

# Estimating the Impact of the 2010 FIFA World Cup on the South African Economy

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## Abstract

*The World Cup has come and gone, but it is still unclear what the economic impact of the event was and will be. Ex-ante impact studies were conducted using speculative figures that, as previous literature on mega-events has shown, tend to significantly overestimate the benefits accruing to host countries. In December 2010, official statistics on the tourism generated by the World Cup became available, and allow a reassessment of the economic impact. We employ a Leontief multiplier analysis based on the South African Social Accounting Matrix (SAM) for the year 2000, using official data, to generate ex-post estimates of the net economic impact of the event. We split the event into three phases: Pre-Event (the building of stadia and related infrastructure), Event (operations, foreign tourism revenues, ticket sales) and Post-event (expected tourism and paying for fiscal deficits). Importantly, and contrary to a worrying trend in mega-event impact studies, we pay close attention to the financing of higher government deficits in the years to come. We run a number of simulations involving future increases in tourism and differing definitions of event-specific expenditure. We find that by: including transport and related infrastructure as well as stadia, assuming a 3% boost to tourism after 2010 and financing deficit spending through taxation; the net long-run addition to GDP is approximately 1.1%, while an additional 155 300 jobs are created. Including only the event-specific construction (stadia), the net addition to GDP is approximately 1% while an additional 133 400 jobs are created. As ex-ante impact estimates suggested only slightly lower levels for 2010 alone, our results seem to indicate more modest benefits than previously expected.*

Keywords: South Africa; 2010 FIFA World Cup; SAM Modelling; Economic impact analysis

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## **1. Introduction**

The World Cup has come and gone, but it is still unclear what the economic impact of the event was and will be. Ex-ante impact studies were conducted using speculative figures that, as previous literature on mega-events has shown, tend to significantly overestimate the benefits accruing to host countries. In December 2010, official statistics on the tourism generated by the World Cup became available, and allow a reassessment of the economic impact. We employ a Leontief multiplier analysis based on the South African Social Accounting Matrix (SAM) for the year 2000, using official data, to generate ex-post estimates of the net economic impact of the event. We split the event into three phases: **Pre-Event** (the building of stadia and related infrastructure), **Event** (operations, foreign tourism revenues, ticket sales) and **Post-event** (expected tourism and paying for fiscal deficits). Importantly, and contrary to a worrying trend in mega-event impact studies, we pay close attention to the financing of higher government deficits in the years to come.

We run a number of simulations involving future increases in tourism and differing definitions of event-specific expenditure. We find that by: including transport and related infrastructure as well as stadia, assuming a 3% boost to tourism after 2010 and financing deficit spending through taxation; the net long-run addition to GDP is approximately 1.1%, while an additional 155 300 jobs are created. Including only the event-specific construction (stadia), the net addition to GDP is approximately 1% while an additional 133 400 jobs are created. As ex-ante impact estimates suggested only slightly lower levels for *2010 alone*, our results seem to indicate more modest benefits than previously expected.

## **2. Building Context: Impact Studies on Mega-Events**

The World Cup (WC) was sold to the South African public not only as a football festival, but also as an opportunity for broad-based economic development. Vague, encouraging phrases, such as “the hosting of the 2010 World Cup will be a catalyst for faster economic growth and the achievement of developmental goals” (GCIS, 2007: 4) appeared abundantly both in government rhetoric and in official government publications after the award of the bid in 2004. Government was busy indeed with assuring the nation that World Cup spending would only be minimally event-specific, and that most investment would go towards sustainable projects that would serve the public good for years to come. These assurances were consistently buoyed with ‘estimates’ that showed vast financial windfalls well in excess of any costs associated with hosting the event. As late as April 2010, Grant Thornton Kessel Feinstein, the consulting company hired by the South African government to conduct an Economic Impact Assessment of the World Cup (Grant Thornton, 2003), estimated that the WC would offer a *net* economic benefit of approximately R13 billion to South Africa and would attract 373 000 foreign visitors (Grant Thornton, 2010: online).

Such ex-ante studies of so-called mega-events, however, have historically tended to grossly exaggerate benefits to host economies. Maennig and Du Plessis (2007) mention a variety of optimistic impact studies conducted before the 2006 World Cup in Germany, and note that their own analysis of the evidence ex-post, as well as that of Hagn and Maennig (2007), showed few positive short-term effects. These observations are echoed by Maennig (2007) and Swinnen and Vandemoortele (2008). In South Korea, despite much optimism before the event, little or no economic gain arose from the 2002 World Cup (Kunene, 2009; Kim and Morrison, 2005). While South Korea invested heavily, to the tune of USD2 billion (Baade and Matheson, 2004: 345), in constructing ten new stadiums, these turned into massive financial liabilities after the tournament was over (see Bohlmann, 2006: 5; Kunene, 2009: 3). The literature on sporting mega-events in general, seems to suggest that they are of dubious value in promoting economic growth in the host economy. Siegfried and Zimbalist (2000: 13; as quoted in Kunene, 2009: 13), in their review of the literature, find no evidence of statistical correlation between sports facility construction and economic development. Maennig and Du Plessis, meanwhile, state that empirical evidence shows “only limited positive effects [of mega-events] on...local economies” (2007: 578). Pillay and Bass, also review the international literature and are similarly unconvinced (2008: 335), as are Baade and Matheson (2004).

The over-optimistic projections of many ex-ante studies stem from a variety of methodological and empirical errors, many of them rather glaring. The most damning of these is the failure to take into account the need to finance the event. Many studies find it perfectly acceptable to include massive amounts of public expenditure in the category of ‘economic benefit’ and leave it at that. Where a distinction is made between gross and net benefit, the emphasis is usually placed on the former. Mabugu and Mohamed (2008), for example, are guilty of this regarding the 2010 World Cup; though they seem to think that recognizing the fault makes it any less costly. But this is rather like emptying your bank account and claiming that you have more money because your wallet is full. Sooner or later, one way or another, and in the absence of incredible budget surpluses, deficit financing will have to be recouped.

A similar error involves consumer spending. It is inappropriate to include, as most ex-ante studies do, spending by domestic residents during mega-events in the tally of their benefits. Consumers face budget constraints; it is obvious that increased expenditure today will imply reduced expenditure tomorrow. A sporting event may shift the timing of expenditure, but not the level. As Du Plessis and Maennig state, “during the event, the increase in income and employment generated by a major sporting event can only result from additional expenditures by non-residents visiting the event region” (2010: 3). In the same vein, it may not be appropriate to include non-event infrastructural investment in impact studies, as this may be an expenditure timing issue only. This, of course, did not stop the South African government from stating, again and again, that the World Cup would bring incredible improvements in infrastructure (see, for example, the ‘Africa’s time has come!’ booklet). Such statements come with hidden caveats. A phrase such as ‘we are building roads to welcome the world’, for example,

should also include ‘but we really should have built a few to welcome our own people quite some time ago’. Mega-events may urge officials to undertake necessary infrastructural investment (Baade and Matheson, 2004), but this does not mean that it would not – or should not – have happened anyway.

