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What does Germany expect to gain from hosting the 2006 Football World Cup - Macroeconomic and Regionaleconomic Effects

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What does Germany expect to gain from hosting the 2006
Football World Cup – Macroeconomic and
Regionaleconomic Effects

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The logo consists of the letters 'g', 'W', and 'S' stacked vertically. The 'g' is at the top, 'W' in the middle, and 'S' at the bottom. They are rendered in a stylized, 3D font with a light blue/teal color and a dark shadow.

What does Germany expect to gain from hosting the 2006 Football World Cup – Macroeconomic and Regionaleconomic Effects

GERD AHLERT

Abstract:

The paper will present some estimates of the potential macro- and regionaleconomic effects for the German economy from hosting the football world cup 2006. The results have been prepared in the years 2000 and 2001 using the sport-economic simulation model SPORT (Ahlert 2001). The model has a special focus on analyzing sport-economic activities and has been constructed within the framework of a research project financed by the Ministry of the Interior (Meyer & Ahlert, 2000). It is based on a sport-economic satellite account - a detailed sport-economic database in conformity with concepts and definitions of the SNA - which has been integrated into the German INFORGE model. Its performance is founded on the INFORUM philosophy (Almon 1991).

The simulation results are based on a szenario which take into account the necessary investments for upgrading the stadium facilities in the venues of the event as well as the tourism expenditure of incoming world cup visitors during the event in 2006. The results will illustrate the importance of modelling sport-economic activities in deep sectoral and intertemporal detail. Besides the macroeconomic national effects, the paper explains, how

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The Institute of Economic Structures Research (GWS Ltd.) was founded in 1996 and is a private financed research institute. Its main focus is the analysis of industry structures. It has developed a unique system of macroeconomic forecasting and simulations models that distinguish different industries and regions. The models are estimated econometrically and based on official statistics.

these effects can be transmitted to the regional level of the German federal state level by the econometric model system LÄNDER. This model system is founded on the national accounts for Länder and specifies the economic development of every single of the 16 federal states in the context of the expected macroeconomic development calculated within the SPORT model on the national level (Meyer & Ahlert 2003).

The results will show that it is possible to estimate the potential macroeconomic effects of the soccer World Cup 2006 on the national and regional level. Under favourable conditions - independent of the type of financing these necessary investments - the staging of the football World Cup positively influences income and employment.

Keywords: input-output approach, sport-specific input-output table, soccer World Cup, sport-economic analysis

What does Germany expect to gain from hosting the 2006 Football World Cup – Macroeconomic and Regionaleconomic Effects

1. Introduction

Big sports events have undoubtedly a considerable economic dimension. The spectators of these events buy entrance tickets, use the traffic system and take advantage of the services of the restaurant and hotel business. The organisers invest in the extension of stadiums and traffic networks and provide the means of production for the smooth running of the event. Big sports events are important advertising media. Furthermore the rights of television broadcast are an important source of finance. For the respective region, carrying out such an event often means a strain e. g. regarding the volume of traffic. At the same time the event may lead to a lasting improvement of the regional infrastructure. Last but not least the regions' image will be improved by carrying out the event only due to the media coverage.

This enumeration is of course incomplete but shows that we are confronted with a lot of short-, medium- and long-term effects. The following considerations are focussed on the short- and medium-term effects on income and employment related to the decisions on consumption and investments around the FIFA World CupTM Germany 2006. The direct effects can normally be assessed quite easily. The total capital expenditure is, at least as estimated sum, known a long time before the event takes place, the returns on the ticket sales and on the sales of broadcast rights as well as the advertising revenue to be expected can be calculated from the experience of events carried out in the past, and it should also be possible to calculate in advance the demand in the hotel and restaurant business as well as the necessary number of helpers to be employed.

These direct effects are, however, only one part of the overall effects on the national economy and on regional level, and this is often the smaller one. There are, however, also indirect effects resulting from the following cycle: The investments in the extension of a stadium result in a higher demand on the part of the building industry with manufacturers of building materials and other branches, the increase in the jobs in the services businesses carrying out the event leads to additional effects regarding the consumption activating again a growing demand for other goods. These few examples show that it is of utmost importance to assess the indirect effects. The problem regarding the assessment of these effects lies in the fact that there are no statistics listing these indirect effects. These effects can, however, be assessed by means of econometric models describing the actions of investors and consumers as well as the development of the production structure.

After explaining the structure of the German sport-economic model *SPORT* in section 2 in the following section the scenario for the FIFA World CupTM Germany 2006 and the main macroeconomic national effects of the simulation with the model *SPORT* are explained. Section 4 shows how the calculated prognosis regarding the overall economic structure can be adapted to regional level if the model *LANDER* is used. The following section 5 gives an example of the overall economic effects of the FIFA World CupTM being adapted to regional level of the German federal states. The paper ends with an outlook.

2. The sport-economic simulation model *SPORT*

Before discussing the potential macroeconomic effects of hosting the FIFA World CupTM Germany 2006 in the following chapter 3 some further explanation to the applied sport-economic *SPORT* is given in this chapter. On account of its sport-specific specification the simulation model has been used in various studies to analyse sportpolitical and

sporteconomical questions (Meyer & Ahlert 2000, Ahlert 2000, Ahlert 2001, Ahlert 2004a, Ahlert 2004b).

