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# The Economic Impacts of Government Financing of the 2010 FIFA World Cup

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LEGACY, SOUTH AFRICA  
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# THE ECONOMIC IMPACTS OF GOVERNMENT FINANCING OF THE 2010 FIFA WORLD CUP

RAMOS MABUGU<sup>1</sup> AND AHMED MOHAMED<sup>2</sup>

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## ABSTRACT

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This paper presents estimates of the economic impacts of financing the hosting of the 2010 FIFA World Cup by the government of South Africa. *Ex ante* analysis using a fiscal social accounting matrix model indicates that hosting of the event impacts positively on gross domestic product and imports. The positive impact on imports will, *inter alia*, lead to deterioration in the current account deficit for a given amount of exports. Owners of capital benefit more than owners of labour as a result of 2010 FIFA World Cup expenditures by the government. Middle-income Black households are the largest winners, followed by high-income Whites. Asians experience the least gain. These outcomes are explained by the initial factor endowments and their sectoral allocation in the social accounting matrix. Government revenue goes up in response to the demand injection, and a large proportion of it accrues to central government and local government respectively.

Keywords: 2010 FIFA World Cup, Economic Impact, SAM Modelling, Legacy, South Africa

JEL codes: C68, D58, L83

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## 1. Introduction

South Africa's Medium-Term Budget Policy Statement (MTBS)<sup>5</sup> covering the period 2007/08 to 2009/10 was of great importance because for the first time analysts became aware of the extent of the South African government's financial commitment to hosting the 2010 FIFA World Cup. A central feature surrounding this MTBS was that it was crafted in an environment of sound macroeconomic performance,<sup>6</sup> which manifested itself in strong revenue overruns of R30 billion, expected at the end of the fiscal year 2006/2007, on the back of robust company and value-added taxes. The Minister of Finance decided to use much of this revenue overrun to finance government's commitment to supporting the successful hosting of the 2010 FIFA World Cup. Indeed, in terms of expenditure priorities financed from revenue overruns, the 2010 FIFA World Cup features strongly, along with increased investment in the built environment and the criminal justice system. An amount of R17.4 billion was allocated for capital projects associated with the hosting of the 2010 FIFA World Cup.

The aim of this study is to quantify the likely impacts of the government's 2010 FIFA World Cup capital expenditures on the economy. The influence of such a mega project on the economy can be both direct and indirect. The direct effects are normally straightforward to estimate using the total capital expenditure on the part of government. If the interest were on the estimation of other non-government investments and interventions, then the returns on the ticket sales and broadcast rights, as well as the expected revenue from advertising, could be calculated based on past experiences of similar events. These direct effects are only part of the overall effects on the national economy and often these constitute the smaller part. There are also general equilibrium effects. Investments in the construction and refurbishment of stadia, for example, will lead to a higher demand for building industry materials while employment is likely to increase in the construction and transport sectors, leading to additional positive impacts on consumption. This, in turn, will lead to a growing demand for other goods and services, setting in motion a 'cobweb' type phenomenon. These examples illustrate that it is of the utmost importance to assess the indirect impacts of the hosting of the 2010 World Cup. A major difficulty in quantifying these indirect effects lies in the lack of data on the general equilibrium impacts. They can, however, be assessed by means of economy-wide models, which describe the actions of investors and consumers and the development of the production structure. A specially designed fiscal Social Accounting Matrix (SAM) multiplier model was used for the analysis reported in this study, with the specific focus being on macroeconomic, sectoral, factor and household impacts. In this approach, there is no consideration of the fact that the increased spending will either require a tax increase or raise the deficit, both having typically negative ramifications for the rest of the economy. Such constraints are not imposed, and hence a pure expansionary outcome is anticipated. The impacts of government intervention reported in this paper should therefore be viewed as the upper limits of the possible benefits that should be anticipated.

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<sup>5</sup> The MTBS is also known as the Medium-Term Expenditure Framework (MTEF)

<sup>6</sup> The country had been growing at an average of 4.2% for the preceding three years, government debt was not a cause for concern and fiscal policy was characterised by a small budget surplus.

The next section provides a breakdown of the allocations made for hosting the 2010 FIFA World Cup as well as a discussion of prospective major stadia construction and refurbishment. The third section comprises a review of the empirical literature on the economic impacts of mega events on host economies. Thereafter follows a detailed description of the methodological approach and the simulation results respectively. Finally, the study concludes with an analysis of the findings and policy-relevant recommendations.

## **2. Allocations Towards Hosting of the 2010 FIFA World Cup**

The Minister of Finance's Budget Speech of February 2007 outlined the Government's funding package for the 2010 FIFA World Cup. This was the culmination of a long process which commenced with the Minister's Committee on the Budget (MinComBud) in June 2006; followed by the MinComBud meeting in July 2006; the Intergovernmental Technical Committee on Finance in late July 2006; the Budget Council *Lekgotla* in August 2006; the MTEF submissions in August 2006; the MTEF hearings in September 2006; the MTEF recommendations to the MinComBud in September 2006; the Extended Cabinet Meeting in October 2006; the MTBPS statement on 24 October 2006; the Adjustments Appropriation Bill to Parliament on 24 October 2006; and finally, the MTEF approval of November 2006. The roles and responsibilities for each sphere of government in relation to the hosting of the World Cup, were defined in the process.

At the national level, departments that have signed guarantees have assumed responsibility for defining, designing, costing and executing projects to ensure compliance with FIFA regulations. This applies to Home Affairs, Finance, Safety and Security, Communications, Transport, Environment and Tourism, Trade and Industry, Justice and Constitutional Affairs, Foreign Affairs and Health. A number of other national departments were not party to such guarantees but have nonetheless assumed the same responsibilities in order to ensure the successful execution of the event. These include Sport, Government Communication and Information Systems, Provincial and Local Government, Public Enterprises, Minerals and Energy, The Presidency, Arts and Culture, Water Affairs and Forestry and Public Works.