The greatest emphasis is usually placed, quite rightly, on spending by the rest of the world in the host economy – i.e. on tourist revenue. Ex-ante studies tend to take a very simplistic view of tourism, however, and neglect key dynamics. Fourie and Santana-Gallego (2010), for example, mention the crowding out effects that mega-events may have on normal tourism patterns. Many tourists who would usually visit an area may avoid it during a mega-event, perhaps because of congestion or higher prices. Maennig and Du Plessis (2007: 585), for example, found that the World Cup 2006 hotel occupancy rates in Germany actually dropped, relative to the same period in previous years, due to this crowding out effect. It should be noted, however, that most mega-events take place during the summer months and that those taking place in winter (like in the case of South Africa) may not displace many tourists at all. Another possibility is that tourists may decide to shift the timing of pre-planned visits to the host economy to the period in which the event takes place. Maennig and Du Plessis (2010) propose that this might have happened at the 2010 World Cup. As they still undertake only a single visit, including such tourists as ‘additional’ could be inappropriate.

A further issue is the tendency of many impact studies to be downright fanciful in their attempts to link sporting events to economic development. Foreign Direct Investment is a term that is loosely bandied around – for example, by Grant Thornton (2003) – without any real justification. It is somehow assumed that tourists will visit the host economy, realise how well its stadiums gleam and on the basis of this decide that it would be a good place to set up, say, an automobile plant. Foreign Direct Investment does not work like this, and is attracted not by ball-kicking but by such things as sound macroeconomic fundamentals, law and order, political stability and private property rights. A casual review of the FDI literature (see, for example, Lim, 2001; Mlambo, 2005; Nonnemberg and Mendonca, 2004; and Nunnenkaamp, 2002) will confirm this. Infrastructure is a plausible route through which FDI can be attracted, but we have already noted that, properly considered, this is extra-event. While it is certainly possible that a well-run event could improve external perceptions of a country—Kim and Morrison [2005] found that this happened in Korea after the 2002 World Cup—or that additional tourism could generally improve the economic situation of the host economy, linking mega-events to FDI on the basis of this is tenuous at best. Further leaps of faith expected of readers include placing “more soccer integration and development” in the category of ‘social benefits’ – forgetting, of course, that soccer balls make poor substitutes for food and jobs – and suggesting that transmission of visitors’ experiences via cyberspace will somehow (perhaps via a strange kind of Silicon Valley alchemy) bring tangible benefits to the host economy (Grant Thornton, 2010: online).

A final critique of the impact analyses of mega-events relates to the technical methodology using multipliers constructed with social accounting matrices (SAM) or input-output tables. Although use of a SAM to measure the costs and benefits of such a positive shock is technically quite correct, problems reside in the lack of sufficient detail in such macroeconomic tools. Thus, it is often not possible to distinguish the difference between construction of stadiums and housing. Swinnen and Vandemoortele explain that these multipliers are often doubtful and inaccurate because they are based on normal production patterns in an economic area (2010: 3). Further, Baade and Matheson (2004) contend that sporting events have higher than average leakages – there are many non-local capital owners – and therefore operate according to different dynamics than the host economy is used to. Approaching an event such as the World Cup as if it were simply one positive shock to a static economy, with no price or crowding out effects, is clearly problematic.

### **3. Methodology**

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It is with these caveats in mind that we move to our own multiplier analysis based on the 2000 South African Social Accounting Matrix. Though we consider this an instructive and highly technical exercise in how to approach the simulation of shocks, we take cognisance of the above difficulties and pre-emptively caution against placing undo confidence in our numbers.

#### **3.1 Brief Overview of Multiplier Analysis**

Social Accounting Matrices (SAMs) represent the flow of goods and services in a given economy as a circular flow of incomes and expenditures between different sectors and institutions, ie. one sector's expenditure becomes another sector's income. SAMs are split into rows and columns of activities (which produce goods and services) and commodities (the goods and services produced by activities). To illustrate, consider the manufacture of fertiliser. In order for a manufacturer to engage in the *activity* of fertiliser production, he must purchase certain *intermediate inputs* (commodities). These may come from more than one sector – he may need electricity as well as soil and chemicals, for example. He will also need to combine his *commodity* inputs with factors of production – that is, labour and capital. The end product of the *activity* of fertiliser production, then, will combine various *commodity* inputs with factors of production to produce the *commodity* of fertiliser. Breisinger et al describe SAMs thus:

*“Productive activities purchase land, labor, and capital inputs from the factor markets, and intermediate inputs from commodity markets, and use these to produce goods and services. These are supplemented by imports (M) and then sold through commodity markets to households (C), the government (G), investors (I), and foreigners (E). In the circular flow diagram, each institution's expenditure becomes another institution's income”* (2009: 1).

In the complete SAM, all expenditures and incomes flow within the table. There are no ‘leakages’ to unnamed entities or economic actors. Each ‘account’ in the SAM is composed of a row (income) and column (expenditure) for a particular sector. Thus, the Households account is composed of household income and household expenditure. Importantly, “the underlying principle of double-entry accounting requires that, for each account in the SAM, total revenue equals total expenditure” (Breisinger et al, 2009: 1).

Multiplier analysis attempts to track the impacts of *exogenous shocks* to this ‘sealed’ economy. It does this by examining the flows of incomes and expenditures within a limited set of sectors. If one only examines spending flows between activities and commodities, for example, then payments to or from governments and households constitute leakages and exogenous shocks respectively. Imagine a table that includes only flows between activities and commodities. Now say, for example, that government increases spending on the construction activity by R1. This enters into our isolated table as if from nowhere – it is ‘exogenous’. Multiplier analysis tracks the different parts of that R1 as they flow through different linkages in the economy. For example, the increase in construction activity will demand some intermediate commodities. This will then stimulate production in other activities to supply these additional commodities. This increase in production may require more labour, which will in turn translate into payments to households. And so on.

Our multiplier analysis limits itself to so-called ‘production linkages’. In other words, we “do not consider consumption linkages, which arise when an expansion of production generates additional incomes for factors and households, which are then used to purchase goods and services” (Breisinger et al, 2009: 13). We consider only the multipliers arising from the flows of expenditure between different activities and commodities.