The sport-economic simulation model SPORT has been developed for sport-economic analysis and is based on a satellite account for sports.¹ This sportspecific satellite account gives a detailed and consistent description of the economic relevance of sports for the German economy. It is a sport-specific extension of the German system of national accounts (SNA) and has been prepared for the period 1993 to 2000 (Meyer & Ahlert 2000, Bundesministerium des Innern 2002). In this satellite account for sports the direct impact of all sport activities to gross value added resp. GDP were estimated systematically in accordance to concepts and definitions of the SNA. The core table of this satellite account for sports is a sport-specific input-output table for the German economy (Ahlert 2000).

This sport-economic database has been integrated in an existing econometric model for the Federal Republic of Germany. It is the deeply disaggregated sector econometric simulation and forecasting model INFORGE (**IN**terindustry **FOR**ecasting **GE**rmany). In comparison to the core model INFORGE for the German economy the sportspecific extended version divides the production side of economy in 65 sectors, in which 7 sectors cover the production activities of the sports industry. Besides explicitly recording the production activities of the sports industry the model SPORT distinguishes for all components of finals demand (private consumption, collective consumption, gross fixed capital formation, exports) between non-sport-specific final demand and sport-specific final demand.

The specific performance of the model SPORT is founded on the INFORUM philosophy to build econometric input-output models bottom up and fully integrated (Almon 1991). The

¹ The satellite account for sports as well as the sport-economic simulation model has been constructed within the framework of a research project financed by the Federal Institute of Sports Sciences (Meyer & Ahlert 2000).

construction principle *bottom up* says that each sector of the economy has to be modelled in great detail (about 150 variables for all 65 sectors, including 7 sport-specific sectors) and that the macroeconomic aggregates have to be calculated by explicit aggregation within the model. The construction principle *fully integrated* means a model structure that takes into account the input-output structure, the complexity and simultaneity of income creation and distribution in the different sectors, its redistribution among the sectors, and its use for the different goods and services that the sectors produce in the context of globalizing markets. In this way one succeeds in describing properly the role of each sector in the interindustry relations, its role in the macroeconomic process as well as its integration into international trade (see Figure 1).

Table 1: The sectors of the sports industry

| |
|--|
| 59 Production of bicycles |
| 60 Production of sports apparatus |
| 61 Production of sports shoes |
| 62 Production of sportswear |
| 63 services of the commercial sports facilities (health clubs, sporting events, professionals) |
| 64 sport-specific services of central and local government (public sports grounds, etc.) |
| 65 services of sport clubs and associations |

Figure 1 gives a rough impression of the structure of the model. The sport-economically extended SPORT-model is part of the older INFORUM International System (Nyhus 1991) that links 13 national I-O models on the sectoral level via export and import flows as well as the corresponding foreign trade prices. The INFORUM international system delivers the vector of world import demand for product groups, the vector of world market prices for product groups and the US rates of interest.

The most important determinants of final demand are the world trade variables (explaining exports), disposable income of private and public households (explaining private and public consumption), the interest rates and profits (investment) and the relative prices for all

components and product groups of final demand. Intermediate demand of the firms is depicted.