While Provincial Departments were not signatories to FIFA guarantees, three provincial functions will be crucial for the successful hosting of the event. These are Transport, Health, and Sport and recreation. A fourth competency also needs to be considered, namely the need to market tourism facilities. Provincial departments were asked to align their 2010 FIFA World Cup project plans to the plans of their respective national department plans. Host cities have signed agreements with FIFA's Local Organising Committee (LOC), which stipulate their responsibilities to include the provision of LOC/FIFA offices, stadia and training grounds, reporting and taxes, customs and entry requirements, safety and security, transportation and airports, environmental protection, commercial display and exclusion zones, FIFA Fan Parks, FIFA Partner Clubs, host city advertising, the Rights Protection Programme, retail opening hours and regulation of entertainment, city services and city beautification.

Table 1 summarises the major costs of hosting the 2010 FIFA World Cup. What comes out clearly from the table is the commitment of substantial resources by government, not only to capital expenditure for the construction of stadia and related transport infrastructure, but also for improving other auxiliary services such as the modernisation of the information and communication technology, enhancing the efficiency of monitoring at ports of entry, and the financing of various specific and general legacy effects. The focus of this study lies in analysing the amount of R17.4 billion allocated by government for capital projects associated with the 2010 FIFA World Cup. The fiscal year 2007

will carry the bulk of government’s monetary contribution towards preparations for the 2010 FIFA World Cup.

**Table 1: Breakdown of costs for hosting 2010 FIFA World Cup**

Project	Cost
Stadia	R8.4 billion
Transport	R9.0 billion
Broadcasting	R400 million
ICT	R2.5 billion
Safety and Security	R666 million
FIFA	R3.1 billion
Ports of Entry	R1.573 billion
Training of Volunteers	R25 million
Community Mobilisation	R17 million
Legacy Projects	R337 million
Arts and Culture	R150 million
Organising Committee	R3.2 billion +

Source: Business Unity South Africa (2006).

As shown in Table 2, transport and stadia have received the highest allocations. Over 74% of the stadia allocation is destined for the construction of five new stadia and the rest (26%) for the upgrading of five existing stadia. The allocation of funds for renovation was motivated by the nature of the work to be carried out to bring the stadia up to FIFA standards.

Government has undertaken to manage the 2010 FIFA World Cup budget through targeted spending for identified projects. Clearly this has implications for the equitable sharing of national revenue. To avoid using the equitable shares, resources have been made available mainly in the form of conditional grants to the government sphere, under whose jurisdiction the hosting city fall. The bulk of the 2010 FIFA World Cup work to be financed by government is set to take place in nine host cities, namely Cape Town, Nelson Mandela, eThekweni, Mbombela, Polokwane, Rustenburg, Tshwane, Johannesburg and Mangaung. The sharing of the 2010 FIFA World Cup allocations has therefore not been based on the principle of equitable shares but has rather been driven by cities identified as hosting 2010 FIFA World Cup event. Even within the local government sphere, expenditure has not been evenly distributed but rather concentrated in those nine cities hosting the event. Thus, the vertical as well as horizontal division of government revenue has been influenced by national interest – the sphere of government that has provided the service, receives the funds.

**Table 2: Stadia fiscal allocations and seating capacity**

Municipality	Stadium	Seating	Total allocation (R)
Johannesburg	Ellis Park	61,006 (upgrade)	229,000,000
Johannesburg	Soccer City	95,000 (upgrade)	1, 530,000,000
Cape Town	Green Point	70,000 (New)	1,930,000,000
eThekweni	King Senzangakhona	70,000 (New)	1,800,000,000
Nelson Mandela Bay	Nelson Mandela	48,000 (New)	895,034,525
Mbombela	Mbombela	46,000 (New)	855,000,000
Polokwane	Peter Mokaba	46,000 (New)	696,776897
Mangaung	Vodacom Park	48,000 (upgrade)	219,066,285
Rustenburg	Royal Bafokeng	42,000 (upgrade)	147,431,064
Tshwane	Loftus	50,000 (upgrade)	97,691,229
TOTAL			8,400,000,000

Source: National Treasury (2006).

### 3. Review of Studies on Impacts of FIFA World Cup Hosting

A recent literature review of the impact of major sporting events can be found in Kasimati (2003) and Bohlmann (2006). This section draws on these sources, with additional information on research not included in these references. Benefits of hosting world-class sporting events identified in the literature include enhanced infrastructure base, gains in welfare and employment as well as increases in tourists and local business prospects (Ritchie and Aitken, 1985; Hall, 1987; Kang, 1988; Robin, 1988; Walle, 1996; French and Disher, 1997). The literature also points out potential negative impacts of hosting such events including high costs of construction and infrastructure, high rental costs, temporary displacement of traditional tourists and crowding (Hiller, 1999; Darcy and Veal, 1994; Mount and Leroux, 1994; Leiper, 1997; Spilling, 1998).

Two main approaches have been identified in order to assess the impacts of hosting an event such as the 2010 FIFA World Cup, namely the qualitative and quantitative approaches. The qualitative approach includes the Delphi technique and scenario modelling, among other methods. The quantitative approach can be further sub-divided into models that are stochastic and non-stochastic in nature. Non-stochastic models include the well-known input–output (I–O)/ Social Accounting Matrix (SAM) approach and the computable general equilibrium (CGE) framework. Founded in the 1940s by Wassily Leontief, the I–O/SAM method is an example of a multiplier analysis whereby the response in output is a given multiple of the original injection. The main driver of this approach is the technology base of the economy that is embedded in the IO/SAM tables that form the main database for the analysis. IO/SAM models have been used extensively in analyzing the economic impacts of major events.<sup>7</sup> While many published economic studies have been carried out in an I–O/SAM framework, studies have also used CGE models. The CGE frameworks are disaggregated representations of the economy taking account of demand and

<sup>7</sup> A well-known example using this modelling approach is the regional input–output modelling system (RIMS II), a computer programme often used by studies that examined the Summer Olympics and the World Cup, hosted by the USA. RIMS II has been proven to be successful in measuring effects at several levels of industrial aggregation, when initial tourist spending is known. An alternative I–O computer programme, also developed in the USA, is IMPLAN (IMpact analysis for PLANning).



production interactions simultaneously. CGE models incorporate simultaneously the demand and production side of the economy. The production side is captured by flexible production/cost functions. The sectoral detail is usually determined by the level of detail in the SAM table. The demand side is split into the three main absorption aggregates of consumption, imports and investment. Again the level of detail is usually determined by the detail in the SAM table as well as the underlying household survey. CGE models can have representative households or actual households, can assume flexible prices or sticky prices and can be dynamic or static. Stochastic approaches can be divided into those that are econometric and those that are more statistically oriented. Such approaches are useful for providing forecasts based on relatively stable and predictable long run relationships. However, they have not been widely used in estimating the potential impacts of mega events such as the hosting of the World Cup, presumably because of a lack of suitable data. In this and other papers, no studies of the impact of mega events, using econometric analysis, have been found.