We split our analysis into three phases: the Pre-event phase (leading up to the World Cup), the Event phase (during the World Cup) and the Post-Event phase (after the World Cup). Some may take the point made by Baade and Matheson (2004) – namely, that mega-events can prompt infrastructural investment that would otherwise have been postponed, perhaps indefinitely – to heart and contend that non-event infrastructure should be included in the tally of World Cup benefits. Thus, not wanting to leave ourselves open to the charge of pessimism, we run two alternative projections for each phase: one including only ‘event-specific’ investment (explained below with reference to each shock) and one including all government investment. Distinctions between these alternative simulations are labelled only where applicable – they do not apply to our discussion of tourism, for example. For ease of interpretation, we will focus on a limited set of indicators. Full results are included in the Appendix. All shocks refer to commodities, except in the case of construction (which refers to an activity). All prices are inflated and deflated by the average annual Consumer Price Index data provided by Statistics South Africa (2010).

## 3.2 Simulating the Shocks

### 3.2.1 Pre-Event

#### *Event-specific spending*

In this phase we include event-specific spending related to preparation that long predated the event. We take our figures from the Government Communication and Information System ([www.gcis.gov.za](http://www.gcis.gov.za)), an official source of national information. It is worth noting that, while the 2004 Bid Book contains information on World Cup financing, its projections depart so markedly from the eventual reality that we cannot take them seriously. It states that total expenditure on the construction and upgrading of stadiums, for example, would amount to 31.6 million in 2004 dollars. Note that stadia were financed entirely by public funds.

In this phase, we consider an amount of R9.841 billion (2008 Rands) spent on upgrading and constructing stadia (GCIS, 2008: online). We deflate this to 2000 Rands ('Calculations'), which gives us an amount of R6.15 billion. We introduce this as a positive shock to the construction sector in the SAM

#### *All government spending*

Government investments in 2008 Rands include: R9.841 billion (stadium construction), R11.728 billion (transport) and R3.5 billion (ports of entry infrastructure). This gives us a total infrastructure investment figure of R9.518 billion in 2000 Rands, which we introduce as a positive shock to the construction sector.

The extra infrastructure investment included in the *All government investment* scenario more than doubles the effects on output and employment (Table 1).

*Table 1 – Pre-event infrastructural investment*

	Event-specific		All gov.	
	2000 Rs	2010 Rs	2000 Rs	2010 Rs
<b>Additional government revenue</b>	396.18	704.8796	1009.22	1795.613
<b>%ΔGovernment Revenue</b>	0.09		0.22	
<b>Jobs created</b>	85894.41		218807.74	
<b>%ΔEmployment</b>	0.78		1.98	
<b>%ΔOutput</b>	0.70		1.78	
<b>ΔOutput</b>	14590.23	25958.94	37167.21	66127.9
<b>ΔCommodities</b>	9992.61		25455.22	

### 3.2.2 Event

#### *Tourism*

Initial projections regarding foreign visitors were extremely optimistic. Grant Thornton, for example, initially estimated that 484 000 foreigners would visit South Africa, while in 2010 they revised this figure to 373 000 (Grant Thornton, 2010: online). Pillay (2010: online) mentioned a 2010 estimate (which he deemed unrealistic) of 450 000, though he does not make clear where this estimate originates from. Other estimates ranged from 200 000 to 500 000 (Du Plessis and Maennig, 2010: 5). It is interesting to note that Grant Thornton's 2010 estimates exhibit an *increase* both in the averaged expected length of stay per overseas visitor (up 33%) and in the average expected spending per overseas visitor (up 33%). Strangely, these visitors are expected to attend more matches (5) than previously expected (3.4) – this is despite the noted fact that foreign visitors attended only 2.6 matches (or slightly more than half the revised estimate) in Germany in 2006. One is left to wonder why, in the same breath, Grant Thornton mentions the economic climate (recession) as a damper on tourism *and* suggests an increase in average spending and length of stay per tourist. Mention is made of 'dipstick' surveys and data on previous large events (such as the Lions' tour), but no references are given (Grant Thornton, 2010: online).

A recent (December 2010) World Cup impact study published on the Department of Tourism's website indicates that 309 554 additional tourists entered the country during June and July 2010 for the primary purpose of attending the World Cup (SA Tourism, 2010: 8). This figure is not as high as many hoped it would be, but also not as low as some have suggested. Maennig and Du Plessis (2010) undertook a first attempt at measuring the actual number of foreign tourists that visited the event. Using data from two sources - international airplane arrivals and hotel bed occupancy rates – they estimated that between 40 000 and 90 000 additional foreign visitors entered South Africa (as compared to 2009, which was itself a very slow year in terms of tourism). They attribute these numbers partly due to the adverse economic climate and partly due to the pricing behaviour of local businesses. Indeed, they assert that accommodation facilities and airlines, in anticipation of a glut of foreign visitors, significantly hiked their prices well before the event and thereby dampened tourism. This may have been the case, but the latest figures do not indicate as drastic an effect as Maennig and Du Plessis estimated.

The SA tourism report indicates that the additional World Cup tourists spent R3.64 billion whilst in the country. This expenditure was allocated as follows: 31% on Shopping, 20% on Accommodation, 19% on Food and Drink, 16% on Leisure, 11% on Transport and 2% on Others (SA tourism, 2010: 14). The 2000 SAM only provides two commodities relevant to this expenditure: Food and Beverages and Trade, Transport and Accommodation. Thus, we include Shopping, accommodation, Leisure, Transport and half of Other expenditure in the latter, while we include Food and Beverages and the other half of Other expenditure in the former. We thus shock Food



and Beverages by R409 million (20% in 2000 prices) and Trade, Transport and Accommodation by the remaining R1.64 billion (80% in 2000 prices).

### ***Operations***

#### *Event-specific*

Much money was spent on running the actual event – training volunteers, managing fan fests etc. Much of this expenditure went to personnel and companies awarded tenders, and thus we consider an amount of R684 million (operations), R25 million (volunteer training) and R1.3 billion (safety and security) in 2008 prices (RSA, 2008: 8) spent by government on services. We do consider some broadcasting and telecommunications spending to be event-specific, but so too do we consider some safety and security spending to be non-event-specific. We hope to achieve a roughly correct estimate by leaving out the former. This delivers us a shock of R1.26 billion to Services in 2000 prices, or about 64 per cent of the total amount.