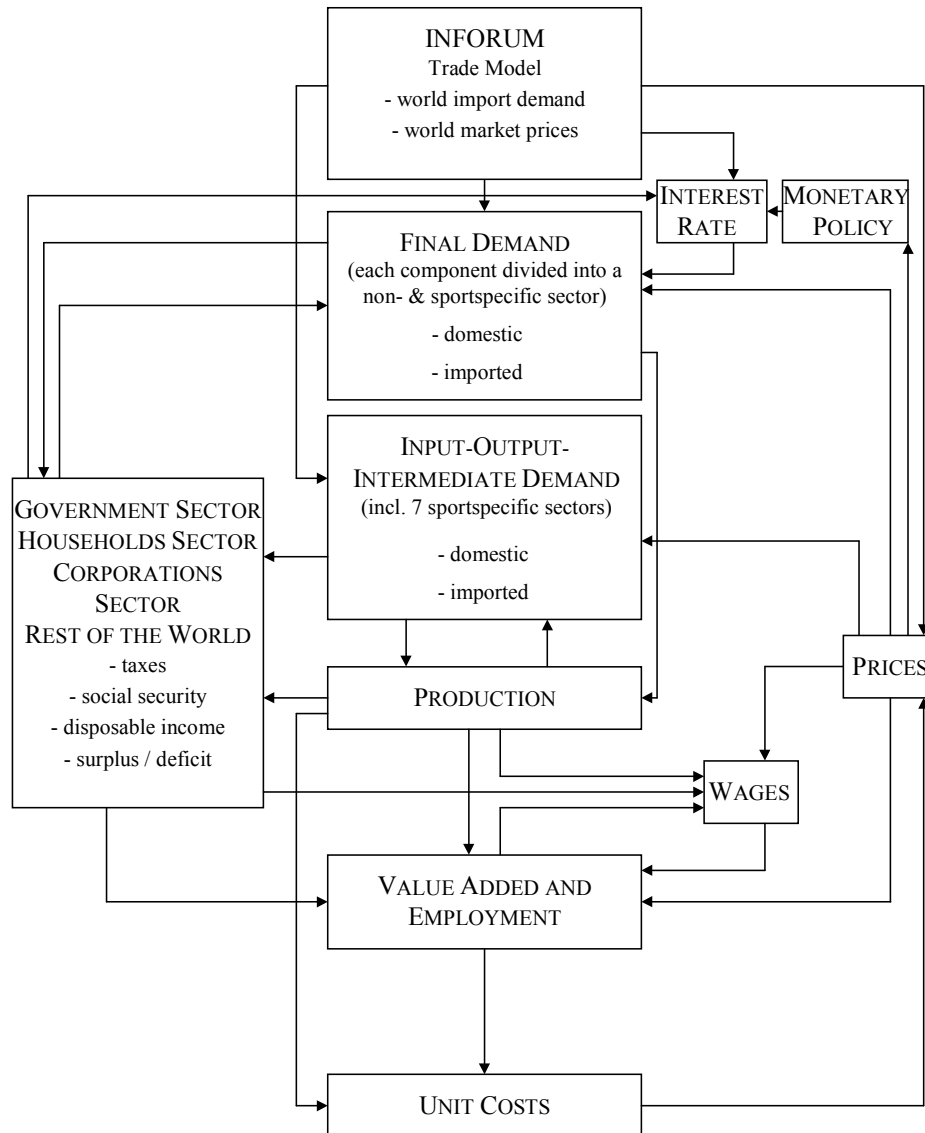


Figure 1: The structure of the model SPORT

For all intermediate inputs the model distinguishes deliveries from domestic production and imports. In general the input coefficients are variable and depend on relative prices and time trends. The most important determinants of employment are production and the real wage rate of the sector. Wage rates are estimated by productivity and prices. Profits and unit costs are given by definition. Unit costs of the product group and the prices of competing imports are the most important determinants of sectoral prices.

Besides the deeply disaggregated input-output account the model contains the SNA for Germany with the institutional transactors public households, private households, corporations and rest of the world and the functional transactors production, generation of income, distribution of income, redistribution of income, capital account and financial account. This system contains the whole income redistribution of social security and taxation between the government, private households and corporations and thus allows to calculate disposable income figures of public and private households, which are central determinants of final demand. Another important outcome of the SNA part of the model are the net lendings/borrowings of the institutional transactors, which have influence on the interest rates. Interest rates are further determined by the US rate of government bonds and monetary policy variables, which react on price signals.

The structure of the model has a high degree of interdependency. In addition to the common generation of income cycle interdependencies the model also includes volume-price interdependencies and wage-price interdependencies. Exogenously given are only some tax rates, labour supply and the world market variables of the international INFORUM system. Since INFORGE itself is part of the international system, the world market variables are also endogenous in a linked run of all models. The high degree of endogenization has the advantage, that in simulations the effects are depicted completely (Distelkamp et al. 2003).

The sport-economic activities are consistently implemented into the structure of the model. The system of equations for the seven additional sport-specific sectors has the same definitions like the non-sport-specific sectors. The national accounts are extended in the same way for sport-economic relations. Even the specific institutional organisation structure of sports - in Germany sport is especially organized by the the local government and non-profit sport clubs - is embodied (Ahlert, 1998). So besides the interindustry relations the income reactions and redistribution in the different sectors and among the sectors as well as the use of

income of the private households for the different goods and services has been extended for sport-economic activities. The model SPORT with its sport-economic extensions has been used for analyzing the economic impact of the FIFA World CupTM 2006 in Germany.

3. FIFA World CupTM Germany 2006

In the following some results of a simulation run with the model SPORT are presented. With a view to FIFA World CupTM 2006 in Germany data relating to the necessary capital expenditure during the pre-event phase as well as information regarding the visitors from abroad have been analysed for constructing the scenario.

3.1. The scenario

The scenarios formulated under the model calculations are partly referring to selected results of the official investigation on the football world championship by the German football league association¹ of 1998 (RAHMANN et al. 1998, Ahlert 2001). Due to the great importance of soccer in Europe, the framework of the simulations made here considers the optimistic evaluation of the number of visitors. This is reflected by the results of the utilization of stadium seats for the soccer tournaments in Europe during the last decade (EURO 1988 in Germany 96 %, EURO 1996 in Great Britain at 90 % or the World Cup 1998 in France at 88 %; Rahmann et al., 1998). With a capacity of 90 %, more than 1.1 million foreign visitors including sport journalists are expected. According to their estimate, approx. 906 million € will be spent by the foreign spectators of the FIFATM World Cup in Germany in the year of the event. This consumption expenditure is to be considered as demand from abroad for home products and services. The complete spendings of the foreign World Cup visitors are based on the spendings of an average World Cup tourist for travel, entertainment, catering etc. and are a

¹ German abbreviation: DFB

foreign demand for German goods and services. The short-term rise in consumption for the various commodities during the 4 weeks of the event will not only be spread over the 10 World Cup locations, the spendings of the foreign visitors will be spent to a large amount nation-wide, too (for example public transport, fuel, hosting or catering).

The residents' consumption expenditure relating to sports which is expected to be increased has not been considered in the model calculations since this expenditure will only result in a regional redistribution of income in favour of the region where the event takes place. Furthermore, internal model calculations have shown that the residents' additional consumption expenditure relating to sports do not inevitably have overall economic effects. These effects are determined by the rate of saving assumed as well as by the alternative consumption structure resulting from substitution processes. There is certainly a lot which speaks for a reduction in savings to finance the increased expenditure on sport-specific consumer goods, but its amount can hardly be determined. The net effect on the German economy will only be positive if the national marginal propensity to consume increases - at least during the staging of the World Cup.

From an overall economic point of view another interesting item is the total capital expenditure to be expected for the building and extension of the football stadiums respectively. Table 2 shows the building costs incurred as well as their financing and the year of completion. It shows that approx. 1.4 billion € will be invested in the new building or rebuilding of the stadium infrastructure at the 15 potential venues in the period from 2001 to the year 2006 when the football world championship will be held (DFB 2001). The respective financing plans reveal a variety of models, the dominating model besides public funds are credits. Only in Dusseldorf and Munich private investors and the two Munich football league clubs respectively will contribute to the financing on a large scale.

