

Analysis of the macroeconomic effects of organising the 2018 FIFA World Cup in Belgium

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Abstract – This study discusses the possible effects of the Football World Cup in 2018 on economic expenditures. These expenditures mainly concern investments in stadiums and tourist spending by visitors. However, visiting teams, the media and organisational and security spending also generate effects. Total expenditure is estimated at €1.15 billion, spread over an eight-year period, with a large confidence interval. The effects of those expenditures on economic activity were calculated using two economic models: an input-output model and the macroeconomic model, HERMES. The effect on GDP should amount to approximately 0.13% in 2018. Employment should increase by roughly 450 to 750 jobs during the run-up to the tournament and by an equivalent of 4 000 to 8 000 man-years in the course of the tournament itself.

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Summary

The organisation of a world football championship is usually valued positively by the host country. The latter receives world-wide attention, which may have a beneficial effect on its image, tourism and exports. For this purpose, the country is, however, tied to high costs in order to organise the event. Nonetheless, these costs constitute an impetus to economic activity, provided that the economy is below full employment level prior to and during the organising year.

For Belgium, taking into account a large margin of error, the costs for stadium construction and safety and security measures for the event are estimated at €440 to €840 million. On the other hand, FIFA, the foreign media and supporters should together spend between €290 and €830 million. Although it is a matter of costs on the one hand and benefits on the other, both amounts will give a boost to economic activity of between €730 and €1 670 million, with a reference amount of approximately €1 150 million, (again) provided that the economy is not overheated.

This study assesses the economic activity generated by the expenditure impetus by means of two economic models: an input-output model (IOM) and the macroeconomic simulation model, HERMES. Both of these have different characteristics, which may cause differences in outcomes, which may in some cases be relatively strong. Without entering into the methodological mechanisms at length, we argue that a macroeconomic model is more complete than an input-output model and thus captures certain effects that are not calculated by an IOM. Then again, the latter usually contains a more detailed industry classification, thus allowing a higher degree of accuracy of particular calculations.

The effects are estimated over a ten-year period. From 2011 up to 2016, five or six new stadiums should be built. In 2017 and 2018 the Confederations Cup and the World Cup should take place consecutively. For 2019 and 2020, the HERMES simulation anticipates further dynamic effects of the impetus of previous years. The simulation shows the results in terms of deviation from the economic situation without the organisation of the World Cup. The central outcome is that during the World Cup year, Belgian GDP and employment should be 0.13% and 0.09% higher, respectively. Up to and including 2017, public finances should suffer from an annual negative effect of approximately €20 million due to public expenditure on the construction of stadiums. This should, however, be counterbalanced by additional fiscal revenues in 2018 and positive dynamic effects in the following years. Over the whole period, the effect on public finances should be slightly positive. The input-output analysis shows that the economic activity generated, in terms of gross production, could amount to 1.8 times the initial spending. In terms of employment, the run-up period to the World Cup should provide 750 jobs, mainly due to the construction of new stadiums. The year of the World Cup itself should yield additional employment for an equivalent of 8 250 man-years. In terms of GDP contribution this amounts to €53 million per year during the run-up period and to €484 million in 2018 (in 2010 prices).

On the latter effect both simulations agree. For employment, there are clear differences in outcome, with the HERMES result ending considerably lower. The effect of €500 million in 2018, as calculated by the IOM, represents 0.12% of GDP and is similar to the HERMES outcome, although the driving mechanisms for that effect are different. Accumulated over the whole period 2011-2020, employment should amount to 13 500 and 9 100 man-years, respectively. The HERMES result comprises approximately 500 jobs per year during the run-up period and about 4 100 jobs in 2018. In 2019 and 2020 the dynamic effects should account for 1 100 and 500 units, respectively.

From a macroeconomic perspective, the effects are rather small, with the impact being estimated at 0.13% of GDP in 2018. This is not surprising. The total amount of spending directly related to the event, accumulated over the period 2011-2018, is expected to add up to approximately €1.1 billion (in 2010 prices). That number represents 0.3% of the estimated 2018 GDP, a very limited impetus to the economy that is lower than the usual estimate for the Olympic Games.

Nonetheless, it constitutes a positive impetus of several hundred million euros, in particular for the construction and lodging/catering industries. Depending on the model applied, an additional number of about 400 or 750 persons could be employed starting from next year up to the event, with a additional 4 000 or 8 000 man-years during the tournament itself.

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1. Introduction

In December 2010 the FIFA will announce which countries are to organise the World Cup Football in 2018 and 2022. Among the four European bidding candidates is the combination of Belgium and the Netherlands. As part of the decision-making concerning their candidacy both the Netherlands and Belgium made forecasts of the effects of the World Cup on the economy. For the Netherlands a cost-benefit analysis was performed by the Amsterdam research firm SEO. In Belgium, on demand of the Cabinet, the Federal Planning Bureau made an outlook of the economic activity generated by the World Cup. The outlook was realised on the basis of an input-output analysis and a macroeconomic simulation. This Working Paper reports on this study.

Both studies were performed independently of each other. However, both parties conferred on the employed approach and assumptions. Considering its longer lead time, the SEO study has become a more extensive study. The FPB endorses SEO's economic-theoretical considerations, but had to cut some corners during the elaboration. Furthermore, the FPB does not share all SEO's numerical assumptions, which were fairly conservative in some cases, although the FPB's initial estimate was also prudent rather than too optimistic. Given the macroeconomic approach, the local microeconomic effects, e.g. of the commercial exploitation of stadiums, were not explicitly included in the calculations. However, similar effects are implicitly incorporated in the macroeconomic results.

This paper consists of three short chapters. The first chapter offers an outline of the expected spending which generates economic activity and focuses on the main expenditure categories. Likewise, Ahlert (2005) employed a macrosectoral econometric model to simulate the effects of an exogenous increase of the two main expenditure categories which was generated by the 2006 World Cup in Germany: stadium construction and expected tourist expenditure. Still, a considerable error margin must be taken into account for these spending prospects. This study also holds some calculations with regard to the Confederations Cup, which will take place in the year preceding the World Cup by way of preparation. In particular they concern the timing of construction costs and costs for, among others, security around stadiums. Only eight teams will compete in the Confederations Cup (as opposed to 32 in the World Cup) and the vast majority of spectators are residents of the organising country.

The second chapter discusses the input-output analysis, which is a simple calculation method showing which industries the expenditures relate to, based on a number of assumptions. The final chapter elaborates on the macro-econometric simulation. HERMES, the model used for this second simulation, is more complete than an input-output model since it explicitly considers, among others, the spending of generated income and dynamic effects in consecutive years. Owing to the less detailed industry classification, certain results may be less accurate than those of an input-output analysis.

2. Estimate of revenues and expenditures

2.1. Sale of tickets and television rights

The main revenues for the 2018 World Cup should emanate from television rights (Wicket, 2009, €1.2 billion for the 2006 World Cup in Germany), ticket sale and merchandising. Since all revenues are collected by the FIFA, its registered office being in Zurich, they should not be included in the impact analysis for the Belgian economy. The hermes model, however, does take into account an off-model increase of vat revenues from ticket sales. Therefore, it is useful at this stage to assess the total revenue of the FIFA ticket sale for the 32 matches which would take place in Belgium. A primary source for this information is The Federal Government (2006, pp. 22):

“Ticket sales alone were around €20m higher because we had assumed a stadium visitor rate of just 95 percent instead of the almost 100 percent reached.”

These three numbers indicate that the FIFA ticket sale would amount to nearly €360 million in 2006 prices¹. Ahlert (2006, p. 5) estimated ex ante that the same ticket sale during the 2006 World Cup would yield €360 million in 2006 prices.