#### *All government investment*

In this simulation we consider the following in 2008 prices: R684 million (operations), R25 million (volunteer training), R1.3 billion (safety and security), R300 million (broadcasting and telecommunications), R630 million (immigration support) and R504 million (communications, legacy, hosting and culture). This delivers us a shock of R1.964 billion to Services in 2000 prices.

#### *Ticket sales*

We consider ticketing revenue accruing to the government of R3 billion in 2010 prices (Pillay, 2010: 12), or R1.67 billion in 2000 prices. As this forms part of the government's balancing of its budget, we include it in the next phase.

*Table 2: Event phase*

	<b>Event-specific</b>		<b>All gov.</b>	
	2000 Rs	2010 Rs	2000 Rs	2010 Rs
<b>Additional government revenue</b>	259.54	461.78	315.64	561.5934
<b>%ΔGovernment Revenue</b>	0.06		0.07	
<b>Jobs created</b>	36092.23		44154.36	
<b>%ΔEmployment</b>	0.33		0.40	
<b>%ΔOutput</b>	0.28		0.34	
<b>ΔOutput</b>	5863.19	10431.79	7029.94	12507.68
<b>ΔCommodities</b>	6588.24		7871.55	

In this phase alone, we see a modest increase in government revenue, output and employment opportunities (especially compared to the previous phase). Predictably,

we see the greatest relative gains in employment in Trade, Transport and Accommodation and in Services (Appendix).

### **3.2.3 Post-Event**

#### ***Revenues and Costs***

Our investigation of the literature on mega-events does not convince us that the World Cup will deliver tangible benefits in the form of Foreign Direct Investment or increased trade. We consider the main effect to be that concerning long term tourism. We have already noted the potential that World Cups have to positively affect external perceptions of a host nation (Kim and Morrison, 2005). Translating this into actual data on tourism, however, is a difficult calculation. It would be unreasonable of us to assume that anywhere near the number of additional tourists present during the World Cup would be sustained in the long term. This is especially so considering that the event itself is the main attraction, and not the host nation. Maennig and Du Plessis (2010), in their examination of Google search data, find that much of the attention in cyberspace was directed to the World Cup in general and not to South Africa. However, given that the event was widely hailed (internationally and locally) as being an extraordinary success (see Maennig and Du Plessis, 2010), we may assume that there will be a net positive impact on tourism over and above the current growth rate of the industry. By comparison the recent Commonwealth Games debacles in New Delhi (a Google search of 'New Delhi commonwealth games' yields more than a fair share of negative press) may even see a further improvement in South Africa's international profile.

We consider an increase in foreign visitors, relative to 2007, of 1% for three years following the event. We confine our analysis to three years because it is likely that, after this, the host nation of World Cup 2014 will begin absorbing World Cup tourism. At this point, the phrase 'World Cup' will detach itself from South Africa, and any further increase in tourism would be the result of the general attractiveness of the country as a destination. We consider these increases quite generous.

In 2007, 9.1 million foreign visitors spent R60.1 billion in the South African economy (South African Tourism, 2009: 52). Deflating to 2000 prices and considering our given percentage increases over three years, we achieve a total shock of R1.01 billion. Reverting to normal spending patterns (as per the aforementioned Tourism Satellite Account), 4.3% is allocated to Food and Beverages (R43.46 million) and the remainder (R967.34 million) to Transport, Trade and Accommodation.

The results, show in Table 3, are considerably smaller than the previous phases, and would indicate that the impact on future tourism is less important than previously expected, unless it raised overall tourism by some 5 - 10 percent per annum, an extremely high amount.

*Table 3: Long term tourism impacts  
(millions 2000 Rands where applicable)*

	2000 Rs	2010 Rs
<b>Additional government revenue</b>	72.15	128.35
<b>%ΔGovernment Revenue</b>	0.02	
<b>Jobs created</b>	11018.01	
<b>%ΔEmployment</b>	0.1	
<b>%ΔOutput</b>	0.09	
<b>ΔOutput</b>	1784.39	3174.79
<b>ΔCommodities</b>	2030.17	

Considering the combined effects of the Pre-event phase, Event phase and long-term tourism, we obtain the following gross benefits:

*Table 4: Gross benefits  
(millions 2000 Rands where applicable)*

	<b>Event-specific</b>		<b>All gov.</b>	
	2000 Rs	2010 Rs	2000 Rs	2010 Rs
<b>Additional government revenue</b>	727.86	1295.01	1397.01	2485.56
<b>%ΔGovernment Revenue</b>	0.16		0.31	
<b>Jobs created</b>	133004.74		273980.20	
<b>%ΔEmployment</b>	1.2		2.48	
<b>%ΔOutput</b>	1.07		2.21	
<b>ΔOutput</b>	22237.81	39565.51	45981.55	81810.37
<b>ΔCommodities</b>	18611.02	33112.72	35356.93	62907.06

### 3.2.4 Paying for the deficit

After creating a tally of the expected benefits of the World Cup, it is time to pay for them. We consider the corresponding deficit it produced for the government, which will have to be recovered in the future.

#### *Event-specific*

We consider that government has spent R7.4 billion (2000 prices) on the event. It has received R1.67 billion (above) in ticketing revenue and a FIFA contribution of R1.1 billion (Pillay, 2010: 12) in 2000 prices. Further, it has generated tax revenue of R727.86 million (2000 prices), which includes the effects of future increases in tourism. We consider that it will cost the government a considerable amount to

maintain the stadia in the years following the World Cup. Unlike in Germany, private sports clubs in South Africa are neither popular nor financially robust enough to assume responsibility for them (Maennig and Du Plessis, 2007). The fact that the stadia were financed solely out of public funds further supports this. There are already reports that the stadia will *each* cost in the range of R10 million to R100 million per year to maintain (Property24.com, 2010: online). Considering the quality of the stadia and the success of the World Cup in general, we shall not preclude the possibility that they may attract other sporting events and thereby generate significant revenue. We consider it highly unlikely that the stadia will generate enough revenue to offset the maintenance costs, however, and impose a net cost of R100 million per year (2010 prices) for *all* stadia for a period of ten years (when they plausibly may have found a way to pay for themselves). This delivers us a cost of R562 million in 2000 prices.

#### *All government investment*

In this simulation the government has spent 18.4 billion (2000 prices) on the event. It has received R1.67 billion in ticketing revenue and a FIFA contribution of R1.1 billion (Pillay, 2010: 12) in 2000 prices. Further, it has generated tax revenue of R1.397 billion (2000 prices), which includes the effects of future tourism. Maintenance costs are as above at R562 million (2000 prices).

The fiscal revenues and costs are summarized in Table 5, and produce an incremental deficit in both cases.