Dobson *et al.* (1997) examined the economic impact of the Euro 1996 Football Championship and found that 280,000 visitors generated an economic impact of £120 million, which was new money to the United Kingdom. In addition, domestic football fans travelling to grounds generated a further £75 million. A similar economic impact study of the Seoul Olympics estimated a US\$1.6 billion injection to the economy, with additional employment amounting to 336,000 (Kim *et al.* 1989). However, from an economic perspective, Kim *et al.* (2004) argue that the 2002 FIFA World Cup in South Korea was unsatisfactory. The benefits of cultural exchanges, natural resources and cultural development were, however, found to be adequate. The authors argue that the lower-than-expected economic benefits may be attributed to the fact that football has not traditionally been a major sport in Asia.

Grant Thornton (2003, 2007) has undertaken a cost benefit analysis for South Africa of hosting the 2010 FIFA World Cup. The 2003 study found that the staging of the 2010 FIFA World Cup would create significant direct and indirect economic benefits for the country's economy, with minimal tangible and intangible costs. According to the 2003 study, the event was expected to contribute R21.3 billion to the economy, generating an estimated 12.7 billion in direct spending, creating 159,000 new jobs and raising an additional R7 billion in government revenue.<sup>8</sup> In the 2007 study, the total contribution to Gross Domestic Product (GDP) for the period 2006 to 2010 was estimated to be R51.1 billion, which included direct expenditure of R30.4 billion, plus the multiplier effect of the total indirect impact on the rest of the economy.

Another instance of modelling the impact of the 2010 FIFA World Cup was executed by Bohlmann and van Heerden (2006) who made use of a CGE model. They examined the impact of the pre-event phase expenditure attributed to the hosting of the event on the South African economy. The model used was in the tradition of the Australian ORANI model (UPGEM). Although their simulation was not informed by actual government expenditure for the event, as this was not yet available at the time of publication, they simulated an increase in government expenditure on construction and found a positive impact on most macroeconomic variables, including GDP and employment. These gains were found to be driven mainly by unskilled unemployed resources that were drawn into economic activity by the demand injection.

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<sup>8</sup> The study assumed that there would be 36 teams, with an average of 50 people per team; 10,500 media representatives; 5,000 foreign dignitaries; and 500 FIFA officials. A total of half a million foreign visitors (located outside the continent of Africa) were expected to attend the tournament, staying an average of 15 days, counting knock-out stage matches.

## 4. Model Development and Data

### 4.1 Modelling approach

Why might we expect the financing by government of the 2010 FIFA World Cup to affect the macroeconomy? The answer to this question determined how the research would be designed, including how the model would be set up and the associated database. This section explores some of the possibilities in an intuitive way. The first item of relevance is that the extent of government involvement with the 2010 FIFA World Cup project is quite significant when measured as a proportion of the South African economy. This suggests that the impacts of the project are likely to spill-over to other sectors and agents of the economy and would not be confined to the transport and construction sectors only. A number of additional concerns have been raised around the financing of the initiative, skill shortages, productivity impacts and the reduction of import content (Bohlmann and van Heerden, 2006).

As per previous mention in the literature review, a common tool available to macroeconomists in analysing the demand impact of a major project is multiplier analysis. As is well known in the literature, this approach assumes that there are no crowding-out effects, so that demand injection automatically translates into a rise in income. If there were complete crowding-out, then the demand injection would simply lead to an increase in inflation and cause the composition of output to change, without any impact on output.<sup>9</sup> While it is unlikely that the South African economy faces such inelastic supply schedules – for instance, unemployed resources such as labour could be called in to expand production – it is reasonable to assume that the aggregate supply is not perfectly elastic and automatically expands in response to a demand injection.<sup>10</sup>

Economists have increasingly relied on SAM multiplier approaches to address related issues with an economywide dimension. These models belong to the class of fixed-price general equilibrium models, used to assess the economic effects of exogenous changes in income and demand. The common distinguishing features of these models include two basic sets of assumptions:

1. the coefficients of the matrix is parametric, which is equivalent to the 'fixed coefficients' assumption in Leontief IO analysis; and
2. the total activity can passively accommodate a change in final demand with perfectly elastic factor supplies<sup>11</sup>.

Both of these assumptions are based on the long-run assumption that all prices (and wages) ultimately remain the same. Otherwise, a change in relative prices could mean that coefficients change – or, an increase in factor demand may simply drive up factor prices rather than expand output. Since prices are fixed, conclusions can be drawn about quantities on the basis of value shares. The second important feature of SAM models is that they are demand-driven. With the idea embedded in the SAM that an economy is characterised by a circular flow of income and expenditure, a change in the demand for the product of one industry would not only affect that industry but all other activities would be affected

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<sup>9</sup> This is similar to assuming a vertical aggregate supply curve in macroeconomics.

<sup>10</sup> Only finite existing production capacities as well as import capacity and skills constraints would constrain the country's growth capacity.

<sup>11</sup> It is important to be aware that this assumption favours an economic benefit for South Africa and is not critical enough with potential bottlenecks that may hinder supply responses. As a result, the impacts derived should be thought of as upper bound impacts of the intervention.

indirectly through intermediate demand, factor demand, household demand, and government demand changes. Starting with the vector of final demands, successive rounds of gross outputs necessary to achieve that demand can be calculated. As further and further rounds are included, this converges to the 'equilibrium'. Thus, the effects eventually die out. A multiplier is the cumulative sum of the endogenous effects. It is inversely related to the exogenous portion of economic activity.<sup>12</sup> Potential broader impacts on productivity and productive resource shortages cannot be considered in a first generation SAM based model.

