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## **EURO 2012 in Poland – facts and myths about its importance for the development of the host regions in the context of the counterfactual analysis<sup>4</sup>**

### **Abstract**

In April 2007 UEFA's Executive Committee announced that the 2012 European Football Championship, commonly referred to as EURO 2012, will be hosted by Poland and Ukraine between 8 June and 1 July 2012. The UEFA's decision gave rise to expectations that the organization of such a prestigious international sports event would be a great opportunity to improve the tourist and investment attractiveness of the host regions. It was primarily expected that EURO 2012 tournament will speed up building and modernization of transport, sports and touristic infrastructures which -in turn- will spur economic development of the Polish host regions. The main aim of this paper is to present the quantitative impact of public investments and tourist expenditures associated with EURO 2012 on the development of the four Polish host regions (NUTS-2)- Dolnośląskie, Mazowieckie, Pomorskie and Wielkopolskie. The analysis is conducted using the regional HERMIN models and concentrates on such macroeconomic indicators as GDP and employment. The research period is 2008 (beginning of investment)-2025 in order to derive both short-term (demand-side) and long-term (supply-side) effects. The results are compared and confronted with the analogues effects for other European regions in order to present the role of such events in the regional development.

JEL codes: R11

### **Introduction**

The UEFA European Football Championship (EURO) is the third largest, after the Olympic Games and the Football World Cup, mass sporting event organised since 1960. It is held every four years in one or two countries of the Old Continent. The host is selected through a so called bidding process. On 16 December 2004 the Union of European Football Associations (UEFA) invited all its then members to submit their bids to host the EURO 2012 tournament. The final decision who would host the 2012 European Football Championship was made on 18 April 2007. Two candidate states were selected: Poland and Ukraine, which had bid for the first time to organise such a large-scale sporting event. This selection was one of the most surprising and risky decisions of the UEFA Executive Committee.

Initially, the UEFA European Football Championship was not a big organisational challenge, since it was as late as 1980 that 8 teams participated in the tournament, while in 1996 this number increased to 16. Nevertheless, the UEFA did not take any risk in selecting the host and countries with a stable economic situation and an established position in the football world were usually selected: France 1960, Spain 1964, Italy 1968, Belgium 1972, Yugoslavia 1976 (which slightly differed from the rest of the socialist countries), Italy 1980, France 1984, Federal Republic of Germany 1988, Sweden 1992, England 1996, Belgium and Netherlands 2000. It was only the selection of Portugal to host the 2004 event that entailed more serious

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organisational problems (10 new stadiums were constructed specially for the Championship, 2 more than the UEFA requires) which Portugal ultimately managed to overcome and everything was ready on time. The success of Portugal appears to have influenced the outcome of the bidding process and the selection of Poland and Ukraine to host EURO 2012.

The results of the studies on the impact of the organisation of such large-scale sporting events show both positive and negative economic effects for the respective host countries/regions [Langalis 2012; Borowski 2010]. The following can be mentioned among the benefits:

- An increase in (acceleration of) investment in transport infrastructure (roads, railways, airports, urban transport), which in the short term causes an increase in global demand, while in the long term – an increase in production capacity of a particular region and its enhanced investment attractiveness to investors, including transnational corporations;
- An increase in expenditure on sports infrastructure and accommodation facilities and, in effect, enhanced tourist attractiveness of a given region and an increase in the number of tourists and in tourist consumption in the long run (in the case of the 1992 Olympic Games in Barcelona the inflow of foreign tourists and their spending in the next years after the end of this sporting event were so large<sup>5</sup> that this effect was named the “Barcelona effect”<sup>6</sup>);
- Increased productivity of the economy resulting from the quantitative and qualitative improvement in the state of its infrastructure (in particular transport infrastructure);
- Promotion of the region in the international arena.