2.2. Investments in stadiums

In Belgium seven cities are eligible to be a World Cup host city, six of which will probably be selected. The majority of these seven cities plans to build a new stadium, even if they would not become a World Cup host city. However, if Belgium and the Netherlands are to organise the World Cup, the stadiums will be larger than initially planned. Thus, only the supplementary part of the investment can be reckoned as expenditure effect of the World Cup. Table 1 provides an overview. Information on the investment plans has been gathered from different sources, but was not equally complete for all cases. In case of an information lack, an investment of €70 million and a 40 000 to 45 000 seat stadium were assumed. Moreover, an assignment to the World Cup was made in proportion to the number of seats. Approximately 70% of the total attributed amount is reserved for a large stadium in Brussels, the remainder for the other cities.

¹ $0,95/(1 - 0,95) \cdot 20 = 380$

Table 1 Expected investments in Belgian football stadiums, insofar as attributable to a World Cup (in millions of euros of 2010)

	Seats		Total Investment...	... of which on behalf of the World Cup		
	No World Cup	World Cup		Minimum	Basic	Maximum
Antwerp	25000	41600	105	31	31	31
Bruges	40000	40000	70	0	0	0
Brussels	50000	80000	360	160	360	560
Charleroi	25000	45000	70	39	39	39
Genk	24600	44000	50	50	50	50
Ghent	21000	42000	70	10	10	10
Liège	44000	44000	60	0	0	0
Total	224500	336500	785	290	490	690

Source: FPB.

In case the World Cup is not to be organised in Belgium, the *Brussels* stadium will be built later or not at all. Otherwise, a large and representative stadium will be constructed at the current location. Thus, the investment can be fully attributed to the World Cup and, moreover, be substantial. Still, an error margin must be taken into account, leading to the three scenarios listed in Table 1: a basic version, a minimum version and a maximum version. The basic version represents an amount of €360 million which is currently circulating and is the most probable scenario. The €160 million minimum version is based on the rule of thumb for smaller stadiums (€70 million) and is rather likely for a relatively modest stadium. The maximum version adds up to €560 million and is founded on the experiences of the 2006 World Cup in Germany. The stadiums which were built in Berlin and Munich are remarkably smaller than the scheduled Brussels stadium (respectively 66 000 and 59 000 seats), but did cost several hundreds of millions of euros. Moreover, the same amount is reported for the construction of the new large Rotterdam stadium.

Antwerp will most likely get a new stadium. It has not yet been decided whether that stadium will follow the FIFA capacity standard (more than 40 000 seats) from the very start, or whether it will be smaller and temporarily extendible to the FIFA standard. In both cases the additional investment is estimated at €31 million. Only little information is available on *Bruges*. It looks as though, even in the absence of a World Cup, a new 40 000 seat stadium will be constructed. As a result, the investment is not attributed to the World Cup. In *Charleroi* a new 25 000 seat stadium will be built, even without World Cup. If, however, the organisation of the 2018 World Cup is assigned to Belgium, the stadium will be temporarily extended to 45 000 seats, just like in *Antwerp*. After the tournament the extra space will be used for the development of office space. At the moment no specific data on the investment amount is available. As *Genk* already has a modern stadium it is the only city not having to build a new one. Yet the stadium will be equipped with a permanent or temporary extension, increasing its capacity by roughly 20 000 seats. Also *Ghent* will receive a new stadium which will be temporarily extended to 42 000 seats. The extension itself would only cost €10 million. Finally, the new stadium in *Liège* will, similar to the one in *Bruges*, meet the FIFA capacity standard, even in the absence of a World Cup. Again, no investment is attributed to the World Cup.

Little information on the financing sources has been available up to now. In Antwerp €50 million should emanate from the city and the port, while the remainder should be raised from private capital. Brussels should receive a contribution from the federal government and also Genk should be mainly publically financed, with contributions from all four administrative levels.

2.3. Investments in public infrastructure

In this economic analysis we have not considered the investment amounts for public infrastructure in the proximity of the stadiums, as, based on the available information, they cannot be attributed to the World Cup (in particular the information provided by the FPS Mobility and Transport). If, however, that is the case for certain stadiums, they can, to our knowledge, be considered negligible.

All candidate host cities (except Brussels and Genk) have already decided to build a new stadium, whether or not the 2018 World Cup will take place in Belgium. The construction projects of the stadiums and public infrastructure near the stadiums are still to be elaborated. In actual practice it is therefore difficult to attribute any large investment amount for public infrastructure solely to the possible organisation of the World Cup.

Nonetheless, the capacity of certain transport facilities for instance has to be extended since traffic flows resulting from World Cup matches would temporarily be fairly large in 2018 and the whole community would benefit from the infrastructure in the long run.

2.4. Organisational expenditures

The FIFA puts a budget envelope at the disposal of the Local Organising Committee (LOC) to both prepare and assure the event's proper course. The total LOC budget for the 2006 World Cup in Germany amounted to €430 million (The Federal Government, 2006, p. 22). Based on the German report we made an assessment of the expenditures per category (staff, volunteers, transport, stadium rent, etc.). Using certain hypotheses with regard to the distribution formulae, we then converted those estimated expenditures into the acquisition of goods and services from the various industries, at the aggregation level NACE A60. Foreign volunteers will need accommodation (industry 55), transport (industries 60 and 62) and specific FIFA training with possible support from (public or private) local service providers.²

Since half of all matches should take place in the Netherlands and the other half in Belgium, we drew up the following table based on the estimates for the acquisition of goods and services by the LOC on Belgian territory.

² The FIFA would have to recruit 15 000 South African and foreign volunteers to organize the 2010 World Cup. On September 1st, 2009 the FIFA received 68 000 candidacies from 170 countries for those temporary jobs. (Source: <http://www.fifa.com/worldcup/organization>)

Table 2 Acquisition of goods and services by the LOC in Belgium (in millions of euros of 2010)

Lodging and catering	20
Transport and transport supporting activities	29
Communication	8
Other market services	47
Other expenditures (energy, government, training)	5
Total	107

Source: FPB.

According to the calculations and in 2010 prices, total LOC expenditure in Belgium should amount to approximately €110 million. The other market services would account for the largest share (private security services, various media services, stadium rent, etc.), before lodging and catering.

Our information suggests that the LOC budget allocated by the FIFA for the 2018 World Cup in Belgium and the Netherlands adds up to \$ 400 million. Assuming an equal budget division between both countries, the above expenditure estimate by the Belgian LOC, considering all proportions, should correspond to a surplus (before any taxes) similar to the one of the 2006 World Cup in Germany.

At the dollar exchange rate of February 26th, 2010 (\$ 1.36 for one euro) the Belgian LOC should arrive at a €40 million 'gross' surplus, or 27% of the Belgian estimate (Table 3). That gross surplus, as in Germany in 2006, should serve to reimburse a part of the budgetary envelope to the FIFA (30% of the gross surplus after the 2006 World Cup), leaving a €28 million surplus (before any taxes) to the Royal Belgian Football Association. If, however, the euro would drop back to \$1.10, the surplus should match the 2006 World Cup surplus in Germany: 41% (or €52 million, including the FIFA reimbursements).

We cannot anticipate the appropriation of the surplus by the Belgian Football Association. Certain decisions with regard to tax exemptions in favour of the FIFA and the Belgian Football Association still have to be made. The surplus calculated above should be relatively large and be acquired within the scope of activities which are uncommon for the non-profit organisation "Royal Belgian Football Association". Since we dispose of no information whatsoever on a possible taxation of the 2018 World Cup surplus, we assumed in the HERMES simulation that the surplus would be taxed in accordance with corporate taxation. No social contributions were attributed in the simulation.