With these limitations acknowledged, the remainder of this section develops the actual model employed in the study in a step-by-step manner. To illustrate this, let matrix  $X$  denote a vector of activity levels (in value terms) in an economy, and matrix  $A$  denote the amounts of each activity used by each other activity, at rates which are assumed to be independent of the levels of activity in  $X$  (constant returns to scale). Furthermore, let a vector  $D$  denote a column of exogenous uses of each activity. Total activity  $X$  satisfies endogenous ( $AX$ ) and exogenous ( $D$ ) uses, that is:

$$X = AX + D$$

Assuming that vector  $A$  is parametric, any change in  $D$  must be accommodated by a corresponding change in  $X$ . Solving for  $X$ , the relationship between  $D$  and activity vector  $X$  is easily shown to be:

$$X = (I - A)^{-1} D$$

where the term  $(I - A)^{-1}$  is known as the multiplier matrix or Leontief inverse. It embodies all the technological information underlying economic production. The multiplier matrix shows the cumulative effect on all activities of a given change in exogenous accounts (under the assumptions noted above). The elements in a specific column account of the multiplier matrix show the effects on the row sectors and institutions of a one Rand (R1) change in exogenous activity (government expenditure) in the column account. Thus, the column coefficients show the backward linkages of a sector (purchases from sectors upstream). A specific account row shows how that account is affected by one Rand (R1) changes in the column accounts, or, the forward linkages of the sector (sales to sectors downstream). This is the hallmark of 'Linkage' analysis. Whether the impacts of an exogenous demand injection lead to sustained real effects ultimately depends on the shape of the aggregate supply function. If one were to believe it to be vertical, then there would be no lasting real impact and all that would be observed is higher levels of inflation. If the aggregate supply function were upward-sloping, then there would be some sustained real effects following the demand injection.

A final modelling issue is that of the choice of closure rules. In the South African SAM-multiplier application, activities, commodities, factors, enterprises, and households are specified as endogenous accounts. Government recurrent expenditure, indirect taxes, government investment, capital, and the rest of the world are exogenous. Thus, only two kinds of shocks are possible, working through the commodities and the household accounts.

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<sup>12</sup> In South Africa, SAMs have been used for several different analyses. McCord and van Seventer (2004) have used SAM analysis to study the impact of the labour intensification of infrastructure in public works programmes. Townsend and McDonald (1998) used a similar analysis to analyse the impact of agricultural policies on income distribution.

#### 4.2 The Data in the Base Year

In order to obtain quantitative magnitudes, the study used a recently constructed Fiscal SAM created by the Financial and Fiscal Commission. A major innovative and distinguishing feature of this SAM is the finer disaggregation of the government sector. The SAM includes 48 economic activities and 48 household types, and disaggregates government accounts according to the hierarchy of tax/spending authorities (i.e. Central, Provincial and Local/Municipal) and in respect of the major revenue sources and major categories of expenditure. As in other countries, the government of South Africa fulfils a cardinal role in the national economy. The collection of tax revenues and the spending thereof in the form of salaries, purchases of commodities, distribution of welfare grants and the building of public infrastructure all impact on the economy. The transfers between the different government spheres and interactions with the rest of the economy are incorporated in the SAM. Table 3 reflects the results of this process for the year 2004.

**Table 3: Income and expenditure of central, provincial and local government spheres of South Africa [R Millions, 2004 Prices]**

Current Income	Central	Provincial	Local
<b>Activities:</b>			
Other taxes on production	5,584		
<b>Commodities</b>			
Taxes on products(VAT)	93,789		
<b>Capital (GOS):</b>			
Income from property	-16,067	-4,274	
<b>Enterprises:</b>			
Company tax	65,460		
Secondary Tax on Companies	6,850		
Tax on Retirement Funds	4,340		
Taxes on payroll and workforce	4,126		
Taxes on Property			
Specific Excise Duties	12,642		
Levies on Fuel	6,866		
Taxes on International Trade & Transactions	12,068		
Casino Tax		506	
Motor Vehicle licenses		924	
Horseracing		68	
Other Taxes	7,969	6	
Interest, dividends and rent on land		340	
Fines and Penalties		36	
Regional Levies			5,747
Property rates			10,413
Electricity			3,398
Water and Sanitation			5,415

Refuse Removal			1,695
Other Tariff			6,262
<b>Households:</b>			
Personal Income tax	103,364		
Taxes on Property			
Levies on Fuel	11,690		
Stamp Duties and Fees	1,216		
Motor Vehicle licenses		1,015	
Interest, dividends and rent on land		373	
Fines and Penalties		40	
Property rates			5,364
Electricity			2,816
Water and Sanitation			3,416
Refuse Removal			874
Other Tariff			3,148
<b>Rest of the World:</b>			
Transfers from the rest of the world	1,033		
Transfers from households	2,929		
Transfers from Enterprises	6,924		
Allocations by government:			
Rest of the World to Central			
<b>Central to Provincial</b>			
Equitable Share <sup>13</sup>		141,933	
Conditional Grants <sup>14</sup>		18,225	
Interdepartmental transfers		1,374	
<b>Provincial to Local</b>			<b>2,220</b>
Central to Local			
Equitable Share			6,515
Conditional Grants			5,708
<b>Total Current Income</b>	<b>330,783</b>	<b>160,566</b>	<b>62,991</b>
<b>Current Expenditure</b>			
Subsidies on Production	3,016	1,565	
Subsidies on Products	2,446		

<sup>13</sup> The allocation of revenue to the national, provincial and local spheres of government as required by the Constitution