The negative consequences of hosting prestigious sporting events included the following:

- An increased deficit in the budget of the event (the organisation of the 1976 Olympic Games in Montreal resulted in a deficit of \$2,5 billion which the host city managed to pay off completely 30 years later; the 2006 World Cup in Germany ended with a deficit of nearly €10 billion; the Russian city of Sochi plans to spend an astronomical amount of \$30 billion on the organisation of the Olympic Games and this will make the 2014 Winter Olympic Games the most expensive sports event in history<sup>7</sup>);

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<sup>5</sup> Over a period of five years, Barcelona managed to achieve such an increase in tourism revenue that under normal circumstances this city would have to work for three decades to attain it.

<sup>6</sup> „Efekt olimpijski to mit, czyli dlaczego Euro 2012 może nam wyjść bokiem”; <http://pieniadze.gazeta.pl/Gospodarka/0,0.html>

<sup>7</sup> There is a common conviction that one should not save on the organisation of an event of such importance, since it will bring more harm than good. [„Efekt olimpijski to mit, czyli dlaczego Euro 2012 może nam wyjść bokiem”; <http://pieniadze.gazeta.pl/Gospodarka/0,0.html>]

- The absence of a permanent positive impact on the labour market (after the 2010 World Cup in South Africa unemployment remained at 40 percent; 23 000 people found jobs in connection with the organisation of the World Cup in Germany six years ago but most of them lost their jobs right after the end of the tournament [Łangalis 2012]);
- Decreased interest of traditional tourists (not being football fans) in visiting the host cities during the sporting event, the so-called crowding-out effect, which is mainly due to the fear of high prices and lack of accommodation (the experience of Atlanta during the 1996 Summer Olympic Games and of the Portuguese region Algrave during EURO 2004 [Łangalis 2012]).

Thus, the final assessment of costs and benefits of hosting a sporting event can be different for different host countries/regions. This assessment is affected, among others, by the state of infrastructure (sports, transport and tourist infrastructure) of a given country/region<sup>8</sup> and necessary costs to bring it in line with the requirements of the organisers of the events. The amount of revenue attributable to the additional inflow of tourists is also important.

This article is an attempt to investigate short-and long-term (until 2025) impact of the implementation of infrastructure investment related to the organisation of EURO 2012 and of short-term revenue from tourist spending during the tournament on the economies of Poland's four NUTS-2 regions in which football matches were played during EURO 2012 – notably, Dolnośląskie, Mazowieckie, Pomorskie, and Wielkopolskie<sup>9</sup>. This analysis does not include revenue from the official and national sponsors, revenue from the sale of football match tickets and from TV rights to broadcast football matches, since this revenue goes into the UEFA coffers. Expenditures financed by the UEFA associated with the organization of this sporting event<sup>10</sup> have been excluded from the analysis.

The analysis was conducted using the regional HERMIN models [Bradley 2007; Mogiła 2012; Tomaszewski 2011] and concentrated on such macroeconomic indicators as GDP and employment. The research period was from 2008 (the beginning of investment) to 2025 in order to derive both short-term (demand) and long-term (supply) effects. The results were

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<sup>8</sup> In this respect, the predecessors of Poland and Ukraine hosting the European Football Championships were in a better position. As far as road and tourist infrastructure is concerned, Portugal, Austria and Switzerland (the hosts of EURO 2004 and EURO 2008) were already developed countries during the preparation period and did not need to incur high investment costs necessary to organise this type of events. Austria and Switzerland already had the stadiums and only Portugal had to build them, but this country had a highly developed system of roads and motorways. In the case of Poland, it was necessary both to construct the stadiums and to develop and upgrade the transport system.

<sup>9</sup> It should be stressed that this article was written during the Championship and therefore many pieces of information used in this study were only estimates. After the end of EURO 2012, all information will be thoroughly reviewed and the present study will be supplemented with additional data that were unavailable at the time when the simulations were carried out.

<sup>10</sup> Those expenditures are usually connected with: stadium rental, security services, marketing and other organizational activities.

compared and confronted with the analogous effects for other European regions in order to present the role of such events in regional development.