Table 3 Estimates of the expected surplus of the local organising committee (Loc) of the 2018 World Cup and the surplus of the Belgian Football Association (in millions of euros of 2010)

	1 euro = \$1.36	Average	1 euro = \$1.10
LOC budget	294	329	364
LOC budget in Belgium (1)	147	164	182
Estimated LOC expenditure (Belgium)	107	107	107
Gross surplus (including FIFA reimbursements) (2)	40	57	75
Surplus percentage (2) / (1)	27%	34%	41%
<i>Gross percentage of the 2006 World Cup FIFA surplus</i>		41%	
FIFA reimbursements	12	17	23
Surplus (before any taxes)	28	40	52

Source: FPB.

2.5. Public expenditure on security

According to an estimate based on a calculation by the FPS Internal Affairs, public expenditure on security in 2010 prices should amount to €125 million for the 2018 World Cup and €25 million for the 2017 Confederations Cup (which serves as a final rehearsal to the 2018 World Cup, among others with regard to security aspects in and near the stadiums during the matches).

These amounts are comparable to those in other studies for similar international sport events and should not be excessively high. As Iotti (2008) states:

“The foreseen budget for the Italian internal minister in case Italy would have hosted UEFA EURO 2012 was circa 200 million €.”

The given UEFA tournament includes 16 teams in its final stage and will comprise the same number of matches (with the exception of the third-place play-off) as Belgium is expected to organise in 2018. The amount mentioned for Italy is larger than the Belgian one, but that would be explained, at least partly, by the fact that the former is a bigger country.

2.6. Tourist expenditure by supporters

Tourist expenditure by supporters can constitute an important single impetus to the economy. Any assessment thereof is however accompanied by a considerable degree of uncertainty. Studies carried out during the past decade have generated a large variety of results, ranging from several hundreds of millions to several billions of euros for an event of a World Cup Football calibre. The outcome depends on the assumptions with regard to the number of foreign supporters, the length of their stay and the average spending per day, as well as possible crowding-out effects on the tourist market. On the one hand this section leads to an effect of largely €300 million for Belgium, based on a number of reasonable assumptions. On the other

hand it shows that adjusting those assumptions may easily cause variations of several hundreds of millions of euros. Hence, the derivation below should not be interpreted as a final calculation of the expected tourist effects. Rather, it shows possible effects based on specific assumptions.

Attribution of stadium seats and accommodation

In the Netherlands and Belgium combined, the number of stadium seats is estimated at 2.761 million, which is similar to the 1998 and 2006 World Cups. The majority of matches will take place in stadiums of roughly 42 750 seats, the average estimated capacity of six of the seven Belgian stadiums, excluding Brussels. The opening match and the finals have occupancy rates of 100%, while all other matches show levels of 95%. Nearly half of all sold seats are in Belgium, an expected 1.396 million.

43% of all spectators are day tourists, the remaining 57% are overnight tourists. This ratio is based on the Schütte (2008) inquiries during the 2006 World Cup. Based on findings during the EURO 2000 and EURO 2008 in the Benelux countries and Austria, respectively, 35% of all supporters are Belgian residents. Assuming all Belgian spectators are day tourists, 600 000 seats in Belgium will be occupied by day tourists, 489 000 of which are from Belgium and 112 000 are from abroad. From Kurscheidt et al. (2008) it can be assumed that one out of every eight supporters brings a travel companion who will not attend the match, resulting in 126 000 day tourists spending in Belgium.

This study does not consider the tourist expenditure of residents. Firstly, residents do not represent a net impetus to the Belgium economy (which is no conclusive argument for that matter, since the applied methodology does not necessarily require a strict net impetus of direct effects). Secondly, substitution effects may occur, in which case there is no additional spending by Belgians. Thirdly, inquiries in Belgium show that tourist expenditure by residents (the 'excursionists') is much lower than spending by foreign visitors.³

The remaining seats (796 000) are occupied by overnight tourists. Contrary to day tourism expenditure, their spending is not fully included in the economic effects of the World Cup, as a part of those tourists would also have visited Belgium in the absence of the World Cup and yet certain other tourists abandon a visit because of the World Cup. The latter are put off by the commotion and high prices due to the above-average hotel occupancy. It is therefore possible for a crowding-out effect to occur. Kurscheidt et al. (2008), among others, estimated the percentage of tourists that also would have visited the organising country in the absence of the World Cup. It is actually much more difficult to assess the crowding-out.

This study, however, is based on the available hotel capacity. Belgium should dispose of roughly 68 000 hotel rooms. It is assumed that those are all double rooms and their average occupancy amounts to 72%. These two hypotheses are based on an NBTC⁴ (2008) inventory for the Nether-

³ See Baudewyns et al. (2008), §5.2.

⁴ Netherlands Board of Tourism and Conventions

lands. The occupancy rate is the weighted average of Amsterdam (81%) and the rest of the country (70%). Only the visitors of the 28% of available rooms (38 000) can be included in the calculation of the effect of tourist expenditure. They are all presumed to be fully booked during the event. Only during the semi-finals the occupancy should be somewhat smaller, because, at that stage, the capacity would be sufficient. Based on those assumptions a total of 1.115 million stays able to cause a tourist spending effect was estimated, 229 000 of which should be accounted for by national teams and the media, compared to 886 000 by supporters.⁵

Every visitor is assumed to attend a match every three days and, again, one out of every eight supporters is assumed to have a travel companion who will not attend the match. Finally, all 886 000 stays are attributed to stadium visits, not to fan festivities. Based on these assumptions, only 263 000 of the 796 000 occupied seats can be included in the tourist effect.⁶ It is not known whether or not a tourist effect is also generated by the remaining 533 000. The latter account for 38% and therefore represent a large error margin for the calculation of the expected tourist expenditure. A part of the persons involved books hotel rooms, thus leading to a crowding-out effect. Another part will stay in holiday parks, apartments or on camping sites and indeed generate a tourist effect. The resulting prospect of seat distribution is summarised in Table 4.

An overnight tourist is assumed to spend €209 per day, the average of a low estimate by Baudewyns et al. (2008) and a high estimate by Kerscheidt et al. (2008), which was converted to 2010 euros. From the latter estimate a certain amount was deducted for the match ticket, which is cashed by the FIFA and will partly flow back to Belgium in the form of a compensation for organisational costs (see §2.4). An average day tourist spends €97, a sum Kerscheidt (2008) indicated for visitors of fan festivities, also converted to 2010 euros. The expenditure of visitors of fan festivities was opted for since they most certainly do not include any spending on match tickets. The estimate by Baudewyns et al. (2008) would be slightly smaller, €93 in 2010 euros.

Table 4 Expected seat distribution in Belgian stadiums according to certain visitor categories

	Number	Percentage	Expenditure effect
Day visitors, of whom			
- Belgian residents	489000	35%	No
- foreign visitors	112000	8%	Yes
Overnight visitors, of whom			
- hotel guests without crowding-out effect	263000	19%	Yes
- crowding-out effect or other accommodation	533000	38%	?
Total	1396000		

Source: FPB.

⁵ Table 7 (further on) mentions 274 000 stays for the teams and the media and takes into account the fact that they will be present several days before the start of the event, whereas the calculation in this paragraph only considers the 30-day tournament length.

⁶ $263\,000 = (8/9) * 886\,000 / 3$.

Basic calculation of tourist expenditure

These data indicate that stadium visitors who do not cause any crowding-out should spend €185 million (see Table 5), compared to €12 million by foreign day visitors. According to Schütte (2008) that would account for 62% of the total effect, while the visitors of fan festivities represent the remaining 38%. Assuming this ratio also applies to Belgium and the camping sites and holiday parks do not generate an effect, tourist expenditure is estimated at €318 million. Compared to other research this assessment appears to be conservative rather than optimistic. The derivation of the interval between the minimum and the maximum effect is discussed in the following paragraph.