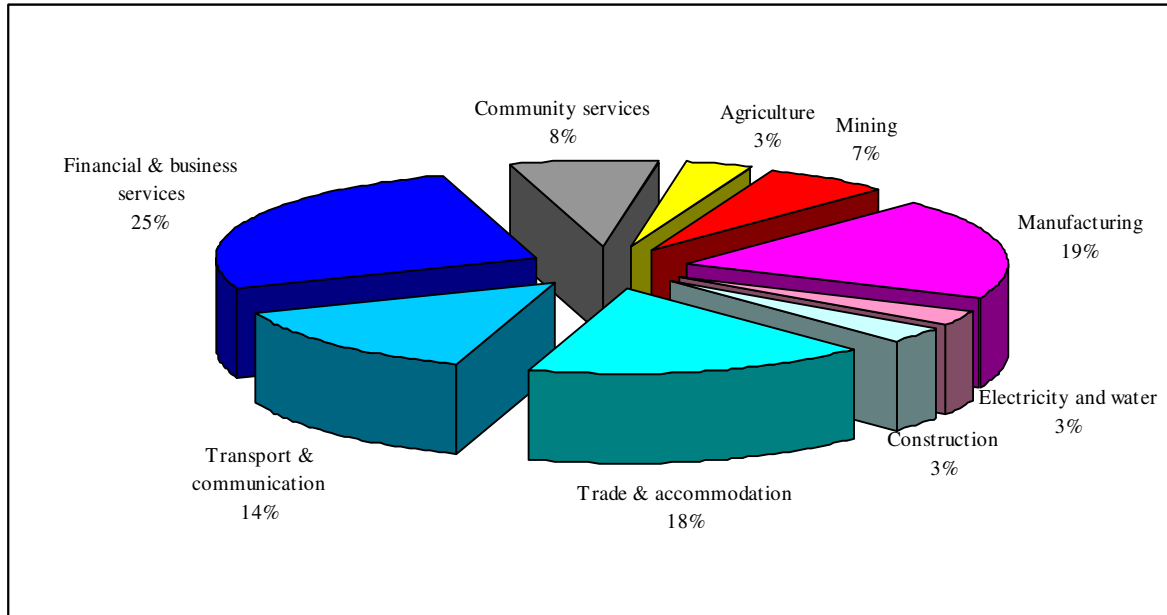
<sup>14</sup> A grant paid subject to specific conditions being met and in the case of non-compliance subject to repayment possibly with a penalty. These are meant to speed up national priority programmes that are aimed at achieving basic social rights.

Commodities	50,614	27,988	32,931
Labour	58,812	80,909	22,108
Current transfers to enterprises(interest on public debt)	52,252	19	1,964
Transfers to households(pensions/grants)	24,644	37,504	
Transfers to rest of the world	10,637		
Allocations: Expenditure			
Rest of the World to Central			
Central to Provincial			
Equitable Share	141,933		
Conditional Grant	18,225		
Central to Local			
Equitable Share	6,515		
Conditional Grant	5,708		
Provincial to Local		2,220	
Interdepartmental transfers		1,374	
Total Expenditure	374802	151578	57003
Total Savings (Total Income - Total Expenditure)	-44019	8988	5988
Total Savings (Total Income - Total Expenditure)		-29,043	
Total Gross Investment		-37,887	
Total Depreciation		26,944	
Capital Flows		-39986	

Source: Financial and Fiscal Commission Fiscal Social Accounting Matrix (2006).

Figure 1 demonstrates the sectoral composition of the South African economy, as embedded in the Fiscal SAM, based on a nine-sector aggregation of the economy, inclusive of Financial and business services; Community services; Agriculture; Mining; Manufacturing; Electricity and water; Construction; Trade and accommodation; and Transport and communication.. It is evident from this illustrative breakdown that the financial and business services sector is a major role-player in the economy, followed by manufacturing, and the trade and accommodation sector.

**Figure 1: Sectoral composition of the South African economy – Value added per main economic sector**



Source: Financial and Fiscal Commission Fiscal Social Accounting Matrix (2006).

Table 4 depicts the skills levels employed in the main activities. It is important to note that some sectors employ predominantly skilled labour whilst others employ mainly unskilled labour. In particular, the tertiary sector comprises mostly skilled employees, whilst the primary and construction sectors possess predominantly semi-skilled and unskilled employees. These characteristics have an important bearing on the effects of the investment injection on household income generation.

**Table 4: The FFC SAM model: Labour shares of earnings by skill level and economic sector**

	Agriculture	Mining	Manufacturing	Electricity, gas and water	Construction	Trade	Transport	Finance and business	Community and social services
Skilled	14.0%	23.6%	38.0%	38.0%	23.4%	33.6%	18.4%	63.0%	41.9%
Semiskilled	42.1%	61.9%	52.1%	55.6%	61.4%	55.5%	37.8%	34.5%	49.1%
Unskilled	43.9%	14.5%	10.0%	6.3%	15.2%	10.9%	43.8%	2.5%	9.0%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: Authors' calculations, based on Financial and Fiscal Commission's Fiscal Social Accounting Matrix (2006).

Whilst data for all 48 household categories is reflected in the Fiscal SAM, the data for the purposes of this discussion has been summarised and is presented for five household expenditure categories for each population group. The aggregation was performed on the following basis:

- E1 low (percentiles 1 and 2);
- E2 low-middle (percentiles 3 to 5);
- E3 middle (percentiles 6 to 8);
- E4 high-middle (percentiles 9 and 10); and
- E5 high (percentiles 11 and 12).

Table 5 provides a picture of the overall household consumption expenditure patterns, divided between major spending categories. Higher income households are responsible for the largest shares of savings, taxes, transfers and consumption expenditures. In a similar fashion, Table 5 demonstrates how taxes, as a percentage of total expenditure, rise as expenditure increases. Savings similarly rise, but as they are a very small proportion of total expenditure, this can only be appreciated by consulting the table itself. In contrast, consumption falls as expenditure rises. These trends are all consistent with *a priori* expectations.



**Table 5: The FFC SAM model: Household expenditure patterns for major spending categories.**

Expenditure group	E1	E2	E3	E4	E5	Tot als
Consumption expenditure	2.02%	9.71%	15.17%	19.53%	53.57%	100%
Transfers between households	1.77%	11.60%	32.06%	25.19%	29.38%	100%
Direct taxes and transfers paid to the Government	0.13%	1.02%	5.00%	12.76%	81.09%	100%
Household savings	0.07%	1.02%	5.46%	11.13%	82.32%	100%

Source: Authors' calculations, based on Financial and Fiscal Commission's Fiscal Social Accounting Matrix (2006).