*Table 5: Balancing the budget*

	Event-specific		All gov.	
	2000 Rs	2010 Rs	2000 Rs	2010 Rs
<b>Government spending (2000 prices)</b>				
Stadia	6150.63	10943.19	6150.63	10943.19
Other infrastructure			9517.50	16933.54
Operations	1573.75	2800.02	2170.63	3861.98
Maintenance	562.05	1000.00	562.05	1000
	8286.43	14743.21	18400.80	32738.70
<b>Revenue (2000 prices)</b>				
Tickets	1686.15	3000	1686.15	3000
Fifa	1124.10	2000	1124.10	2000
Government revenue (previous phases)	727.86	1295.01	1397.01	2485.56
	3538.11	6295.01	4207.26	7485.56
<b>Financing requirement</b>	<b>4748.31</b>	<b>8448.19</b>	<b>14193.54</b>	<b>25253.14</b>

We see that government faces a financing requirement of R4.748 billion in the *event-specific* simulation and R14.193 billion in the *all government investment* simulation. We note that, in our SAM, the government already faces a budget deficit of R20.2 billion. It cannot, therefore, finance the World Cup out of its savings. It now faces a

number of problems. If it raises taxes it is likely to face huge opposition from the public in general. This is especially so given the planned increase in taxes required to pay for the planned National Health Insurance scheme (Sunday Times Live, 2010: online). The government could continue running a budget deficit, but then will have to pay heavily in interest every year. An interest rate increase, meanwhile, would be required to attract new buyers of government bonds to finance the burgeoning debt. Alternatively, the government could borrow from abroad, but this form of credit may not be readily available and would again imply annual interest payments. As a last resort, the government could simply monetize its debt and face the inflationary consequences at a later date. Another option is a reduction in government spending. Given the vast array of socio-economic problems in the country, however, the state will find that it can only go so far in its belt-tightening. Sooner or later, and despite potential opposition, we assume that the government will have to increase taxes.

We consider an *event-specific* negative tax shock of R4.784 billion to households and an *all government* tax shock of R14.193 billion. A further shock to consumers is necessary. Government is not the only entity that faces a budget constraint. We must remember that increased spending by consumers during the World Cup will have to be matched by reduced spending in the future. It is extremely important to note that not all of the tickets were bought by foreigners – some 1.25 million tickets out of a total 2.8 million were purchased by South Africans (CNN, 2010: online). Foreigners, thus, only spent R933.4 million on tickets, while South Africans spent R753 million. We thus impose a further R753 million *negative* shock on households to compensate for their spending on tickets, which has effectively translated into government revenue. If we did not perform this exercise, we would essentially be providing the government with R753 million as if it was a gift from abroad rather than a kind of tax on its citizens for services rendered.

Considering the cumulative effects of all phases, we obtain the following net effects of the 2010 World Cup on the South African economy:

*Table 6: Net effects on South African Economy*

	Event-specific		All gov.	
	2000 Rs	2010 Rs	2000 Rs	2010 Rs
Additional government revenue	592.46	1054.10	245.08	436.05
%ΔGovernment Revenue	0.13		0.05	
Jobs created	133404.37		155322.03	
%ΔEmployment	1.21		1.40	
%ΔOutput	1.00		1.10	
ΔOutput	20893.86	37174.36	22937.43	40810.27
ΔCommodities	16944.48	30147.62	8765.24	15595.12

As can be seen, the World Cup seems to return a modest profit for South Africa. Depending on which simulation one considers, approximately 133 000 or 155 000 jobs are created, while a roughly 1% increase in output (GDP) is generated.

Table 7 summarises the benefits of simulated impact of all phases:

*Table 7: Effects of all three simulated World Cup phases on South African economy (in 2010 prices)*

	<b>Additional government revenue</b>	<b>%ΔGovernment Revenue</b>	<b>Jobs created</b>	<b>%ΔEmployment</b>	<b>%ΔOutput</b>	<b>ΔOutput</b>	<b>ΔCommodities</b>
<b>Event specific</b>							
Pre-event	704.88	0.09	85894.41	0.78	0.70	25958.94	17778.85
Event	461.78	0.06	36092.23	0.33	0.28	10431.79	11721.96
Long-term tourism	128.35	0.02	11018.10	0.10	0.09	3174.79	3612.07
Gross benefits*	1295.01	0.16	133004.74	1.20	1.07	39565.51	33112.72
Net benefits	1054.10	0.13	133404.37	1.21	1.00	37174.36	30147.62
<b>All govnt investment</b>							
Pre-event	1795.61	0.22	218807.74	1.98	1.78	37167.21	25455.22
Event	561.59	0.07	44154.36	0.40	0.34	12507.67	14005.06
Long-term tourism	128.35	0.02	11018.10	0.10	0.09	3174.79	3612.07
Gross benefits*	2485.56	0.31	273980.20	2.48	2.21	81810.37	62907.05
Net benefits	436.05	0.05	155322.03	1.40	1.10	40810.28	15595.12

\*Includes impact of phases 1, 2 and long term tourism

### 3.3 Weaknesses of the analysis

Our analysis shows modest gains from hosting the World Cup. It suffers from a number of weaknesses, however. Firstly, we would benefit from analysing the above effects within a supply-constrained multiplier model. The supply of electricity in South Africa, as we have experienced in the past, is not without its problems. Secondly, as has been noted, multiplier analysis has in the past tended to exaggerate the benefits of mega-events. Our results, thus, are likely to be overestimates. Thirdly, we have failed to take into account the opportunity cost of the World Cup investments. This is the key issue at stake, for it is not whether the World Cup turned a profit but whether it was the best use of public money that really matters. Unfortunately, multiplier analysis is of little use in assessing this opportunity cost – in the SAM, construction is construction, whether it is a house or a stadium that is being built.

## **4 Conclusion**

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The purpose of our exercise was to examine the type of thinking and investigation required to build a comprehensive scenario for the effects of the World Cup event, utilising the standard methodology of multiplier analysis; it was not to provide a precise numbers for the World Cup's benefit to the economy. We have seen how many impact studies, including those conducted in South Africa prior to the World Cup, neglect key concerns and tend to emphasise the benefits without due consideration of the costs. Our analysis aimed to address this shortcoming. Our results still demonstrate a 1 percent boost to GDP, which is not insignificant. Nevertheless, this is not convincing evidence that the World Cup spending was the best use of public money. If building stadia can have such an impact on the economy, what would a similar scale investment in transport infrastructure add to the economy? There could be a lesson here about the value of public infrastructure investment as a locomotive for the economy. In many ways the issue is not whether South Africa finds its books in the black after the World Cup, but rather whether investing in the event could be accurately described as within the best public interest. To answer that question, more work is required to see whether other investments – in health, education, housing or more widely available transport infrastructure, for example – would have benefitted us far more than festivity.

