects mentioned by Jordaan are the return on investments, job creation and legacy indicating that these are not the main purpose of the hosting government. However for South Korea the result was more in line of white elephants as mentioned in chapter 3 as only five out of their ten new stadiums are regularly used.

The event can therefore be seen as a tool to be allowed to invest public funds that otherwise would not have been granted and promoting the nation itself. Regarding the nation promotion this is both internally and externally. Internally the feel good factors are mentioned by several reports as to how the hosting of an event leads to an increase in the happiness of the population. Externally the aim of the government may be to create world cities or just simply improve the image of the country (Allmers & Maennig 2009) and (Kavetsos & Szymanski 2010).

We will in this chapter first look at how the international perception of the hosting nation may change because of the event. Hereafter the national population’s economic perception of the future and the effects hereof will be discussed. In this relation we will also shortly look at the aspects for the politicians.
5.1 Nation Branding & International Perception

Barclay (2009) discusses the intention of the government to increase their global standing partly by rising in the hierarchy of “world cities”. This is by Greene (2003) argued to be somewhat similar to the “Big Kahuna approach” where the investments, if unique and spectacular enough, will bring money and prestige to the nation. The newly build stadium in Munich Germany for the 2006 World Cup are one of these iconic buildings, however the state of Munich being a world city will not be discussed here. However the international perception of Germany has improved by hosting the World Cup. To assess the image improvement of a nation the Anholt Nation Brand Index is a most helpful index for an otherwise abstract and subjective evaluation. The index was first created in 2005 and measures the perception of a nation based on six different aspects on a scale from 1 to 6 where 6 means agree completely and 1 for no agreement. These are displayed below for Germany for the year before and the year of them hosting the World Cup.

**Figure 5.1 International perception of Germany**

![Image of a bar chart showing the international perception of Germany before and after hosting the World Cup.](chart.png)

*Source: GMI-Anholt Nations Brand Index displayed in Allmers & Maennig (2009)*

For all six factors Germany experienced a rise after hosting the World Cup. The factor of the welcoming nature was in 2005 the lowest of the 6 with a score of 4.4 though with a minor increase to 4.5 in 2006. These increases in each of the factors lead to an overall position of second in the world of positive perception from a former rank of number five. As it has been previously mentioned the image improvements are contingent on the how well the event is conducted (Allmers &
Maennig, 2009). So if the World Cup proceeds unsuccessful this will be blamed on the hosting nation and probably not FIFA resulting in a worse perception of the country.

Germany is now described abroad as fun loving, welcoming, modern and creative. Previously they were described more in line of effective, efficient but cold, and unfriendly. These positive changes lead to increased tourism and export (Eberl, 2010).

5.2 Happiness & the Feel Good Factor

A country hosting a sporting event or participating may experience temporary effects on the happiness of the population. Kavetsos & Szymanski (2010) empirically finds causality between how well a nation performs in the competition and their happiness. If a country’s team performs better than expected prior to the event the happiness will raise. The effect however also works to the opposite leading to a decline in temporary happiness if a team badly underperforms. The effect of hosting the event is though higher and significantly positive at a 10 % level. This positive happiness effect are found across all gender-age groups, however this is not a lasting effect and others more personal factors such as marriage are of higher significance and more persistent.

The expectations of the population are also influenced by hosting the event and by the national team performance in the tournament. For Germany it was found that the average expectation of an increase in household income of €469 for the midpoint of the median income category. This being a 23.5% increase of the income of that household category and are found to be similar for the other income categories as well (Dohmen et al., 2006). This is similar to the expectations of the South African population prior to them hosting the World Cup. Here approximately one third of the population indicated that they expected to benefit from job opportunities because of the event (Allmers & Maennig, 2010). Dohmen et al. argues that these economic expectations are of importance as they shape the economy based on the Keynesian framework. In chapter 4 under hypothesis 1 and 2 we saw that the coefficient for the host dummy is significantly positive when we control for the private and governmental investments. This can be due to these very positive expectations about the populations own economic future. If the households expect an increase in their permanent income their spending will increase leading to a short term rise in the dependent variable GDP growth. However the coefficient of 2.048 is rather high compared to what to be expected. This subject is touched upon in some literature regarding the right
estimation method for the economic impact when hosting a major sporting event. Here it is stated that the incremental spending by the local residents should not be included as they will just increase their spending during the event and reduce their spending in the following months (Barclay, 2009). However if their incremental spending is caused by increased optimism and they do not reduce their spending in the following months within the same year the spending should be accounted for. The expectations can also lead to time switching of spending across years instead of just months leading to higher spending during the event year at the expense of future spending. Kim et al., (2006) analyze the expectation differences prior and after the event for South Korea in 2002.