Table 6 illustrates income sources by households from different income brackets. Households from the high income groups derive 63% and 59% of their income from labour and enterprises respectively. Low-middle income families derive 33% of their income from inter-household transfers and 64% from government transfers. The highest percentage of inter-household transfers (51%) accrues to middle income households. The very poor are disproportionately more reliant on government transfers for their income than other households.

**Table 6: The FFC SAM model: Overall household income sources**

Income group	Labour	Enterprises	Inter-Household Transfers	Government
E1	1.0%	0.6%	8.0%	14.4%
E2	4.8%	4.3%	32.8%	63.6%
E3	13.3%	13.3%	51.4%	19.6%
E4	18.7%	23.0%	7.8%	2.3%
E5	62.2%	58.8%	0.0%	0.1%
TOTAL	100.0%	100.0%	100.0%	100.0%

Source: Authors' calculations, based on Financial and Fiscal Commission's Fiscal Social Accounting Matrix (2006).

## 5. Results

The simulation results reported in this section are based on a scenario that takes into account the investments of R17.4 billion for constructing and upgrading stadia facilities and constructing related transport infrastructure. These increased expenditure patterns are applied to the exogenous final demand vector of the Fiscal SAM corresponding to the relevant sectors. The rest of this section traces the impacts of the policy interventions as they channel through the reallocation of production and inputs, factor remuneration adjustments, household income and finally government tax revenues.

### 5.1 Macroeconomic Impacts

The fact that GDP is the total value of all final goods and services produced in the country makes it fundamental to the economic quality of life of all people in the country. It is also the most important and all encompassing measure of the macroeconomic effects of the 2010 FIFA World Cup expenditure by government employed in this study. The project has an impact on GDP of R163 million which is approximately a 1.2% increase relative to the base year. The rise in GDP is driven largely by rising consumption.<sup>15</sup> The reason for this increase can thus be traced back in part to higher real household incomes. However, in addition, it can be traced back to reduced tax rates (with GDP rising, the tax base rises, but with fixed government consumption and savings, revenue has to remain the same, therefore meaning that tax rates should be lowered).

As regards the current account deficit position, the government's 2010 FIFA World Cup expenditure is expected to draw in imports. Similarly, the increased income also draws in more imports. As would be expected, when consumption increases, imports rise in response, in this case by 1.14%. For given exports, this increase in imports would likely lead to a balance of trade deficit. Note that because this scenario has assumed that the whole project is financed by government (tantamount to assuming flexible current account on the balance of payment), exports need not rise in order to achieve this higher level of imports required than would have been the case had the current account deficit been assumed to remain fixed instead. As a result, the exchange rate would not have to depreciate and may in fact appreciate.

### 5.2 Sectoral and Factor Market Impacts

Table 7 reports on the direct and indirect (multiplier) contributions to sectoral production and supply following government's contribution to hosting the 2010 FIFA World Cup. The R17.4 billion increase in government expenditure is estimated to contribute a 1.28% increase in domestic production<sup>16</sup>. Turning to the impact on domestic supply, the multiplier analysis suggests that the R17.4 billion expansion project will raise supply by 1.23% compared to the baseline<sup>17</sup>. As would be expected *a priori*, the results suggest that the targeted sectors' output would rise in response to the intervention. But knock-on effects would also be expected. As is common in these kinds of models, the targeted sectors impact on other sectors through forward or backward linkages. Because construction and transport are widely used as intermediates, there would be numerous forward linkages. Outside these sectors, the largest 2010 FIFA World Cup expenditure multiplier effect would be that of manufacturing, followed by financial and business services, trade and accommodation, community services, electricity and water, agriculture and mining. The relatively low multipliers for agriculture and mining indicate that these sectors purchase and sell few inputs from the growing sectors. This is indicative of a low degree of linkages. The result is also due to higher than normal import penetrations and intensities associated with the sectors in the initial period. The latter suggests that the sectors are likely to experience higher leakages. However, in general, the multipliers are all fairly low, as would be expected, given the open nature of the South African economy, which implies higher leakages.

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<sup>15</sup> Note that if one alternatively assumes that the 2010 FIFA World Cup Project is financed instead by domestic private savings, this result would be reversed and household consumption may actually fall. This illustrates the importance of choice of closure rules.

<sup>16</sup> This is equivalent to GDP at factor cost.

<sup>17</sup> This is total supply inclusive of intermediate inputs.