Table 5 Expected expenditure by foreign tourists in Belgium during a World Cup Football (in millions of euros of 2010)

	Minimum	Baseline	Maximum
Overnight visitors stadium	48.994	184.802	383.509
Day visitors stadium	12.224	12.224	12.224
Visitors of fan festivities	37.251	120.758	242.546
Total	98.738	317.783	638.279

Source: FPB.

The outcome of the baseline scenario is comparable with the outcome of former research with regard to the economic effects of the 2006 World Cup. It must be taken into account that in the Netherlands the effect will be more or less identical, bringing the total to approximately €600 million. In those studies expenditure varies from roughly €400 million (Madeja, 2005) to €900 million (Ahlert, 2005). Rahmann et al. (1998), Kurscheidt (2006) and Brenke & Wagner (2007) all reported estimates between those two extremes. With a tourist expenditure of €2.86 billion Kurscheidt et al. (2008) form the only exception. The latter study differs from the former studies in that it includes the expenditure of visitors of fan festivities. The same also applies to the calculation in Table 5, which indicates that the outcome is rather conservative in comparison with the other studies. Still, the outcome of Kurscheidt et al. (2008) appears to be very high.

Interval calculation based on sensitivity to certain assumptions

As stated previously, the calculation involves a large degree of uncertainty. A change in assumptions can easily lead to an outcome that is several hundreds of millions higher or lower. Hence, a sensitivity analysis was conducted on certain assumptions (see Table 6) and lead to an interval for the calculated €318 million, ranging from €99 million to €638 million (see Table 5).

Table 6 Sensitivity analysis on the assumptions

Assumption	Baseline	Adjustment	
		... down	... up
Normal hotel room occupancy	72%	86%	idem
Days of stay per match	3	idem	4
Situation of the non-included visitors	crowding-out	idem	camping site
Expenditure per day of stay	€209	€143	€274

Source: FPB.

According to the NBTC (2008) the occupancy rate of Amsterdam hotels during the busiest tourist month of the year adds up to 90%, scoring 9 percentage points above average. In that period the number of available rooms is halved, yet the NBTC (2008) does not mention which is in fact the busiest month of the year. It is safe to assume that the month of June is a typical month for city tourism and involves high occupancy rates. By way of sensitivity analysis, it is therefore assumed that in June the number of available rooms only amounts to half of the average, reinforcing the crowding-out effect in a stronger degree than the baseline in Table 5. It should be noted that, based on certain sources, it is also safe to assume that common occupancy rates in Belgium are lower than in the Netherlands, without reporting any specific number. In that case the 72% applied in the baseline scenario for Belgium could serve as a standard for a month with a high occupancy rate.

If visitors were to attend a match every four days instead of every 3 days, less seats would be occupied by hotel guests not generating any crowding-out effect: 203 000 instead of 263 000. The total length of their stay and their total expenditure would actually remain the same. Moreover, there would be more room for other overnight visitors: 593 000 instead of 533 000.

However, since the latter have fully lead to a crowding-out effect in the baseline, they could not be attributed any expenditure effect. By way of sensitivity analysis it is assumed that all 593 000 visitors stay on camping sites and will spend €50 per day there. On the one hand the assumption that there will be no crowding-out at all is rather extreme. On the other hand a spending estimate of €50 per day is low as it supposes a modest spending pattern of camping site visitors. For that matter, the €50 per day spending can also be considered to result from the fact that World Cup tourists are generally more prosperous than the average tourist and will therefore spend more. In that case crowding-out is involved in terms of number of tourists, but there is still a net positive effect since the 'crowded out' tourists would have spent less (so the assumption of a camping site stay is no longer necessary).

Finally, a large error margin applies to the spending per day. The downward sensitivity analysis assumes the €125 which Baudewyns et al. (2008) reported for a regular tourist in Brussels in 2004. Considering inflation, that should be €143 in 2010. The upward sensitivity analysis assumes the €290 which Preuß et al. (2007) drew from an inquiry among supporters of the 2006 World Cup. That same inquiry also showed that the average supporter's living standard is relatively high, justifying the relatively high estimate. After the deduction of an allowance of €40 per day for the match ticket and the conversion into 2010 euros, the amount arrives at €274 (see Table 6).

Considering the above-mentioned adjustments to the assumptions, the interval of tourist expenditure lies between €99 million and €638 million, the minimum and maximum from Table 5. The minimum expenditure is founded on a considerably stronger crowding-out effect and lower spending per person, while the maximum is based on the absence of a crowding-out effect (though conservatively estimated) and higher average spending per hotel guest.

Sensitivity to other assumptions

Besides on the assumptions discussed in the above paragraph, a sensitivity analysis could also be conducted on other assumptions. That was not done initially, among others because there are insufficient leads to adjust the assumptions legitimately and/or the effect on expenditure is expected to be small.

Expenditure should be higher based on the following adjustments:

- Matches have higher occupancy rates. According to The Federal Government (2006) they would have been nearly 100% for each match of the 2006 World Cup.
- The normal occupancy rate of Belgian hotel rooms is lower than 72%, for instance 62%.
- Part of the Belgian visitors could abandon a foreign holiday because of the World Cup. Those would be included in the domestic expenditures.

Expenditure should be lower based on the following adjustments:

- Matches have lower occupancy rates. Certain sources indicate 90-95% instead of 95%.
- The number of Belgian visitors is higher, for instance 40%. Though contradicting the experience of EURO 2000, this could result from the fact that football is much more significant in the Benelux countries than in Austria.
- A number of hotel rooms are only occupied by one single person.
- After the group phase hotel visits decrease a lot faster than assumed.
- Part of the foreign visitors would also have booked a holiday in Belgium in the absence of a World Cup. Obviously these are not to be included in the net tourist expenditures.

Finally, a more accurate calculation could be made for the expenditure of the visitors of fan festivities. In the calculation it is simply assumed that fan festivities generate 38% of the total expenditures, in line with Kurscheidt et al. (2008). Instead, an estimate should be made based on the number of visitors of fan festivities, like during the 2006 World Cup, and on the average spending per visitor of fan festivities.

2.7. Accommodation expenditure by national teams, journalists and other media representatives

The estimate for accommodation expenses of non-residents in 2018 should include supporters (€318 million in 2010 prices, see Table 5), as well as national teams, journalists and other media representatives (for example technicians). According to Helmenstein et al. (2007) this last group consists of approximately 750 members per participating country, totalling about 24 000 for a FIFA World Cup, 12 000 of which in Belgium (still assuming an equal division of activities directly related to the tournament). Based on information of *The HollandBelgium Bid* – the foundation which was established by the Belgian and Dutch football associations to prepare the Belgian-Dutch candidacy – we also assumed a national team consists of 45 persons (staff and players).

Based on those numbers we calculated a global amount of €91 million of accommodation cost for both teams and media (see the last line of Table 7). The average length of stay per team was calculated using the 2006 World Cup calendar, assuming each team eliminated during the competition departs after its last match. Furthermore, the FIFA demands each team to arrive in the organising country at least five days before the start of its first match. If the teams were assumed to arrive exactly five days in advance, the average day of arrival for the 2006 FIFA tournament, which officially started on the 9th of June, would have been the 6th of June. The calculations were based on that date.

Accommodation costs per day would add up to €206 to €390 in 2010 prices (estimates based on Helmenstein et al., 2007) for journalists and other media representatives and to €310 (Helmenstein et al., 2007) to €560 (Oldenboom, 2006, quoted by Iotti, 2008, p. 42) for the players and staff. The calculations in Table 7 were made using the averages of those numbers (€325 and €435 per day respectively).