Table 5.1 Mean before and after the World Cup in South Korea

<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Positive Impacts</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits of cultural exchange</td>
<td>3.79</td>
<td>3.62</td>
</tr>
<tr>
<td>Economic benefits</td>
<td>3.43</td>
<td>2.91</td>
</tr>
<tr>
<td>Natural resource and cultural development</td>
<td>3.26</td>
<td>3.10</td>
</tr>
<tr>
<td><strong>Negative Impacts</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traffic congestion and pollution</td>
<td>3.93</td>
<td>3.34</td>
</tr>
<tr>
<td>Price increase</td>
<td>3.39</td>
<td>2.92</td>
</tr>
<tr>
<td>Social problems</td>
<td>2.81</td>
<td>2.11</td>
</tr>
<tr>
<td>Construction costs</td>
<td>2.72</td>
<td>2.91</td>
</tr>
</tbody>
</table>

Note: All items were assessed on a 5-point scale (1=strongly disagree, 5=strongly agree)

Source: Kim et al. (2006) p. 93

Here they found that prior to the event the expectations to positive benefits were above average and that traffic congestion, pollution and price increases to be of highest concern. All of these expectations fell to a lower level after the event indicating that both the perceived benefits and -disadvantages were lower than expected. The only factor of which the perceived benefits rose after the event was the justification of the constructions necessary to host the event. However the score of the factor was still below average meaning they found them justified but by a lower degree. These results should however be taken with caution as South Korea only hosted 9 out of the 23 teams during the event and the government imposed strict tourism rules towards the Chinese due to fear of illegal immigrant staying once the World Cup had passed (Kim et al., 2006).

17 This is against the argumentation in section 3.4 based on Porter (2008) in which it was argued that any change in behaviour from the local population should be accounted for.
Figure 5.2 South African’s perception of the 2010 World Cup

Note: Percentage who agree with the statement

For South Africa a similar decline in positive economic expectations have been found as 92% in March 2009 were found to agree with the statement of hosting the event would boost the economy and create new job opportunities. The agreement with this statement had by August 2010 declined to 75%. However the population’s perception of the improvement of the infrastructure rose after the event finished reaching a percentage of 91. Another interesting aspect of the South Africans perception of hosting the 2010 World Cup is regarding the image they will display abroad after the hosting. The expectations had a small fall just before the start of the event in May 2010 but rose immediately after the event to a stunning 94%. In this number it is therefore possible to see to which extent the South Africans saw the event as well proceeded.

The above section therefore show why some governments are willing to invest so heavily in the World Cup as many of the non economic benefits show immediately and the economic consequences of the investments first are to be felt years later. Furthermore the economic consequences do not derive explicitly from the event why most regular households will not see and quickly after the event forget about these. By this we therefore see that the benefits of hosting a major event fit the short term time span of the politicians whose aim is to be elected once more. So what is meant by that the macroeconomic consequences do not show explicitly or immediately after the hosting of the event? For the average
household will probably not remember 2 years after the hosting that the government increased the investments in the year prior to the event resulting in lower public investments following or an increased public debt. Furthermore they will probably not see the connection between the decreases in private investments due to the crowding out by the governmental investments. Neither will the thought of short term jobs be a liability to the government. By this the politicians only gain the benefits if the World Cup proceeds well and not the economic consequences. For the World Cup in Germany 2006, Panke & Rebeggiani found in 2004 that some regional culture funding was cut to support a World Cup venue instead without waking resistance. This is further elaborated in Rebeggiano (2006):

“We interpret this as a clear sign of the political importance of soccer in Europe, which remains far the most popular sport. Supporting soccer constitutes, therefore, a quite safe investment for politicians who aim to increase their popularity.”

- Rebeggiani et al 2006 p. 397

When investing in event related capital the public are less reluctant as the World Cup is an important cultural event for several soccer nations. Furthermore being elected as the host country is seen as a seal of approval of the hosting country.

Rebeggiani (2006) further argues that an overinvestment in stadiums by heavy football cultural countries is less severe as they use the stadiums afterwards and would need the renovations or constructions in the future.

The authors of this thesis would therefore expect a negative economic effect for South Africa from hosting the World Cup and would thus not have recommended the hosting of such an event. However, if the aim was to improve the international perception of the nation and improve the feel good factor and economic expectations of their population, the event might be argued as successful. However the purpose, the level of investments was high and could have served the tax payers better.

5.3 Summarizing the Stamp of Approval

Hosting the FIFA World Cup can be of great political significance especially in football nations which has only been seen by the quote by Rebeggiani. This is due to the popularity of the event and that the positive perception by the population shows immediately whereas the economic consequences first appear later when the direct connection may not be at the top of the populations mind. The
international perception of Germany improved considerably and is now more towards friendly, welcoming and fun loving compared to the previous perceptions of efficient but cold and unfriendly. For South Africa and South Korea their economic expectations were higher before the event than after however for South Korea most of the negative impact expectations had fallen as well except regarding the construction costs. The high economic expectations of the hosting nation could lead to the event specific positive effect as the population may increase their spending within the event year.
Chapter 6

Conclusion

This thesis has investigated the economic impact of hosting the FIFA World Cup. We have approached this through both analysis and empirical tests concentrating on providing answers to the two research questions presented in section 1.1. In the following we summarize the main findings and conclusions.