## Appendix

Full results of simulations (Revenue figures in millions of 2000 Rands)

### Pre-Event

#### *Event-specific*

		$\Delta F$	$\Delta X$	$\% \Delta X$	$\Delta \text{Govnt Revenue}$	$\% \Delta \text{Govnt Revenue}$	$\Delta E$	$\% \Delta E$
Agriculture forestry and fishing	<b>A1</b>	0.00	64.84	0.00	-2.34	-0.09	471.67	0.00
Mining	<b>A2</b>	0.00	442.17	0.00	-16.24	-0.36	3611.78	0.00
Food & beverages	<b>A3</b>	0.00	75.35	0.00	-0.21	-0.05	137.91	0.00
Other manufacturing	<b>A4</b>	0.00	3626.93	0.01	-37.93	-0.55	6852.33	0.01
Electricity & water	<b>A5</b>	0.00	136.73	0.00	0.42	0.30	233.55	0.00
Construction	<b>A6</b>	6150.63	7735.41	0.09	-33.48	-8.75	55311.83	0.09
Trade transport & accommodation	<b>A7</b>	0.00	1242.71	0.00	-10.09	-0.32	8990.83	0.00
Services	<b>A8</b>	0.00	1266.10	0.00	5.50	0.23	10284.52	0.00
Agricultural products	<b>C1</b>	0.00	56.78	0.00	2.37	0.07		
Mining products	<b>C2</b>	0.00	478.81	0.00	6.14	0.32		
Food & beverage products	<b>C3</b>	0.00	55.21	0.00	3.07	0.03		
Other manufacturing products	<b>C4</b>	0.00	4724.47	0.01	323.43	0.57		
Electricity & water	<b>C5</b>	0.00	123.14	0.00	5.50	0.26		
Construction	<b>C6</b>	0.00	1727.45	0.02	43.72	1.81		
Trade transport & accommodation	<b>C7</b>	0.00	1401.75	0.00	48.83	0.32		
Services	<b>C8</b>	0.00	1425.00	0.00	57.49	0.23		

#### *All government investment*

		$\Delta F$	$\Delta X$	$\% \Delta X$	$\Delta \text{Govnt Revenue}$	$\% \Delta \text{Govnt Revenue}$	$\Delta E$	$\% \Delta E$
Agriculture forestry and fishing	<b>A1</b>	0.00	165.17	0.00	-5.96	-0.23	1201.52	0.00
Mining	<b>A2</b>	0.00	1126.40	0.01	-41.38	-0.93	9200.67	0.01
Food & beverages	<b>A3</b>	0.00	191.94	0.00	-0.54	-0.12	351.30	0.00
Other manufacturing	<b>A4</b>	0.00	9239.25	0.01	-96.61	-1.41	17455.65	0.01
Electricity & water	<b>A5</b>	0.00	348.30	0.01	1.06	0.76	594.94	0.01
Construction	<b>A6</b>	15668.13	19705.20	0.22	-85.28	-22.28	140901.55	0.22
Trade transport & accommodation	<b>A7</b>	0.00	3165.69	0.01	-25.71	-0.82	22903.27	0.01
Services	<b>A8</b>	0.00	3225.28	0.01	14.02	0.58	26198.83	0.01
Agricultural products	<b>C1</b>	0.00	144.63	0.00	6.04	0.19		
Mining products	<b>C2</b>	0.00	1219.73	0.01	15.64	0.81		
Food & beverage products	<b>C3</b>	0.00	140.65	0.00	7.81	0.08		
Other manufacturing products	<b>C4</b>	0.00	12035.13	0.01	823.90	1.44		
Electricity & water	<b>C5</b>	0.00	313.68	0.01	14.01	0.67		
Construction	<b>C6</b>	0.00	4400.51	0.05	111.37	4.61		
Trade transport & accommodation	<b>C7</b>	0.00	3570.83	0.01	124.39	0.83		
Services	<b>C8</b>	0.00	3630.04	0.01	146.45	0.58		



## Event

### *Event-specific*

		$\Delta F$	$\Delta X$	$\% \Delta X$	$\Delta$ Govnt Revenue	$\% \Delta$ Govnt Revenue	$\Delta E$	$\% \Delta E$
Agriculture forestry and fishing	<b>A1</b>	0.00	101.98	0.00	-3.68	-0.14	741.85	0.00
Mining	<b>A2</b>	0.00	74.03	0.00	-2.72	-0.06	604.66	0.00
Food & beverages	<b>A3</b>	0.00	527.41	0.00	-1.47	-0.33	965.33	0.00
Other manufacturing	<b>A4</b>	0.00	909.83	0.00	-9.51	-0.14	1718.93	0.00
Electricity & water	<b>A5</b>	0.00	65.12	0.00	0.20	0.14	111.23	0.00
Construction	<b>A6</b>	0.00	59.70	0.00	-0.26	-0.07	426.90	0.00
Trade transport & accommodation	<b>A7</b>	0.00	2235.01	0.01	-18.15	-0.58	16169.96	0.01
Services	<b>A8</b>	0.00	1890.12	0.00	8.21	0.34	15353.37	0.00
Agricultural products	<b>C1</b>	0.00	111.13	0.00	4.64	0.14		
Mining products	<b>C2</b>	0.00	89.43	0.00	1.15	0.06		
Food & beverage products	<b>C3</b>	409.17	551.15	0.00	30.62	0.33		
Other manufacturing products	<b>C4</b>	0.00	1053.07	0.00	72.09	0.13		
Electricity & water	<b>C5</b>	0.00	67.23	0.00	3.00	0.14		
Construction	<b>C6</b>	0.00	61.39	0.00	1.55	0.06		
Trade transport & accommodation	<b>C7</b>	1636.69	2527.51	0.01	88.05	0.58		
Services	<b>C8</b>	1255.63	2127.32	0.00	85.83	0.34		