Table 7 Accommodation costs for national teams, journalists and other media representatives

	Number of departing teams ⁷	Overnight stays teams	Overnight stays media	Stay	National teams Number of days	Media Number of days
June 23	16	12240	204000	18,0	12960	216000
June 24	2	1665	27750	19,5	1755	29250
June 25	2	1755	29250	20,5	1845	30750
June 26	2	1845	30750	21,5	1935	32250
June 27	2	1935	32250	22,5	2025	33750
June 30	2	490	36750	25,5	2295	38250
July 1	2	408	38250	26,5	2385	39750
July 4	1	171	21375	29,5	1327	22125
July 5	1	118	22125	30,5	137	22875
July 9	2	268	50250	34,5	3105	51750
Total		20895	492750		31005	516750
Estimate of total number of days, Belgium					15503	258375
Expenditure per person					435	325
<i>Total expenditure, in millions of euros of 2010, Belgium</i>					7	84

Source: FPB.

⁷ The number of teams for which the tournament is over on that day as a result of a match on that same day (with the exception of June 23: number of eliminated teams at the end of the group phase; for those teams the average length of stay was calculated using the match calendar).

3. Macroeconomic simulation based on input-output analysis

3.1. The principle of input-output analysis

An input-analysis is a relatively simple calculation method to estimate the effects of certain expenditure impetus on the economy. It explicitly assumes that an expenditure impetus in a certain industry leads to the purchase of goods and services from other industries, which, in their turn, have to make purchases. The construction of a stadium, for instance, leads to the acquisition of, among others, construction materials of metal and stone, but also to energy consumption, transport and telecommunications. Then again, the production of metal products requires blast furnace products and other materials and services. In that way an input-output analysis is able to assess the final effect of an expenditure impetus on all industries of the economy. That effect can be calculated in terms of, among others, production, imports, value added (i.e. labour, capital and entrepreneurial income) and employment.

The disadvantages of input-output analysis lie in the fact that rather rudimentary assumptions are made with regard to the market system and no effect is calculated for the spending of the generated income. For instance, it is assumed that production capacity is unlimited and, as a result, no price effects occur in case of a very strong expenditure impetus. Therefore, input-output analyses are more appropriate for the calculation of small impetus (which have no important effect on capacity utilisation) and impetus in the long run (if production capacity can be adjusted). For a World Cup football analysis the impetus involved actually amounts to roughly €1 billion, which is a large sum, but still only about 0.3% of the Belgian economy.

3.2. The expenditure impetus of a WORLD CUP football in Belgium

Tables 8 and 9 summarise the impetus derived in the previous chapter. Table 8 shows the total impetus for the baseline and both sensitivity analyses, while Table 9 displays the impetus of the baseline scenario according to the industry in which the impetus occurs.

Table 8 Expected expenditure impetus of a World Cup football in Belgium (in millions of euros of 2010)

	Scenario		
	Minimum	Basic	Maximum
Additional investments in stadiums	290	490	690
Expenditure of teams and media	91	91	91
Expenditure of foreign visitors	99	318	638
Security costs	150	150	150
Organisational costs	103	103	103
Total	733	1152	1672

Source: FPB.

In the baseline scenario the total expenditure impetus adds up to €1.15 billion, almost half of which emanates from investments in stadiums spread over eight years. The macroeconomic simulation in the next chapter assumes yearly investments of €75 million from 2011 up to and including 2016, €32 million in 2017 and another €11 million in 2018. It also assumes that security costs for the Confederations Cup will amount to €25 million in 2017. All other expenditure entirely concerns the year 2018. The effects of Tables 8 and 9 should therefore be considered as accumulative effects, signifying a sum of the expenditures made during an eight-year period. Half of that amount (€648 million) concerns 2018, the other half concerns the seven preceding years.

The sensitivity analysis was only performed on the two major expenditure categories: investments and spectators. The analysis could also be applied to the expenditure of teams and media and security costs, but the effect on total expenditure is expected to be small.

Table 9 Expenditure impetus, according to industry (baseline, in millions of euros of 2010)

	Stadiums	Teams & media	Tourism	Security	Organisation	Total
Agriculture	0	0	0	0	0	0
Mining and manufacturing	0	9	32	0	0	41
Public utilities	0	0	0	0	0	0
Construction	490	0	0	0	0	490
Wholesale and retail trade	0	5	16	0	0	20
Lodging and catering	0	68	239	0	20	327
Transport	0	5	16	0	29	49
Other business services	0	0	0	0	18	18
Public administration	0	0	0	150	0	150
Personal services	0	5	16	0	36	57
Total	490	91	318	150	103	1152

Source: FPB.

Table 9 shows an attribution of the expenditure impetus to Belgian industries, based on very rudimentary distribution formulae. The investments in stadiums are fully attributed to the construction industry, although a small part could be ascribed to business services (architects and engineers). 75% of tourist expenditure by national teams, media and supporters is attributed to hotels, bars, restaurants and possibly camping sites, while the remaining quarter is divided among industrial products (shopping expenditures of tourists), retailers' gross margins, transport and personal services (culture and leisure). Security costs are entirely considered as collective consumption. Organisational costs are attributed according to the distribution formula mentioned in §2.4. As a result, the construction and lodging/catering industries can be credited with 71% of the impetus.

3.3. Economic effects of the expenditure impetus

As mentioned before, the expenditure impetus leads to acquisitions of goods and services by, in this case, the construction and lodging/catering industries in particular, such as metal products and food. However, both industries also acquire, among others equipment, energy, transport, telecommunications and business services. The latter industries also require goods and services, such as blast oven and agricultural products. The outcome of that chain of purchases, and thus the total effect on the economy, is listed in Table 10.

Table 10 Expected economic effects of a World Cup football in Belgium

	Scenario			Multiplier
	Minimum	Basic	Maximum	
Cumulative effects on production value (in millions of euros of 2010)				
Additional investments in stadiums	601	1016	1431	2.07
Expenditure of national teams and media	167	167	167	1.84
Expenditure of foreign visitors	182	585	1173	1.84
Security costs	192	192	192	1.28
Organisational costs	177	177	177	1.72
Total	1320	2137	3140	1.80
Cumulative effects on import (in millions of euros of 2010)				
Additional investments in stadiums	82	139	196	0.28
Expenditure of national teams and media	25	25	25	0.27
Expenditure of foreign visitors	27	87	174	0.27
Security costs	11	11	11	0.07
Organisational costs	27	27	27	0.26
Total	172	288	432	0.23
Cumulative effects on value added (in millions of euros of 2010)				
Additional investments in stadiums	206	347	489	0.71
Expenditure of national teams and media	65	65	65	0.71
Expenditure of foreign visitors	70	226	453	0.71
Security costs	134	134	134	0.90
Organisational costs	73	73	73	0.71
Total	548	846	1215	0.75
Cumulative effects on employment (man-year)				
Additional investments in stadiums	2877	4862	6846	9.9
Expenditure of national teams and media	1163	1163	1163	12.8
Expenditure of foreign visitors	1265	4065	8155	12.8
Security costs	2384	2384	2384	15.9
Organisational costs	1042	1042	1042	10.1
Total	8732	13516	19591	11.9

Source: FPB.

In the baseline the €1.15 billion expenditure impetus leads to a total production of €2.14 billion, which is 1.8 times the impetus itself. That factor is also called the multiplier and shows the amount of total production generated per euro of the impetus. The multipliers are listed in the far right column of the table. The 2.14 billion effect is not realised in one go, but is a cumulative amount, as it was in the previous paragraph. This applies to the investments in particular. Considering the earlier mentioned investment distribution, the €1.016 billion is realised by annual shares of €155 million up to and including 2016 and by a subsequent remainder of €88 million.