Table 2: Application cities for hosting the FIFA™ World Cup

| applicant city | seats | building costs -state 10/2001- (in mill. €) | financing | | | | | | | | completion | |
|-----------------|--------|---|--------------------------|------------------|-------------------------|--|-----------|-------------|---------------------|--------------------|------------|------|
| | | | national state / city | federal state | federal state / city | guaranteed by public authorities | bank loan | soccer club | private investor | stadium company | | |
| Berlin | 76.000 | 242,0 | 196,0 | / | / | 46,0 | / | / | / | 0,0 | / | 2004 |
| Bremen | 43.600 | 28,0 | / | / | 12,7 | / | / | / | / | 15,3 | / | 2003 |
| Dortmund | 60.000 | 36,0 | / | / | / | / | / | / | / | / | 31-36 | 2004 |
| Düsseldorf | 51.500 | 184,0 | / | / | 63,9 | / | / | / | / | 116,1 | / | 2004 |
| Frankfurt | 48.000 | 126,0 | / | 20,5 | 64,0 | / | 41,5 | / | / | / | / | 2005 |
| Gelsenkirchen | 52.100 | 192,0 | / | / | 0,0 | / | 136,5 | 12,8 | 9,0 | 33,8 | 33,8 | 2000 |
| Hamburg | 50.000 | 97,1 | / | / | 11,0 | / | 70,0 | / | / | 16,0 | 16,0 | 2001 |
| Hannover | 45.000 | 61,0 | / | / | 21,0 | 20,0 | 20,0 | / | / | / | / | 2005 |
| Kaiserslautern | 48.500 | 48,3 | / | 21,7 | 7,7 | / | / | 18,9 | / | / | / | 2003 |
| Köln | 45.000 | 110,0 | / | / | 25,5 | / | 61-66 | / | / | / | 20-25 | 2004 |
| Leipzig | 44.000 | 90,6 | 63,2 | / | / | / | / | / | / | / | 27,4 | 2004 |
| Mönchengladbach | 43.000 | 87,0 | / | / | / | 43,5 | 35,8 | 7,7 | / | / | / | 2004 |
| München | 66.000 | 280,0 | / | / | / | / | 220,0 | 60,0 | / | / | / | 2005 |
| Nürnberg | 45.500 | 56,0 | / | 28,0 | 28,0 | / | / | / | / | / | / | 2005 |
| Stuttgart | 60.000 | 56,0 | / | / | 41-56 | / | / | / | / | / | / | 2004 |

Source: Deutscher Fussballbund (DFB), host cities, own calculations.

With regard to the supposed investments it has been assumed that the money already invested in the newly built or modernised soccer stadiums in Gelsenkirchen and Hamburg by the end of the year 2001 will not be considered. Furthermore the stadiums in Berlin, Bremen, Cologne, Kaiserslautern and Leipzig have been considered in the calculation only proportionally.¹ In order to simplify the calculation it has been assumed that the remaining hosting cities will invest more than 225 million € per year to rebuild and modernise the infrastructure of the stadiums in the years 2002 to 2006 (see table 2). It has been assumed that this are financed by additional borrowing on the part of the private sector as well as the public authorities. It had also to be considered that only 12 applying cities were nominated by the DFB as venues.

The investments in the infrastructure of the stadiums are of course not only done with regard to the FIFA™ World Cup being held in 2006. There is, however, a competition within the German football league regarding the most favourable conditions in the stadiums for the players, sponsors, media facilities and spectators. Furthermore, especially clubs and sponsors have a special interest in ultra-modern football arenas.

¹ The results presented in this article were calculated by means of the simulation model SPORTS in the summer of 2001.

Table 3: Investments in the infrastructure of the stadiums and consumption expenditure of the spectators from abroad in the year of the FIFA™ World Cup
- data in million € at current prices -

| | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|-----------------------------------|------|------|------|------|------|------|------|------|------|
| World Cup stadium investments | 225 | 225 | 225 | 225 | 225 | / | / | / | / |
| Consumption of World Cup tourists | | / | / | / | 906 | / | / | / | / |

Source: Deutscher Fussballbund (DFB), own calculations.

The following analysis is not focussed on the profitability of stadiums as single businesses but on the profitability of the FIFA™ World Cup in the context of the national economy.

Within the framework of this simulation, the funding of investments for sport infrastructure to the amount of 1.125 bill. € in the years 2002 to 2005 will be made through an increased raising of public net borrowing. Moreover it is presumed that the additional public investments in sport infrastructure will not result in a displacement of private investments. With regard to the relatively low investment volume (less than 0.3 % of overall national investment) this seems to be a realistic hypothesis, above all because the yearly investments are distributed to the 12 hosting cities of the World Cup and the various goods producing sectors of economy.

Looking at the investment and the consumption impulse in a macroeconomic perspective it must be pointed out that not only is the direct impulse for the German economy relatively small (less than 0.3 % of overall investment or 0.06 % of overall private consumption, respectively). Besides this these small direct impulses are spread nation-wide over many sectors of economy. Probably many people will not directly assign the additional revenues to the World Cup. That is the reason why the same parameters of the model that were estimated are used in the simulations for this “one-time“ shock FIFA™ World Cup.