### *All government investment*

		$\Delta F$	$\Delta X$	$\% \Delta X$	$\Delta$ Govnt Revenue	$\% \Delta$ Govnt Revenue	$\Delta E$	$\% \Delta E$
Agriculture forestry and fishing	<b>A1</b>	0.00	107.33	0.00	-3.87	-0.15	780.81	0.00
Mining	<b>A2</b>	0.00	88.76	0.00	-3.26	-0.07	724.98	0.00
Food & beverages	<b>A3</b>	0.00	543.49	0.00	-1.52	-0.34	994.75	0.00
Other manufacturing	<b>A4</b>	0.00	1091.55	0.00	-11.41	-0.17	2062.25	0.00
Electricity & water	<b>A5</b>	0.00	75.09	0.00	0.23	0.16	128.26	0.00
Construction	<b>A6</b>	0.00	73.53	0.00	-0.32	-0.08	525.79	0.00
Trade transport & accommodation	<b>A7</b>	0.00	2347.80	0.01	-19.07	-0.61	16985.96	0.01
Services	<b>A8</b>	0.00	2702.41	0.00	11.74	0.49	21951.55	0.00
Agricultural products	<b>C1</b>	0.00	116.88	0.00	4.88	0.15		
Mining products	<b>C2</b>	0.00	107.03	0.00	1.37	0.07		
Food & beverage products	<b>C3</b>	409.17	559.00	0.00	31.05	0.34		
Other manufacturing products	<b>C4</b>	0.00	1251.39	0.00	85.67	0.15		
Electricity & water	<b>C5</b>	0.00	77.50	0.00	3.46	0.17		
Construction	<b>C6</b>	0.00	75.12	0.00	1.90	0.08		
Trade transport & accommodation	<b>C7</b>	1636.69	2643.09	0.01	92.07	0.61		
Services	<b>C8</b>	1964.38	3041.55	0.00	122.71	0.49		

## Post-Event

### *Event-specific*

		$\Delta F$	$\Delta X$	$\% \Delta X$	$\Delta \text{Govnt Revenue}$	$\% \Delta \text{Govnt Revenue}$	$\Delta E$	$\% \Delta E$
Agriculture forestry and fishing	<b>A1</b>	0.00	18.17	0.00	-0.66	-0.03	132.15	0.00
Mining	<b>A2</b>	0.00	23.68	0.00	-0.87	-0.02	193.42	0.00
Food & beverages	<b>A3</b>	0.00	78.12	0.00	-0.22	-0.05	142.98	0.00
Other manufacturing	<b>A4</b>	0.00	292.49	0.00	-3.06	-0.04	552.60	0.00
Electricity & water	<b>A5</b>	0.00	23.23	0.00	0.07	0.05	39.68	0.00
Construction	<b>A6</b>	0.00	18.50	0.00	-0.08	-0.02	132.32	0.00
Trade transport & accommodation	<b>A7</b>	0.00	1103.73	0.00	-8.96	-0.29	7985.33	0.00
Services	<b>A8</b>	0.00	226.47	0.00	0.98	0.04	1839.62	0.00
Agricultural products	<b>C1</b>	0.00	19.72	0.00	0.82	0.03		
Mining products	<b>C2</b>	0.00	28.69	0.00	0.37	0.02		
Food & beverage products	<b>C3</b>	43.46	76.35	0.00	4.24	0.05		
Other manufacturing products	<b>C4</b>	0.00	347.05	0.00	23.76	0.04		
Electricity & water	<b>C5</b>	0.00	23.98	0.00	1.07	0.05		
Construction	<b>C6</b>	0.00	19.50	0.00	0.49	0.02		
Trade transport & accommodation	<b>C7</b>	967.34	1259.98	0.00	43.89	0.29		
Services	<b>C8</b>	0.00	254.89	0.00	10.28	0.04		

### *All government investment*

		$\Delta F$	$\Delta X$	$\% \Delta X$	$\Delta \text{Govnt Revenue}$	$\% \Delta \text{Govnt Revenue}$	$\Delta E$	$\% \Delta E$
Agriculture forestry and fishing	<b>A1</b>	0.00	18.17	0.00	-0.66	-0.03	132.15	0.00
Mining	<b>A2</b>	0.00	23.68	0.00	-0.87	-0.02	193.42	0.00
Food & beverages	<b>A3</b>	0.00	78.12	0.00	-0.22	-0.05	142.98	0.00
Other manufacturing	<b>A4</b>	0.00	292.49	0.00	-3.06	-0.04	552.60	0.00
Electricity & water	<b>A5</b>	0.00	23.23	0.00	0.07	0.05	39.68	0.00
Construction	<b>A6</b>	0.00	18.50	0.00	-0.08	-0.02	132.32	0.00
Trade transport & accommodation	<b>A7</b>	0.00	1103.73	0.00	-8.96	-0.29	7985.33	0.00
Services	<b>A8</b>	0.00	226.47	0.00	0.98	0.04	1839.62	0.00
Agricultural products	<b>C1</b>	0.00	19.72	0.00	0.82	0.03		
Mining products	<b>C2</b>	0.00	28.69	0.00	0.37	0.02		
Food & beverage products	<b>C3</b>	43.46	76.35	0.00	4.24	0.05		
Other manufacturing products	<b>C4</b>	0.00	347.05	0.00	23.76	0.04		
Electricity & water	<b>C5</b>	0.00	23.98	0.00	1.07	0.05		
Construction	<b>C6</b>	0.00	19.50	0.00	0.49	0.02		
Trade transport & accommodation	<b>C7</b>	967.34	1259.98	0.00	43.89	0.29		
Services	<b>C8</b>	0.00	254.89	0.00	10.28	0.04		

## Gross Benefits

### *Event-specific*

		$\Delta F$	$\Delta X$	$\% \Delta X$	$\Delta \text{Govnt Revenue}$	$\% \Delta \text{Govnt Revenue}$	$\Delta E$	$\% \Delta E$
Agriculture forestry and fishing	<b>A1</b>	0.00	184.98	0.00	-6.67	-0.26	1345.66	0.00
Mining	<b>A2</b>	0.00	539.88	0.00	-19.83	-0.44	4409.87	0.00
Food & beverages	<b>A3</b>	0.00	680.87	0.00	-1.90	-0.43	1246.22	0.00
Other manufacturing	<b>A4</b>	0.00	4829.25	0.01	-50.50	-0.73	9123.87	0.01
Electricity & water	<b>A5</b>	0.00	225.07	0.00	0.69	0.49	384.45	0.00
Construction	<b>A6</b>	6150.63	7813.61	0.09	-33.82	-8.83	55871.04	0.09
Trade transport & accommodation	<b>A7</b>	0.00	4581.45	0.01	-37.21	-1.19	33146.12	0.01
Services	<b>A8</b>	0.00	3382.69	0.01	14.70	0.61	27477.52	0.01
Agricultural products	<b>C1</b>	0.00	187.63	0.00	7.83	0.24		
Mining products	<b>C2</b>	0.00	596.93	0.00	7.66	0.40		
Food & beverage products	<b>C3</b>	452.64	682.72	0.00	37.92	0.41		
Other manufacturing products	<b>C4</b>	0.00	6124.60	0.01	419.28	0.73		
Electricity & water	<b>C5</b>	0.00	214.34	0.00	9.57	0.46		
Construction	<b>C6</b>	0.00	1808.35	0.02	45.76	1.89		
Trade transport & accommodation	<b>C7</b>	2604.03	5189.24	0.01	180.77	1.20		
Services	<b>C8</b>	1255.63	3807.21	0.01	153.60	0.61		