Self-evidently, and especially in an open economy such as the Belgian case, part of the supplies comes from abroad. In the baseline scenario that part adds up to €288 million, with a multiplier of 0.23, which means that an expenditure impetus of €1 000 entails to an import of goods and services amounting to €230. An input-output analysis does not involve an effect on export. Conversely, part of the impetus itself is export, for instance tourist expenditure and organisational costs, since they are made by foreign supporters and the FIFA itself.

The effect on value added is realised by labour, capital and entrepreneurship employed in Belgium, in both the industries in which the impetus occurs and the supplying industries. It represents 75% of the initial impetus, or €846 million in the baseline, and is the accumulated contribution to GDP realised during eight years. To put that in perspective, compared to the projected GDP of 2018 (€408 billion in 2010 prices, as applied in the previous chapter) it adds up to 0.21%. €484 million of that amount, or 0.12% of the projected GDP, will be realised in 2018. The main effect on the economy concerns the value added, which is the most important factor shaping GDP.

The total effect on employment is the equivalent of 13 500 man-years.⁸ The word 'equivalent' is used emphatically here, because part of the effect is realised by overtime hours of existing personnel, for instance police officers. Again, the cumulative nature of the outcome should be pointed out. The number of 4 862 persons mentioned at the stadium investments implies that 740 persons will be working at construction companies and their suppliers during the period 2011-2016. After 2016, stadium construction will employ 317 and 106 persons, respectively. In this context the multiplier actually has another dimension than with the other effects as it shows the effect on employment per million euros of expenditure impetus. In other words, each million spent on the World Cup leads to employment for an equivalent of 11.9 man-years.

Tables 11 and 12 show (for the baseline only) how the effects on value added and employment could be divided among industries. They clearly illustrate the principle of input-output analysis: virtually all industries benefit from all five expenditure impetus, although the industries in which the impetus take place dominate. As mentioned before, 71% of the impetus occurs in construction and lodging/catering (see Table 9). 41% of the effect on value added and even 51% of the effect on employment apply to those two industries, which is mainly due to the labour-intensive nature of the catering industry.

⁸ That applies to average working hours. In this case one man-year represents less hours worked than one FTE (full-time equivalent).

Table 11 Effects on value added per industry (baseline, in millions of euros of 2010)

	Stadiums	Teams & media	Tourism	Security	Organisation	Total
Agriculture	1	2	6	0	1	9
Mining and manufacturing	48	8	27	2	3	89
Public utilities	5	2	6	1	1	14
Construction	203	1	5	3	1	213
Wholesale and retail trade	29	5	19	1	2	57
Lodging and catering	2	27	96	0	8	133
Transport	8	4	12	1	12	36
Other business services	48	12	43	8	24	135
Public administration	0	0	0	117	0	117
Personal services	4	4	13	1	21	43
Total	347	65	226	134	73	846

Source: FPB.

Table 12 Effects on employment per industry (baseline, in man-years with average working hours)

	Stadiums	Teams & media	Tourism	Security	Organisation	Total
Agriculture	6	26	92	2	9	135
Mining and manufacturing	418	71	250	18	30	786
Public utilities	12	5	18	2	4	40
Construction	3355	21	75	54	18	3523
Wholesale and retail trade	322	115	403	15	29	886
Lodging and catering	44	691	2416	5	210	3365
Transport	111	49	173	9	173	515
Other business services	523	119	415	78	273	1408
Public administration	0	0	0	2187	0	2187
Personal services	70	64	224	15	297	670
Total	4862	1163	4065	2384	1042	13516

Source: FPB.

Furthermore, a strong effect on other business services stands out in particular. This major industry includes, among others, communication, banking, insurance, letting, automation, research and professional services and could gain an accumulative 1 408 man-years because of the World Cup. That number is even higher for public administration, but a large part will probably be realised in the form of overtime by police officers. Next in line are trade and manufacturing with 886 and 786 man-years respectively.

4. Total macrosectoral effects: results of the HERMES simulation

4.1. Application of the HERMES model

The previous chapter established the direct and indirect impact of the preparation and organisation of a FIFA World Cup in Belgium on production, value added and employment in the various industries using their productive interdependence, as derived from the input-output table. In addition, the total macrosectoral effects resulting from the expected rise in sectoral production should be estimated, since income, consumption, investments (by way of a multiplier effect) and prices are also influenced.

The possible induced effects of a 2018 FIFA World Cup in Belgium on the Belgian economy are simulated over the period 2011-2020 (as certain effects may continue after 2018, owing to the dynamics of the generated economic activity) by means of the most recent version of the HERMES model. More specifically we started from a baseline simulation which is consistent with the last medium-term outlook 2009-2014 (extended to 2020) published in May 2009 (FPB, 2009).

An econometric model is a stylised representation of an economy. It is founded on economic theory and quantifies the influence each economic aggregate has on the others. That quantification results from estimation methods applied to statistical time series. The resulting model allows explorations in the short and medium run and offers a coherent framework which is consistent with the economic conduct during the recent past, provided it is adjusted and reassessed regularly. That is the case for the HERMES model.⁹

The model is tailored to the research of unforeseen and temporary shocks in certain macroeconomic variables which are relevant to us, such as tourist expenditure or the activity in the construction industry. The chosen macrosectoral approach of the economy constitutes another strength of the HERMES model. It distinguishes 16 industries and is therefore able to calculate the effects - differentiated per industry - of the impetus which are to be simulated, just like the effects analysed in this study. The interrelationships between the industries are fully described in the HERMES model, albeit less detailed than in the input-output table. In that way the model offers a complete accounting framework for the Belgian economy and allows considering the induced effects on the 'accounts' of various economic actors, resulting from a temporary activity increase due to an external event, compared to the usual market activity. In view of the specific nature of the activities linked to the organisation of a World Cup Football, certain interrelationships in the model had to be adjusted based on the available information.

⁹ For a full account of the HERMES model, see Bossier et al. (2000, 2004).

4.2. Hypotheses

The expenditures estimated in Chapter 2 will cause an increase in economic activity before and during the World Cup and subsequently bring about dynamic effects which decline in time. Those expenditures of the baseline scenario, (see Table 8) which can be directly attributed to the 2018 World Cup, served as input to the HERMES model in the form of exogenous shocks to the corresponding macroeconomic variables. The whole of impetus from Chapter 2 was completed by an estimate of the exogenous increase of the expected VAT revenues from the ticket sales for the 23 matches that are expected to take place in Belgium. Since the tax rate (or even the total exemption) has not yet been decided to our knowledge (which was also underlined with regard to the surplus taxation in §2.4), we employed an 8% rate¹⁰, which is situated between the lowered 6% VAT rate (which applies to certain goods and services in Belgium) and an implicit rate which Germany granted the FIFA in 2006 and we estimate at approximately 10%. Based on this hypothesis VAT revenues should amount to €17 million (Table 13).

Table 13 lists the various expenditure increases which were entered in the model on a yearly basis during the period 2011-2018 and according to the baseline of Chapter 2. The main simulated exogenous shocks are:

- an increase in investment expenditure for stadium construction by approximately €490 million in current prices, accumulated over the period 2011-2018;
- an increase in tourist expenditure by non-residents (supporters, journalists and other media representatives, national teams including staff) in 2018, estimated at little more than €400 million in 2010 prices;
- the acquisition of goods and services for the organisation, estimated at €107 million; it should be noted that the purchases from the industries *LM* (NACE code for government and education) and *E* (energy) are minor compared to total expenditure and are therefore not taken into account. As a result the real amount to consider adds up to approximately €103 million in 2010 prices;
- public expenditure for security personnel, which amounts to little more than €100 million.