3.2. The overall macroeconomic impact

The following discussion shows some simulation results using the SPORT-model. As opposed to the results of the World Cup study, the induced production and price effects of the additional impulses to demand can be found model-endogenously through the dynamic SPORT-model, whereby all possible stimuli, promotion and feedback effects are considered (Rahmann et al. 1998). The results will be shown as deviations from the base solution for the forecasted period. The base calculated by the SPORT model suggests a continuation of the behavioural patterns observed in the past.

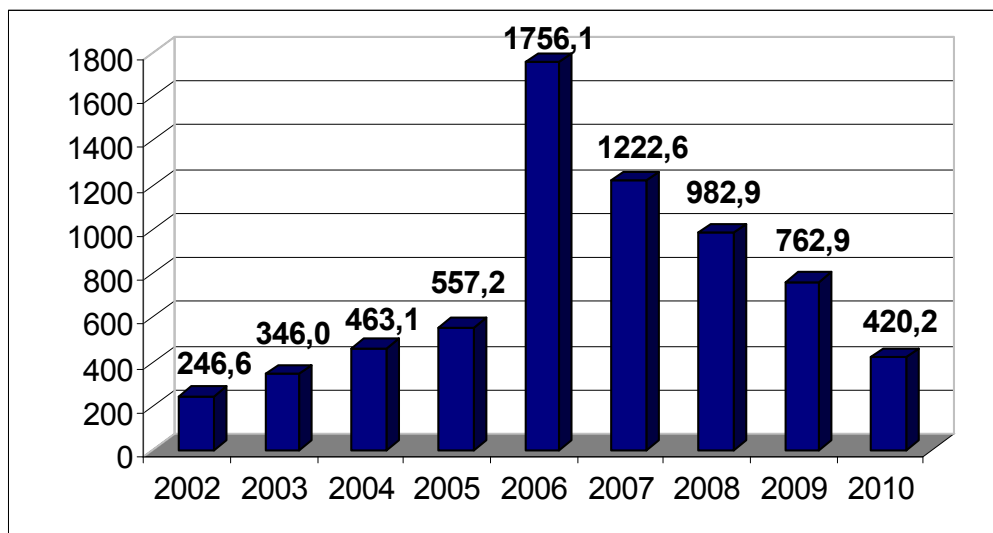


Figure 2: Change of GDP as a result of staging the FIFA™ World Cup Germany 2006 - deviations from the base solution in bill. € at current prices -

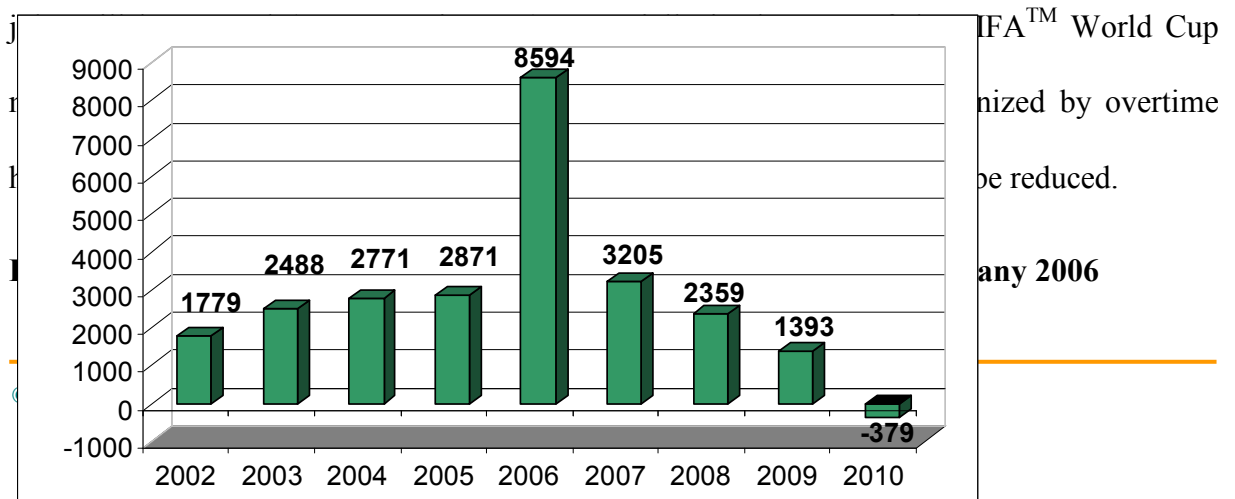
Figure 2 shows that the overall effect is positive for the gross domestic product (GDP) during the whole period of the simulation from 2002 to 2010. Despite a contractive financial effect of the credit funded public investments in the World Cup infrastructure caused by a marginal increase in the interest rate, the GDP will develop positively. The GDP will increase by 246 mill. € in 2003 as compared to the base and will be about 420 mill. € higher at the end of the forecast period in the year 2010. During these years - on account of expanding multiplying effects - there will be a considerably higher increase in the GDP, especially in the year of the World Cup. In comparison to the base in 2006 the GDP will increase by more than 1.756 bill.

€ especially caused by the demands for goods by foreign World Cup tourists. This is about 0.7 % of the predicted GDP for the year 2006.

The increasing investments generate growing wages and profits through an expansion of production within the economy, and thus inducing further investments and increased private consumption. Private consumption will develop dynamically over the whole period of simulation. In the years 2002 to 2005, it will be stimulated by rising income resulting from positive multiplying effects of the public investments in sport infrastructure. In the following years, there will be positive income effects caused by the additional foreign demand for consumer goods for the year 2006. Due to the manifold multiplying links of the economic cycle, this additional demand will generate directly and indirectly a noticeable additional demand in the following years.