Through cross-country empirical tests it was found that hosting the FIFA world Cup will lead to lower growth in GDP. To explain this lower growth the underlying factors were tested. Macroeconomic theory and FIFA context analysis were the foundation for these variables and hypotheses. It was found that the private investments are significantly more productive than governmental. Furthermore the productivity difference for the regular governmental investments and the World Cup specific was tested and showed lower productivity to the World Cup related investments. However this difference was not found statistically significant.

Before testing the productivity of the different investments, the crowding effects of governmental- and private investments were tested; showing significant crowding out of private investments. This can be seen as evidence against the Ricardo-Barro effect. The crowding out was even higher in the construction years leading up to the event. Though the incremental crowding out was not found statistically significant.

When the more productive private investments are substituted by lower productivity governmental investments it follows that the overall level of productivity will fall leading to lower growth possibilities in the future. As the World Cup related investments was found to be of even lower productivity then regular governmental investments and substitutes by a higher degree the growth possibilities are lowered even more. This was expected based on the theoretical analysis of the World Cup related investments.

The above implies that the models of existing World Cup literature suffer from omitted variable bias as they do not account for the investments changes and dynamics.
Normally fiscal policy are used to counteract business fluctuation why it could be expected that the government could make use of a balanced budget expansion to lead to economy closer to its natural output faster. However it was argued that the financing choice would affect the level of crowding out. A fiscal expansion through balanced budget will lead to double crowding out as the raised taxes and extra governmental spending both crowds out private investments in the medium run.

When controlling for these investments a positive hosting effect was found. It has been argued that this effect is not solely based on the tourism effect which is seen as the main explanatory reason in much of the previous literature. However it has been argued that this could be due to the other factors such as the economic expectations of the nation. In accordance with Keynesian theory, these can have an impact in the shaping of the economy as a positive shift in expectations may work to drive consumption. Additionally the international perception of the host country may improve, if they host a well organized event. This was for example the case of Germany whose image changed from effective but cold to fun loving and friendly.

Based on the findings the authors of this paper would expect a negative growth effect in the long run for South Africa from hosting the World Cup. This is quite different from the claimed additionally 0.5% annual growth in the years surrounding the World Cup, predicted by the consultants. This argument is often used to justify the major spending which we find could be of higher use in other non-football investments or tax cuts.
Articles


Books


Web pages


Appendix A

**GDP Growth**

Has been extracted from Penn World Table 7.0. They define it as the following: Growth rate of Real GDP Chain per capita.

Penn World tables 7.0:
http://pwt.econ.upenn.edu/php_site/pwt_index.php

**Rolling GDP**

Calculated as an average of the following three years GDP Growth.

\[
rolling\ GDP_t = \frac{GDP\ growth_{t+1} + GDP\ growth_{t+2} + GDP\ growth_{t+3}}{3}
\]

**Average GDP**

Calculated as an average of the total number of countries.

\[
Average\ GDP_t = \frac{GDP\ growth_{t1} + GDP\ growth_{2t} + \ldots + GDP\ growth_{kt}}{k}
\]

**Openness**

Is defined as “Exports plus Imports divided by GDP is the total trade as a percentage of GDP” Also been extracted from Penn World Table.

Penn World tables 7.0:
http://pwt.econ.upenn.edu/php_site/pwt_index.php

**Years of school**

Is a combination of “Average years of schooling of adults (aged 15+), total” and “IIASA/VID Projection: Mean years of schooling, age 15+, total” The data only has values every 5 years and have therefore been extrapolated to even out development and have annual observations.

Both variables extracted from below address, from the database educational statistics.
Private Investments

The Core data has been extracted from OECD national accounts (table p5), where the data is given as a private household’s- and corporation’s percentage of total gross capital accumulation. The two were added to have private investments as a percentage of total gross capital accumulation. This has been multiplied with the total gross capital formation from the World Development Indicators, to have it in numbers. To have in terms of GDP it has been divided by cgdp from World Penn table.

OECD – National Accounts p5:

World Bank – World Development Indicators:

Penn World tables 7.0:
http://pwt.econ.upenn.edu/php_site/pwt_index.php

Governmental investments

The same has been done as above only with governmental % of gross capital accumulation.

Host

A dummy where 1 represents the year in which there is a World Cup in the country and 0 is all other years.

Construction years

A dummy where 1 represents the years between the country being elected host and the actual event.