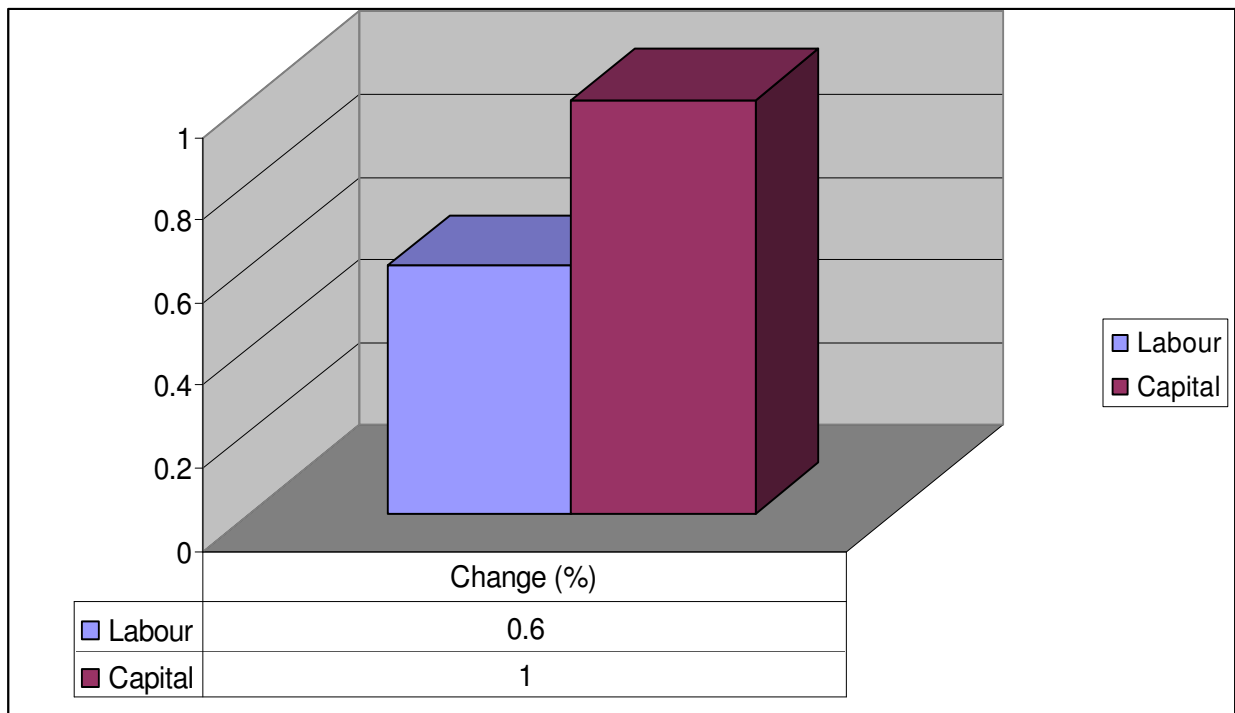
**Table 7: Sectoral impact of 2010 FIFA World Cup capital expenditure by government on sectoral production and supply**

Sectors		Base Value (R Millions, 2004 Prices)	Change (%)
All Activities		2,448,750	1.28
All Commodities		2,970,827	1.23
	Agriculture	87,888	0.59
	Mining	171,598	0.40
	Manufacturing	1,271,403	1.16
	Electricity and Water	60,984	0.60
	Construction	133,978	6.94
	Trade and Accommodation	174,235	0.75
	Transport and Communication	334,865	2.21
	Financial and Business Services	516,660	1.00
	Community Services	219,212	0.60

Source: Authors' calculations.

In terms of the contribution to factor remuneration, Figure 2 shows that the 2010 FIFA World Cup capital expenditure by government is expected to create a 0.96% increase in capital returns and 0.62% increase in labour returns. These respective multipliers suggest that capital owners stand to benefit more from government 2010 FIFA World Cup expenditures than owners of labour. However, both factors stand to benefit from the demand injection associated with hosting the 2010 FIFA World Cup.

**Figure 2: Impact of 2010 FIFA World Cup capital expenditure by government on factor remuneration**



Source: Authors' calculations.

### 5.3 Household Impacts

The impacts on households are largely determined by the implied changes discussed above on value-added and factor markets. Table 8 shows that low income households are expected to benefit more from the labour market/employment effect than higher income households because the construction sector exhibits a low skill bias. However, middle and higher income households are set to benefit more from the savings effect. This latter effect is due to the fact that the project is wholly financed by government, hence not impacting on enterprise savings. Unearned income distributed to richer households is expected to increase, resulting in consumption increases. Due to the distribution of unearned income, top income earning households are expected to benefit more from this impact. Of further significance, however, is the fact that all households, when viewed as a collective, are expected to gain from the 2010 event, as households' income is set to rise by 0.42%.

The 2010 FIFA World Cup expenditure is regressive in the sense that the biggest winners have been identified as high income households, while low income households are set to experience the lowest increase in their income. But from a racial perspective, Blacks stand to gain the most from the event, followed by Coloureds and Whites. Indians/Asians as a group are expected to reap the least gains from government expenditure towards the 2010 FIFA World Cup. This is because of their lower initial shares of factor employment in the sectors that receive the most positive stimulus from the demand injection by government.

**Table 8: Impact on household incomes of 2010 FIFA World Cup capital expenditure by government**

Households		Base Value, R Millions, 2004 Prices	Change (%)
All Households		988,509.95	0.42
	Low income	103,309.84	0.17
	Middle Income	139,647.92	0.49
	High Income	745,552.19	0.70
All Blacks		448,898.47	0.67
	Low income	95,968.58	0.44
	Middle Income	116,341.21	1.02
	High Income	236,588.69	0.70
All Coloureds		93,846.35	0.48
	Low income	5,689.69	0.21
	Middle Income	13,391.79	0.54
	High Income	74,764.87	0.77
Asians/Indians		45,096.83	0.16
	Low income	707.85	0.02
	Middle Income	3,298.92	0.17
	High Income	41,090.05	0.35
All Whites		400,668.30	0.38
	Low income	943.73	0.00
	Middle Income	6,616.00	0.22
	High Income	393,108.58	0.97

Source: Authors' calculations.