The considerable increase in the GDP caused by the additional sport-specific investments (pre-event-phase) or expenditures of the World Cup tourists (event-phase) is, however, not limited to the sport-specific sectors of economy. Even from the beginning of 2003, the expanding effects will radiate very much to the non-sport-specific sectors of the whole economy.

The rise of GDP during the whole simulation period for more than 6.7 bill. € will create additional employment. All in all there will be positive effects on employment over the whole forecast period. Almost 2.8 thousands jobs - an annual average in full-time-equivalents - will be additionally created each year. In the year of the World Cup even more than 8.5 thousand



Obviously the presentend results are a rough estimate of the overall national effects. A more specified scenrio - which takes account of the actual FIFA™ World Cup Germany 2006 planning stage - should be calculated. Such calculations have been done last year in the run-up to the German application to host the Olympic Games 2012 (Ahlert 2004b).

4. The model LANDER coupled with the model INFORGE/SPORTS

In the following it will be explained how the overall macroeconomic effect on the national level could be spread out over the individual federal states (in German: Lander) to the regional level. For this purpose the macroeconomic results of the model INFORGE/SPORTS will be analysed by means of the model LANDER specially developed for these tasks.

Due to the fact that the features of each federal state are explicitly considered in the structure of the model it is possible to analyse all of the 16 federal states individually. The model LANDER includes both information from the macroeconomic model INFORGE as to Germany as a whole (prices, wages, employees, gross value added) as well as specific information on the individual federal states aggregated according to the 11 industries. The data of the model LANDER are based on the national accounts of the federal states. For each of the 11 aggregated industries of each federal state there are, among others, data on wages, the gross product and the employment collected for specified time intervals.¹

Table 4: The industries of the model LAENDER

| | |
|---|---|
| 1 | agriculture, forestry & fishery |
| 2 | energy & water supply, mining |
| 3 | manufacturing industry |
| 4 | construction industry |
| 5 | commerce |
| 6 | transport & communications |
| 7 | financial institutions & insurance industry |
| 8 | housing industry & renting |

¹ Individual, dynamic multiplier models – the size of the multiplier varies over the time – have been developed within the model LANDER for each federal state.

- 9 other services
 - 10 state
 - 11 private households and non profit organizations
-

The model LAENDER is connected with the model INFORGE and serves to forecast the structural change on the level of the 16 German federal states. The total system INFORGE & LANDER is designed in a manner that full congruence is guaranteed with the information given in the overall macroeconomic model INFORGE about Germany as a whole. This model does not only allow to forecast the stimuli for the 16 states emanating from the overall economic development but also to assess the effects on the structure of every single federal state with regard to 11 aggregated industries each (see Table 4).

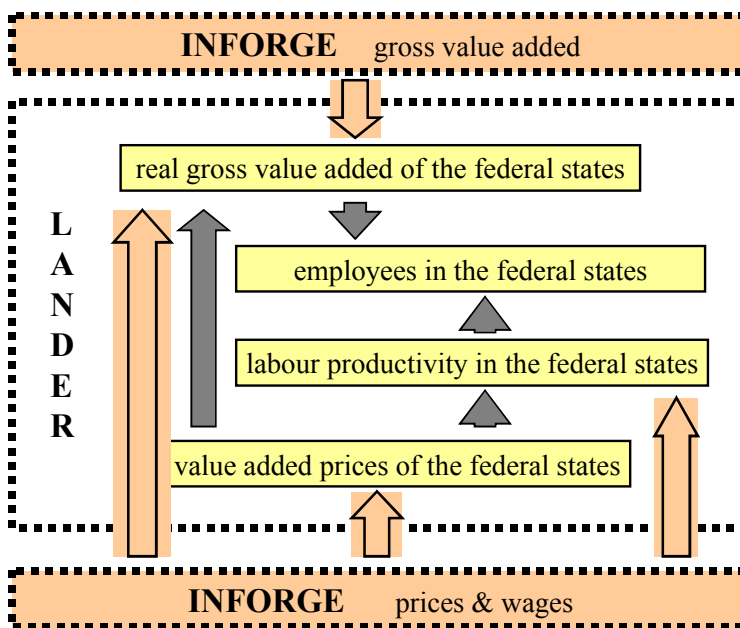


Figure 4: The structure of the model LANDER

Due to its specific structure, the model LANDER can reveal the differences between the federal states by means of simulation studies. The model makes it possible to analyse the development of the states by simulating different scenarios. Besides that additional information relating to the individual federal states can be considered. LANDER forecasts the

following factors separated according to the 11 industries for all of the 16 states: number of employees, wages, productivity, gross value added at current and constant prices.

5. Regional economic effects of FIFA World Cup™ Germany 2006

Concerning the above mentioned simulation results for the overall lever in the following it will be shown how these effects on income and employment can be adapted to the regional levels of the individual federal states by using the model LANDER.

By means of the model INFORGE/SPORTS it is possible to thoroughly represent the direct and indirect effects of such an event on income and employment in deep sectoral detail.

Furthermore it has to be taken into account that the venues of FIFA World Cup™ Germany 2006 are not evenly spread over the German ground. There are only 12 staging cities (comp. Table 7). Nonetheless the question arises to what extent the effects on income and employment are in fact evenly spread over the federal states. It can of course be expected that the effects will partly be confined to the venues e. g. in case of the money directly spent by the sports tourists at the venues or the necessary capital expenditure in the pre-event phase. According to the model calculation, the direct, primary stimuli would be attributed to the venue whereas the indirect effects calculated by means of INFORGE/SPORTS would have to be adapted to regional level by the model LANDER.