We assumed that the investments in stadiums are fully covered by the construction industry. We considered the fact that the timing of the construction works will possibly not be synchronous in all cities, owing to the organisation of the FIFA Confederations Cup in 2017 which, as already mentioned before, serves as a final rehearsal for the 2018 World Cup. Since three stadiums will not be used for the 2017 tournament, certain infrastructural works will probably continue in 2017 and even in 2018. For that reason we assume that roughly 90% of construction works will be finished in 2016 and the remaining 10% in 2017-2018. Consequently, the total amount of investments in stadiums comes to €75 million per year during the period 2011-2016, €32 million in 2017 and a final €11 million in 2018 (in current prices).

¹⁰ Guarantee No.3: tax exemption.

Table 13 Hypotheses for the HERMES simulation, 2018 FIFA WORLD CUP (in millions of euros of 2010)¹¹

	2011	2012	2013	2014	2015	2016	2017	2018
INVESTMENTS IN STADIUMS BY THE CONSTRUCTION INDUSTRY	75	75	75	75	75	75	32	11
of which:								
Investments by 'other market services'	23	23	23	23	23	23	10	3
Public investments: local authorities, regions, federal government	51	51	51	51	51	51	22	7
ACQUISITION OF GOODS AND SERVICES BY THE LOCAL ORGANISING COMMITTEE	0	0	0	0	0	0	0	103
of which:								
Lodging, Catering, Trade	0	0	0	0	0	0	0	20
Transport and auxiliary transport activities	0	0	0	0	0	0	0	29
Communication	0	0	0	0	0	0	0	8
Other market services	0	0	0	0	0	0	0	47
EXPORT OF TOURISM	0	0	0	0	0	0	0	409
Supporters	0	0	0	0	0	0	0	318
National teams (45 persons, including staff)	0	0	0	0	0	0	0	7
Journalists (750 per participating country)	0	0	0	0	0	0	0	84
SECURITY	0	0	0	0	0	0	25	125
- of which Personnel	0	0	0	0	0	0	21	106
VAT REVENUES FROM TICKET SALES	0	0	0	0	0	0	0	17

Source: FPB.

Up to now little information has been available on the stadium financing, because decisions on that are still to be taken. Nonetheless, based on the information from certain stadium co-ordinators (information obtained by the *HollandBelgium Bid*), one cannot deny the hypothesis that one third of the total amount of stadium investments emanates from private funding (football clubs and private partners), compared to two thirds to come from public funding (municipalities and provinces, regions, federal government). The federal government, for instance, will contribute to the possible construction of a new national stadium in Brussels, but the exact amount of the contribution is not yet known.

In the absence of exact information on the private partners, we have set up the simplified hypothesis that the private part of the investments will come from the 'other market services', which include the football clubs.

Moreover, the expenditure of the local organising committee (LOC) in 2018 in Belgium should be regarded as an exogenous increase in the export of goods and services, since the LOC receives its budgetary envelope from the FIFA, which has its registered office in Switzerland. It should be noted that the television rights and the revenues from the ticket sales do not apply and therefore cannot be included in the Belgian economic model. As for public security, we assumed that

¹¹ Due to rounding, there may be a difference between the total amounts and the sums of the parts.

personnel expenditure account for 85% of the total security costs, in accordance with the information of the FPS Internal Affairs.

The economic activity generated by the increase in export to the Netherlands (the other host country) was not simulated. According to our prospects, the export increase, caused by the demand shock in that country in 2018, should be rather small from a macroeconomic perspective (approximately several tens of millions of euros) and not cause fundamental modifications to the simulation results.

4.3. Results

Table 14 lists the simulation results in the form of percent differences with regard to the basic medium-term outlook. A detailed outline of the effects on the account of the joint government is enclosed in the annex (Table 15).

In terms of economic impact of the 2018 World Cup, two periods should be distinguished: the preliminary phase, i.e. the period 2011-2017, and the year of the event itself, i.e. 2018. After 2018 the effects will soon diminish (except the effects on employment, see *infra*).

The simulation shows that the macroeconomic effects will be very limited in the run-up to the tournament, because they result exclusively from construction works which are attributable to the 2018 World Cup. The total costs of those works in the seven candidate host cities – about €490 million in current prices – is low from a macroeconomic perspective, as they, for instance, only represent 0.5% of the investments by ‘other market services’ on a yearly basis. It is therefore hardly surprising that, during the period 2011-2017, GDP should hardly change compared to the baseline level. It should be noted that the effect on employment will be more considerable in 2017, as security will be tested on a large scale during the 2017 Confederations Cup.

In 2018, however, the macroeconomic effects will be more significant, albeit still relatively modest. They should reveal a GDP increase of 0.13% in comparison with the baseline simulation. The direct and induced effects will mainly result from the acquisition of goods and services by the LOC (little over €100 million in 2010 prices) and, in particular, from the expected substantial tourist expenditure owing to the occurrence of the event on Belgian territory: as a reminder (see Table 13), this tourist export is estimated at little over €400 million. Furthermore, 2018 should show a considerable rise in public consumption (security expenditure): a 0.13% increase with regard to the baseline. Total expenditure for public consumption in Belgium adds up to roughly one quarter of national expenditure. We also observe a slight recovery of private consumption on the account of a rise in real disposable income during the World Cup year.

Table 14 Main macroeconomic results (differences in % with regard to the baseline simulation, unless mentioned otherwise)¹²

	2011	2012	2014	2016	2017	2018	2019	2020
GDP	0,02	0,02	0,01	0,01	0,01	0,13	0,00	0,00
Components (volumes)								
Private consumption	0,00	0,01	0,01	0,00	0,01	0,05	0,01	0,00
Public consumption	0,00	0,00	0,00	0,00	0,03	0,13	0,00	0,00
Investments	0,11	0,11	0,10	0,09	0,04	0,10	0,00	0,00
of which business investments	0,07	0,06	0,06	0,05	0,02	0,13	0,00	0,00
Total domestic demand	0,03	0,03	0,03	0,02	0,02	0,09	0,00	0,00
Export of goods and services	0,00	0,00	0,00	0,00	0,00	0,13	0,00	0,00
Import of goods and services	0,01	0,01	0,01	0,01	0,01	0,08	0,00	0,00
Prices of private consumption	0,00	0,00	0,00	0,00	0,01	0,02	0,01	0,01
Total employment	0,01	0,01	0,01	0,01	0,02	0,09	0,02	0,01
<i>Total employment (persons)</i>	<i>351</i>	<i>450</i>	<i>489</i>	<i>467</i>	<i>795</i>	<i>4062</i>	<i>1052</i>	<i>484</i>
Productivity per capita (industry)	0,01	0,00	0,00	0,00	0,00	0,08	-0,03	-0,02
Unit labour costs (industry)	-0,01	0,00	0,00	0,01	0,01	-0,05	0,05	0,03
Households' real disposable income	0,01	0,01	0,00	0,00	0,01	0,04	0,00	0,00
Gross operating surplus of enterprises	0,01	0,01	0,01	0,01	0,01	0,08	-0,04	0,00
Government net lending (+) or borrowing (-)								
<i>in millions of euros</i>	<i>-21</i>	<i>-22</i>	<i>-22</i>	<i>-27</i>	<i>-25</i>	<i>161</i>	<i>11</i>	<i>15</i>
<i>in GDP percentage points</i>	<i>0,00</i>	<i>0,00</i>	<i>0,00</i>	<i>0,00</i>	<i>0,00</i>	<i>0,05</i>	<i>0,00</i>	<i>0,00</i>

Source: FPB.