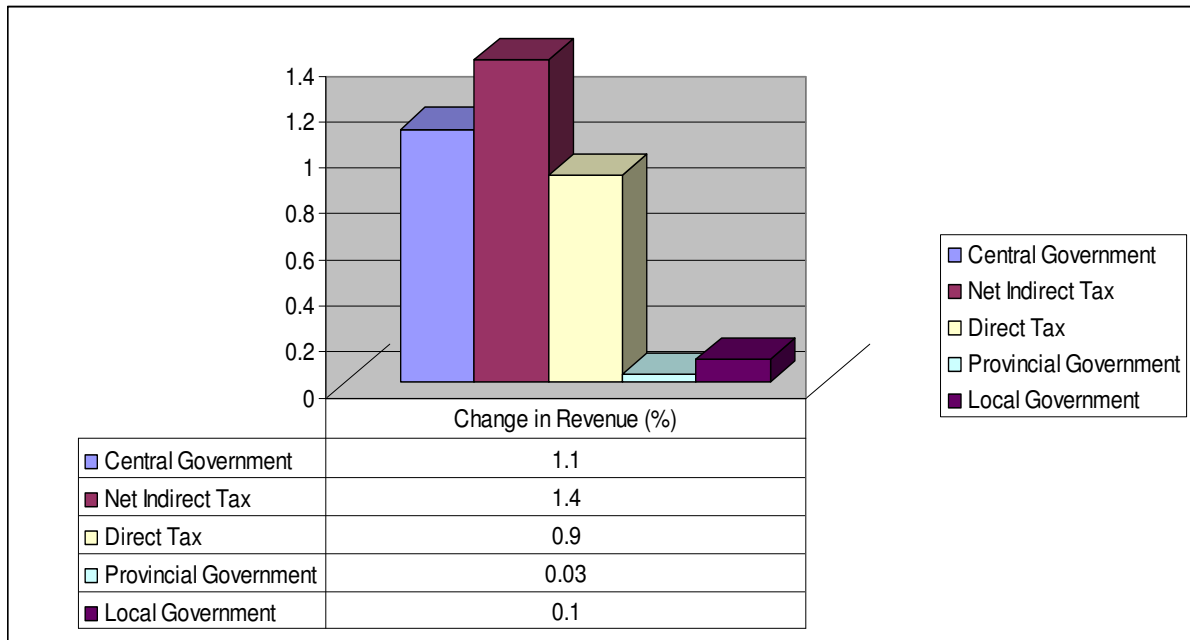
Looking at disaggregated households, Table 9 shows that the black middle income groups are the single biggest winner, with a prospective 1.02% increase in income. They are followed by black and white high income households. White low income households are unlikely to experience any impact whatsoever on their income following the investment injection. From a socio-economic point of view, the substantial increase in government expenditure towards hosting the 2010 FIFA World Cup is expected to do much to promote household incomes, especially that of the black middle income and white high income households.

#### *5.4 Tax Revenue Implications*

The 2010 FIFA World Cup event is expected to impact on sub-national and national tax revenues. Changes in patterns of expenditure, brought about by the event, are expected to give rise to increases and decreases in tax revenues from different sectors because different aspects of economic activity

are taxed differently.<sup>18</sup> According to Figure 3, central government revenue will increase by 1.13%. Most of this increase is derived from indirect taxes, which are expected to grow by 1.35%. The 2010 FIFA World Cup expenditure will redistribute revenue in favour of central government. The increase in revenue is also in favour of local government, presumably benefiting the nine cities hosting the event and their related municipalities and provinces. Provinces stand to gain the least in revenue.

**Figure 3: The FFC SAM model: Impact on government revenue of 2010 FIFA World Cup capital expenditure by government**



Source: Authors' calculations.

The changes in tax revenues are expected to lead to changes in government spending and tax rates, which in turn influence economic activity. These latter effects are not captured in the Fiscal SAM model. It would certainly be interesting, for future work on the subject, to address the question of what action government would be likely to take if increased economic activity were to lead to increased tax receipts.

## 7. Conclusions

The aim of this study was to quantify the direct and indirect economic impacts of the R17.4 billion infrastructure expenditure commitments by the national government towards hosting the 2010 FIFA World Cup. While research on measuring the impact of hosting a mega event such as this should ideally be located within the wider social context of sport, politics, and intergovernmental fiscal relations, some results from the analysis carried out in this research study are instructive to this debate. Using the SAM methodology, the results indicate that the staging of the event is expected to

<sup>18</sup> The resulting tax revenue for each sphere is computed as  $t(I - A)^{-1} \Delta F$  where  $t$  is the respective average tax rate for a given tax handle.

impact positively on GDP and imports. The findings also indicate that the socio-economic impacts of hosting the event are somewhat regressive. Those who stand to gain the most via this international soccer event are high income households, while low income households are expected to gain the lowest increase in income. The benefit that is set to accrue to low income households is derived from labour remuneration due to the low skills bias of the booming construction sector. Nevertheless, all households, when viewed as a collective, stand to gain from an increase in income. It is also predicted that national government and local municipalities will collect increased revenue.

A potential source of instability for the economy (and ultimately, total government revenue) is the negative effect on the balance of trade induced by the hosting of the event. This macroeconomic result, however, suggests relatively few negative impacts on the economy from such a large intervention by the government. The remedies to this potential instability would thus be to promote tourism aggressively or put measures in place that would allow the real exchange to depreciate.

By nature of its design, the 2010 FIFA World Cup will undoubtedly benefit those South African cities and provinces that intend to host the event disproportionately more than their non-hosting compatriots. As a result, there is a risk that some areas will be left behind in terms of infrastructure development and welfare. A case in point is that hosting cities and their respective local governments will realise a large proportion of the benefits of the 2010 FIFA World Cup, yet the costs of hosting the event will, predominantly, be borne by all South African taxpayers via government's financing of the event. From a broader perspective, however, one can argue that the tournament will benefit the entire country, as confirmed by the SAM analysis carried out in this study. Nevertheless, despite these collective benefits, government will need to develop and implement mechanisms that ensure equity in the distribution of benefits derived from the World Cup, particularly in respect of the other areas that do not benefit directly from host city status.

It should be noted that the limitations of this study point to areas for future research. On balance, the study finds that the impact of the R17.4 billion in infrastructure spending towards government's hosting of the 2010 FIFA World Cup is likely to be favourable from a macroeconomic perspective, raising further revenue for the government. The reasons are clearly to do with the fact that the modelling approach adopted does not impose on the economy the hard realities of national accounting consistency, since the event is financed from budget overruns. It is therefore important to be aware that this approach chosen has significant limitations, such as linearity, absence of behavioral considerations, absence of markets and prices, and lack of formal constraints. Furthermore the assumption that there are no constraints on supply response means that the analysis is very much favouring an economic benefit for South Africa following government intervention and this is a very restrictive assumption. Still, SAM models are useful in providing ball-park estimates of very short-run responses to infrastructures disruptions. The results can readily be interpreted as the upper limits of the possible benefits to be expected. This could affect sectoral and distributional patterns of gains, but this methodology at least provides a first approximation of the distribution of those gains, and an upper estimate of their aggregate value. Future work should dwell on this issue, focusing more on resource shortages and resulting resource pull effects, alternative ways of financing the event, and productivity issues. Other social and environmental costs associated with the event would also need to be studied and quantified.

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