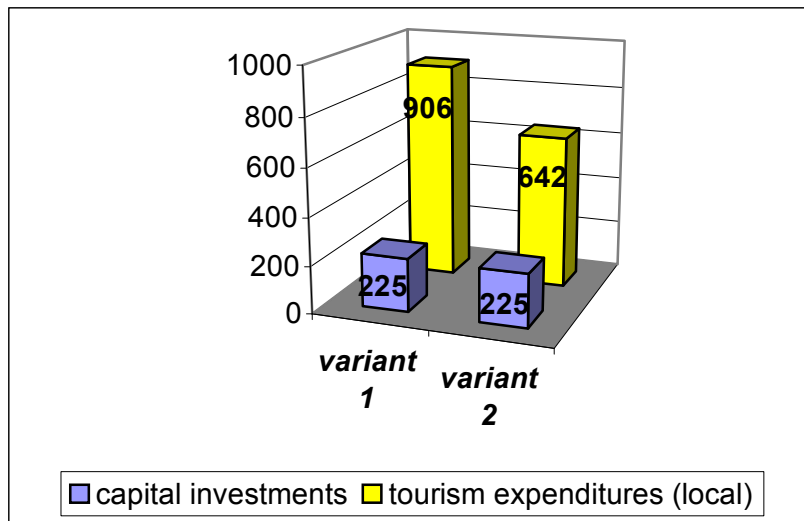


Figure 4 The primary stimulus in the year 2006 reduced by the expenditure which are spread over all federal states [transport costs, mineral oil etc.]
- deviations from the base solution in mill. € at current prices -

In the following two variants of how to adapt the data to regional level will be presented. In the first variant the primary stimulus is exclusively attributed to the region surrounding the venue whereas the indirect effects on the income are spread over the 16 federal states according to the structural relations identified by means of the model LANDER. In contrast to this procedure, the second variant assumes that only those tourist expenditure of the primary stimulus which are closely related to that region, as e. g. the money spent by the foreign spectators in the hotel and restaurant business, have effects on the income in the region of the venue. Figure 4 contrasts both variants of the attribution of the local expenditure for the year 2006.

The two following tables show the results obtained by the model LANDER for the two different variants regarding the adaptation of the data to regional level. Table 5 separates the overall economic effect on the GDP in the two parts “direct regional effect on the GDP” and “indirect national effect on the GDP”.

Table 5: Effects on the GDP
- deviations from the base solution in mill. € at current prices -

| | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | total 2002 - 2010 | perc. share |
|-------------------------------|-------|-------|-------|-------|--------|--------|-------|-------|-------|----------------------|----------------|
| variant 1: | | | | | | | | | | | |
| total effect | 246,6 | 346,0 | 463,1 | 557,2 | 1756,1 | 1222,6 | 982,9 | 762,9 | 420,2 | 6757,6 | 100,0 |
| dir. regional effect | 225,0 | 225,0 | 225,0 | 225,0 | 1131,0 | 0,0 | 0,0 | 0,0 | 0,0 | 2030,9 | 30,1 |
| indir. national effect | 21,6 | 121,1 | 238,1 | 332,3 | 625,1 | 1222,6 | 982,9 | 762,9 | 420,2 | 4726,7 | 69,9 |
| variant 2: | | | | | | | | | | | |
| total effect | 246,6 | 346,0 | 463,1 | 557,2 | 1756,1 | 1222,6 | 982,9 | 762,9 | 420,2 | 6757,6 | 100,0 |
| dir. regional effect | 225,0 | 225,0 | 225,0 | 225,0 | 866,6 | 0,0 | 0,0 | 0,0 | 0,0 | 1766,5 | 26,1 |
| indir. national effect | 21,6 | 121,1 | 238,1 | 332,3 | 889,4 | 1222,6 | 982,9 | 762,9 | 420,2 | 4991,1 | 73,9 |

Source: own calculations.

Variant 1 lists as direct effects the yearly stadium investments for the years 2002 to 2006 amounting to 225 million € as well as the expected expenditure by the tourists from abroad of 906 million € in the year 2006. The second line of table 5 puts both categories together as “direct, regional effects”. Table 5 shows that on the pre-conditions of variant 1 as mentioned above the effect on the GDP is realised at the venues at 30 % only but is spread over the total Federal territory at approx. 70%. If, in contrast to that, the primary stimulus is more confined to the tourist consumption with its regional economic effects (see variant 2), only approx. one quarter of the effects, aggregated over the whole period of time, can be attributed to the regions of the venue whereas three quarters of the effects on the GDP are spread over the federal states. Table 6 finally gives a review of how the indirect effects are allocated to the GDP of the individual federal states for both of the variants calculated by the model LANDER. As a rule, the prospering federal states are also of greater weight here.