On the other hand, and opposed to the above mentioned effects which will diminish as from 2019, the 2018 increase in economic activity should cause a marked positive impact on employment which persists throughout the period 2019-2020. In 2018 employment should indeed be nearly 4 100 units higher compared to the baseline simulation (Table 14), vis-à-vis approximately 1 000 and almost 500 units in 2019 and 2020 respectively. During the run-up period, the number should, on average and on a yearly basis, be 500 units higher compared to the baseline. During the whole period 2011-2020 the additional employment with regard to the baseline simulation should amount to 9 100 units. The smaller impact on employment in comparison to the input-output analysis may be explained by a bigger effect on import in the HERMES model (e.g. +0.08% in 2018) on the one hand, and the shock effect of productivity in 2018 in this model (+0.08%, see Table 14), which was not taken into account in the IOM, on the other hand.¹³

The relative weakness of the macroeconomic effects is hardly surprising as the total amount of expenditure linked to the event during the 2011-2018 period adds up to approximately €1.1 bil-

¹² For the sake of a clearer outline, the numbers for 2013 and 2015 were not included, as they are practically identical to the numbers of 2012 and 2014 respectively.

¹³ That also account for the limited difference in economic activity between the two approaches in terms of GDP, while the HERMES model displays positive income effects which are not taken into account in the input-output analysis.

lion in 2010 prices, which equals 0.3% of the projected GDP for 2018. It represents a modest impetus to the economy which is, for that matter, smaller than the usual estimate for the Olympics – the single other big international sports event comparable to a FIFA World Cup – both in terms of media and organisational budget. As Sterken (2006, p. 388) already stressed, the Olympics indeed require considerably more investments in the run-up to the event, both in stadiums (owing to the variety of sports) and in public infrastructure.

Finally, public finance should only improve to a very small extent in 2018 on the account of the impetus to economic activity. Net borrowing should decline by approximately €160 million (see Table 15 in the annex), after several years during which the negative balance slightly increased (insignificantly to the GDP) due to the government contribution to stadium financing (with regard to the small income rises associated with the extra activity). Little less than half of the surplus of fiscal and parafiscal revenues in 2010 should be attributable to an increase in revenues from direct taxes (nearly €150 million, see Table 15 in the annex), while one third should emanate from revenues from additional indirect taxes (approximately €113 million, see Table 15). The government's borrowing requirement should eventually regain its baseline level (small positive remainder, but insignificant to the GDP in percentage terms).

5. Conclusion

The organisation of a major sporting event is generally positively valued by the organising country. The latter receives world-wide attention, which may have a beneficial effect on its image, tourism and exports. The causality between the event and those effects is, however, hard to establish and often constitutes a source of debate in the literature. Moreover, the organising country is tied to high costs in order to organise the event. Nonetheless, these costs entail an impetus to economic activity, provided the economy is not overheated prior to and during the organising year. This study therefore stressed the estimated effect of a 2018 (or 2022) World Football Cup on economic activity in Belgium.

Taking into account a large margin of error, the costs for stadium construction and security provisions for football matches are estimated at €440 to €840 million. On the other hand, FIFA, the foreign media and supporters should spend a total amount between €290 and €830 million. Although a cost-benefit analysis could be conducted, both amounts will give a boost to economic activity of between €730 and €1 670 million, with a reference amount of approximately €1 150 million, provided (again) that the economy is not overheated.

This study assesses the economic activity that is generated by the expenditure impetus by means of two economic models: an input-output model (IOM) and the macroeconomic simulation model, HERMES, which is also employed for the medium-term outlook for the Belgian economy (see FPB, 2009, for the most recent version). Both models have different characteristics, causing differences in outcome which are at times relatively strong. However, in this study an in-depth methodological analysis of those disparities is not in order. On the whole, a macroeconomic model is more complete than an input-output model and therefore takes into account certain effects that are not calculated by an input-output model. Then again, the latter usually contains greater detail with regard to industry classification (in this case 60 categories, compared to 16 in the HERMES model), thus allowing a higher degree of accuracy of particular calculations.

The effects are estimated over a ten-year period. From 2011 up to 2016, five or six new stadiums will be built. In 2017 and 2018 the Confederations Cup and the World Cup will take place consecutively. 2019 and 2020 reveal further dynamic effects of the impetus in the preceding years. These effects are in general very limited. A somewhat significant effect is only anticipated for the year 2018: 0.13% of GDP according to the HERMES model and 0.12% of GDP according to the IOM, representing approximately €0.5 billion. Both effects are similar, although the driving mechanisms are quite different. The employment estimates are, however, less consistent. Accumulated over the whole period 2011-2020, employment should amount to 13 500 and 9 100 man-years, respectively. Those numbers correspond to averages of 910 and 1 350 per year, spread unequally throughout the period, with half or more of the total amount in 2018.

Finally, the effect on public finances was estimated using the HERMES model. An annual negative effect of approximately €22 million should persist up to and including 2017, as a result of public expenditure on stadium construction. The effect should, however, be counterbalanced by additional fiscal revenues in 2018 and the subsequent dynamic effects. Over the whole period the effect on public finances should be slightly positive.

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7. Annex

Table 15 Government account (difference in millions of euros at current prices, compared to the baseline simulation)¹⁴

	2011	2012	2014	2016	2017	2018	2019	2020
1. Revenues	30	30	34	36	36	334	27	40
A. Fiscal en parafiscal	29	29	32	34	34	326	24	35
1. Fiscal	25	24	24	25	22	266	3	19
a. Direct taxes	11	10	10	10	12	148	-1	13
Households	3	4	6	6	12	65	19	18
Companies	8	6	4	4	0	82	-20	-5
Other	0	0	0	0	0	0	0	0
b. Indirect taxes	13	13	14	14	10	113	4	5
- of which vat on FIFA ticket sale	0	0	0	0	0	17	0	0
c. Property tax	0	0	0	1	1	5	0	0
2. Social security contributions	4	6	8	9	12	60	21	17
B. Other revenues from other industries	1	1	2	2	2	8	2	3
1. Property income	0	0	1	1	1	2	1	1
2. Current transfers received	0	0	0	0	0	1	0	0
3. Capital transfers received	0	0	0	0	0	0	0	0
4. Current sale of goods and services	0	0	1	1	1	5	1	1
C. Attributed contributions	0	0	0	1	0	0	1	2
2. Expenditure	51	52	56	61	59	172	13	25
A. Primary expenditure	52	52	55	59	55	168	15	28
a. Current	0	0	3	7	31	156	13	26
1. Employee remuneration	0	1	2	3	30	151	6	8
2. Intermediate consumption and taxes	1	1	1	2	2	13	1	2
3. Subsidies to companies	0	0	1	1	1	4	2	2
4. Social benefits	-2	-2	-1	1	-1	-17	4	13
- Social benefits in cash	-2	-3	-2	-1	-3	-23	-1	7
- Social benefits in kind	0	0	1	2	2	5	5	5
5. Transfers to households and NPISH	0	0	0	0	0	1	0	1
6. Transfers to companies	0	0	0	0	0	0	0	0
7. Contribution GNI	0	0	0	0	0	4	0	0
8. Other transfers	0	0	0	0	0	0	0	0
b. In capital	52	52	52	52	23	12	1	2
1. Real gross fixed capital formation	52	52	52	52	23	10	1	1
2. Other net acquisitions, non-financial assets	0	0	0	0	0	0	0	0
3. Transfers to households and NPISH	0	0	0	0	0	0	0	0
4. Transfers to companies	0	0	0	0	0	1	0	1
5. Other transfers	0	0	0	0	0	0	0	0
B. Interest charges	0	1	1	3	4	4	-1	-3
3. Net lending (+) or borrowing (-)	-21	-22	-22	-27	-25	161	11	14
Gross saving	30	29	30	26	0	169	15	16
4. Primary balance	-22	-21	-21	-24	-21	164	10	11
p.m. Final consumption	1	2	4	6	33	166	12	16

Source: FPB.

¹⁴ For the sake of a clear outline, the numbers for 2013 and 2015 were not included.