### *All government investment*

		$\Delta F$	$\Delta X$	$\% \Delta X$	$\Delta \text{Govnt Revenue}$	$\% \Delta \text{Govnt Revenue}$	$\Delta E$	$\% \Delta E$
Agriculture forestry and fishing	<b>A1</b>	0.00	290.67	0.00	-10.48	-0.41	2114.48	0.00
Mining	<b>A2</b>	0.00	1238.83	0.01	-45.51	-1.02	10119.08	0.01
Food & beverages	<b>A3</b>	0.00	813.54	0.01	-2.27	-0.52	1489.04	0.01
Other manufacturing	<b>A4</b>	0.00	10623.29	0.02	-111.09	-1.62	20070.50	0.02
Electricity & water	<b>A5</b>	0.00	446.62	0.01	1.36	0.97	762.88	0.01
Construction	<b>A6</b>	15668.13	19797.24	0.22	-85.68	-22.38	141559.65	0.22
Trade transport & accommodation	<b>A7</b>	0.00	6617.21	0.02	-53.74	-1.71	47874.57	0.02
Services	<b>A8</b>	0.00	6154.16	0.01	26.75	1.11	49990.00	0.01
Agricultural products	<b>C1</b>	0.00	281.23	0.00	11.74	0.37		
Mining products	<b>C2</b>	0.00	1355.45	0.01	17.38	0.90		
Food & beverage products	<b>C3</b>	452.64	776.00	0.00	43.11	0.47		
Other manufacturing products	<b>C4</b>	0.00	13633.58	0.02	933.33	1.63		
Electricity & water	<b>C5</b>	0.00	415.16	0.01	18.54	0.88		
Construction	<b>C6</b>	0.00	4495.13	0.05	113.76	4.71		
Trade transport & accommodation	<b>C7</b>	2604.03	7473.90	0.02	260.36	1.73		
Services	<b>C8</b>	1964.38	6926.49	0.01	279.45	1.11		

## Net Impact

### *Event-specific*

		$\Delta F$	$\Delta X$	$\% \Delta X$	$\Delta \text{Govt Revenue}$	$\% \Delta \text{Govt Revenue}$	$\Delta E$	$\% \Delta E$
Agriculture forestry and fishing	<b>A1</b>	0.00	-243.51	0.00	8.78	0.34	-1771.47	0.00
Mining	<b>A2</b>	0.00	343.81	0.00	-12.63	-0.28	2808.29	0.00
Food & beverages	<b>A3</b>	0.00	-395.15	0.00	1.10	0.25	-723.24	0.00
Other manufacturing	<b>A4</b>	0.00	2458.76	0.00	-25.71	-0.37	4645.32	0.00
Electricity & water	<b>A5</b>	0.00	-28.69	0.00	-0.09	-0.06	-49.01	0.00
Construction	<b>A6</b>	6150.63	7679.65	0.09	-33.24	-8.68	54913.12	0.09
Trade transport & accommodation	<b>A7</b>	0.00	2823.09	0.01	-22.93	-0.73	20424.68	0.01
Services	<b>A8</b>	0.00	1118.35	0.00	4.86	0.20	9084.30	0.00
Agricultural products	<b>C1</b>	-235.03	-280.26	0.00	-11.70	-0.36		
Mining products	<b>C2</b>	-4.21	356.27	0.00	4.57	0.24		
Food & beverage products	<b>C3</b>	-443.82	-478.40	0.00	-26.57	-0.29		
Other manufacturing products	<b>C4</b>	1188.40	3136.92	0.00	214.75	0.38		
Electricity & water	<b>C5</b>	-141.41	-49.52	0.00	-2.21	-0.11		
Construction	<b>C6</b>	-52.56	1666.37	0.02	42.17	1.74		
Trade transport & accommodation	<b>C7</b>	2083.76	3213.75	0.01	111.95	0.74		
Services	<b>C8</b>	-242.76	1258.70	0.00	50.78	0.20		

### *All government investment*

		$\Delta F$	$\Delta X$	$\% \Delta X$	$\Delta \text{Govt Revenue}$	$\% \Delta \text{Govt Revenue}$	$\Delta E$	$\% \Delta E$
Agriculture forestry and fishing	<b>A1</b>	0.00	-873.55	-0.01	31.50	1.23	-6354.70	-0.01
Mining	<b>A2</b>	0.00	706.10	0.01	-25.94	-0.58	5767.60	0.01
Food & beverages	<b>A3</b>	0.00	-2109.99	-0.01	5.90	1.34	-3861.95	-0.01
Other manufacturing	<b>A4</b>	0.00	4182.71	0.01	-43.74	-0.64	7902.36	0.01
Electricity & water	<b>A5</b>	0.00	-242.85	-0.01	-0.74	-0.53	-414.82	-0.01
Construction	<b>A6</b>	15668.13	19433.26	0.22	-84.10	-21.97	138957.01	0.22
Trade transport & accommodation	<b>A7</b>	0.00	1839.79	0.00	-14.94	-0.48	13310.60	0.00
Services	<b>A8</b>	0.00	1.96	0.00	0.01	0.00	15.92	0.00
Agricultural products	<b>C1</b>	-638.57	-990.02	-0.01	-41.34	-1.29		
Mining products	<b>C2</b>	-11.43	701.57	0.00	9.00	0.47		
Food & beverage products	<b>C3</b>	-1983.02	-2378.74	-0.01	-132.13	-1.43		
Other manufacturing products	<b>C4</b>	-3228.87	5516.10	0.01	377.62	0.66		
Electricity & water	<b>C5</b>	-384.22	-301.76	-0.01	-13.48	-0.64		
Construction	<b>C6</b>	-142.81	4109.38	0.04	104.00	4.30		
Trade transport & accommodation	<b>C7</b>	1190.47	2106.51	0.00	73.38	0.49		
Services	<b>C8</b>	-2106.73	2.21	0.00	0.09	0.00		

F = Final Demand (millions 2000 Rands)    X = Total Supply (millions 2000 Rands)    E = Employment (#s)

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