**Table 6 Impact of the indirect effects on the GDP of the individual federal states
- deviations from the base solution in mill. € at current prices –**

| | variant 1 | | variant 2 | |
|------------------------|----------------------|-------------|----------------------|-------------|
| | total 2002 - 2010 | perc. share | total 2002 - 2010 | perc. share |
| Baden-Württemberg | 628,5 | 13,3 | 660,3 | 13,2 |
| Bavaria | 784,0 | 16,6 | 819,7 | 16,4 |
| Berlin | 199,9 | 4,2 | 211,7 | 4,2 |
| Brandenburg | 92,1 | 1,9 | 102,1 | 2,0 |
| Bremen | 56,4 | 1,2 | 59,3 | 1,2 |
| Hamburg | 202,5 | 4,3 | 214,1 | 4,3 |
| Hesse | 484,0 | 10,2 | 506,2 | 10,1 |
| Mecklenburg-Vorpommern | 66,0 | 1,4 | 73,4 | 1,5 |
| Lower Saxony | 405,3 | 8,6 | 431,4 | 8,6 |
| North Rhine Westfalia | 1057,2 | 22,4 | 1100,5 | 22,1 |
| Rhineland Palatinate | 198,3 | 4,2 | 211,7 | 4,2 |
| Saarland | 56,3 | 1,2 | 59,1 | 1,2 |
| Sachsen | 168,8 | 3,6 | 188,9 | 3,8 |
| Saxony Anhalt | 91,7 | 1,9 | 102,6 | 2,1 |
| Schleswig-Holstein | 148,9 | 3,2 | 154,2 | 3,1 |
| Thuringa | 86,9 | 1,8 | 95,9 | 1,9 |

Source: own calculations.

From an overall economic point of view it has been appropriate not to consider the expenditure of the domestic spectators during the football world championship in this conservative estimate since other consumption expenditure are expected to be reduced accordingly. However, if these effects are analysed on regional level it may be expected that there is an additional demand at the venues and correspondingly a reduced demand at the residences of the domestic spectators.

6. Outlook

The paper at hand illustrates the wide scope of application of such model-based calculations. The special performance of the SPORT-model is the complete linkage of the national accounts to the input-output system and considering the sport-economic activities in detail.¹ Only this

¹ Due to the adaptation of the German System of national Accounts (SNA) to the European System of Accounts (ESA 95), calculations with the economic model SPORTS are not possible any more. This is especially due to the fact that the data for the model SPORTS collected from the satellite accounts for sports are not fully compatible any more because of the above-mentioned change to the ESA 95. On the other hand it is possible to use an updated INFORGE version in order to assess the overall economic effects of investments in favour of sports (cf. Ahlert 2004a) or of big sports events like the Olympic Games (Ahlert 2004b).

complex approach makes it possible to study the induced intertemporal production and price effects of the additional impulses to demand as they can be found model-endogenously through the SPORT-model.

It is obvious that the results presented for the FIFATM World Cup Germany 2006, as an example for big sports events, are only a rough estimate of the overall economic effects. It can be expected that a new calculation would show weaker overall economic effects due to the alterations in the economic statistics as well as the fundamental changes regarding the dynamism of the economic activity in the recent years. This is true especially with regard to the fact that the retarding growth which can currently be observed in Germany as a consequence of a strong consumers' resistance, the restrictive fiscal policy and an increasing pressure on the domestic goods and factor markets under the conditions of the globalisation affects the future dynamism of the development of the German economy.

Such calculations would of course have to consider the new event-specific facts. The capital expenditure as well as its respective allocation over the time could be more precise (comp. Table 7). Further there is now information available on the investments in public transport and media facilities due to staging the FIFA World CupTM in Germany. Such information makes it possible to distinguish between the event-related more sport-specific net effect and the event-related macroeconomic gross effect. Such calculations have been done in a study with view to the German application for the Olympic Games 2012 (Ahlert 2004b).

Table 7: Capital investments carried out at the venues of the FIFA™ World Cup Germany 2006

| host city | seats (FIFA WC 2006) | stadium (in mill. €) | of it public financed (in mill. €) | media facilities (in mill. €) | transport infrastructure (in mill. €) |
|-----------------------------|-------------------------|-------------------------|--|-------------------------------------|---|
| Berlin | 66.021 | 242,0 | 196,0 | 0,0 | 485,8 |
| Dortmund | 60.285 | 36,0 | 0,0 | 28,6 | 28,0 |
| Frankfurt | 43.324 | 126,0 | 84,5 | 0,0 | 53,3 |
| Gelsenkirchen ¹⁾ | 48.426 | 186,0 | 0,0 | 0,0 | 56,4 |
| Hamburg ¹⁾ | 40.226 | 104,7 | 11,0 | 0,0 | 1312,1 |
| Hannover | 39.297 | 64,0 | 44,0 | 0,0 | 304,4 |
| Kaiserslautern | 41.513 | 71,2 | 71,2 | 0,0 | 122,7 |
| Köln | 40.590 | 117,0 | 25,5 | 0,0 | 90,0 |
| Leipzig | 38.898 | 116,0 | 72,2 | 0,0 | 595,5 |
| München | 59.416 | 340,0 | 0,0 | 96,0 | 301,0 |
| Nürnberg | 36.898 | 56,2 | 56,2 | 0,0 | 30,0 |
| Stuttgart | 47.757 | 51,3 | 15,3 | 0,0 | 197,9 |
| TOTAL | 562.651 | 1510,4 | 575,9 | 124,6 | 3577,1 |

Source: Wegweiser GmbH (2004), OK FIFA World Cup 2006, own calculations.

It should also be checked whether the estimate of the tourist expenditure by the foreign spectators of the World Cup would have to be corrected with regard to the procedure of the sales of the tickets to the foreign visitors. The overall economic effects could be adapted to the regional levels more precisely, if besides the venues resp. locations where money is invested for the FIFA World Cup™ also the regional origin of the enterprises involved would be considered. In a similar manner, this also applies to the structure of the expenditure as well as the regional structure of the consumption expenditure by the foreign spectators of the World Cup. Actually such information is published in the German tourism satellite account and the tourism statistics of the Federal Statistical Office (Ahlert 2003, Ahlert 2004c).

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