The structure of this article is as follows: the introduction is followed by an analysis of the experience of the previous organisers of the UEFA European Football Championships with respect to the effects of the implementation of infrastructure investment related to the tournament and tourism revenue. The next section describes investment expenditure incurred in connection with the organisation of EURO 2012 in the 4 host Polish regions and estimated revenue from tourist spending, whereas the third part contains an analysis of the impact of these 2 elements on the economies of the regions in question. The last part includes a summary and the main conclusions.

### **The impact of the UEFA European Football Championship on the economy – the experiences of other regions**

The example of the 2004 UEFA European Football Championship in Portugal (EURO 2004) is interesting in the context of the present study, because during the period of preparation for the tournament the level of development of Portugal was more similar to the present situation of Poland than it was in the case of other host countries<sup>11</sup>.

The EURO 2004 Championship was played in 4 regions (NUTS 2) of Portugal – Norte, Algarve, Centro, and Lisboa. The basic characteristics of these regions are presented below – they illustrate the state of their economy 2 years before the start of the Championship.

**Table 1. Some indicators characterising the EURO 2004 host regions: Norte, Algarve, Centro, Lisboa, relative to Portugal, Poland and EU-27 (2 years before the start of the Championship).**

	2002				Portugal	2010	2002/2010
	Norte	Algarve	Centro	Lisboa		Poland	EU-27
<b>Population [millions]</b>	3,67	0,39	2,34	2,69	10,33	38,17	484,6/ 501,1
<b>Area [km<sup>2</sup>]</b>	21 280	4 990	28 179	2 865	91 947	312 679	4 403 357
<b>Population density [person/km<sup>2</sup>]</b>	172,3	78,3	83,0	938,0	112,3	122,1	110,1/ 113,8
<b>GDP per capita [euros]</b>	10 900	15 000	11 300	19 100	13 600	9 300	20 500/ 24 400
<b>Gross value added (GVA) [million euros]</b>	35 009	5 180	23 277	44 990	122 853	312 292	8 906 946/ 10 965 400
<b>Unemployment rates acc. to LFS (aged 15+) [%]</b>	4,9	5,2	3,1	6,8	5,0	9,6	9,0/ 9,6
<b>Employment acc. to LFS (aged 15-64) [thousands]</b>	1 721	182,3	1 123,5	1 261,3	4 811,7	15 718,9	196 469,5/ 212 994,4
<b>Employment rate acc. to LFS (aged 15-64) [%]</b>	68,4	69,2	73,1	67,6	68,8	59,3	60,8/ 64,1
<b>Number of non-residents [millions]</b>	0,7	1,5	0,6	1,8	5,6	4,1	-

<sup>11</sup> In the case of Portugal, GDP per capita 2 years before the start of the European Football Championship was at a level of 80% (EU=100), while in the case of Austria and Switzerland (Euro 2008 hosts) it was 126% and 134%, respectively, and in the case of Belgium and Netherlands (Euro 2000 hosts) - 123% and 128%, respectively. In the same period, this indicator for Poland was 63% [source: Eurostat].

<b>Number of overnight stays of non-residents [millions]</b>	1,6	11,9	1,3	4,9	25,1	10,1	871,8/ 902,7 <sup>12</sup>
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Source: Eurostat and Portuguese Official Statistics.

As shown in Table 1, in general terms all the EURO 2004 host regions were characterised by large differences in terms of population density 2 years before the start of the Championship, lower GDP per capita values in relation to the EU average (though they were higher compared to the values of this indicator for Poland) as well as a higher level of the employment rate compared to the EU average and Poland's average.

The organisation of EURO 2004 in Portugal required the construction/upgrade of 10 stadiums, the construction of roads to these stadiums, and the construction/modernisation of the sports and commercial facilities within the stadiums. The total value of EURO 2004-related infrastructure investment was €964,4 million (0,79% of national GVA in 2002) – a detailed breakdown of expenditure by region and by particular investment group is shown in Table 2. It is only worth indicating that the relatively highest amount of funding was invested in the region of Norte (1,27% of GVA) which was spent on, among others, the construction of 4 stadiums (Table 3). On the other hand, investment expenditure in the region of Lisboa (which included, among others, the cost of construction of 2 stadiums) was the lowest, since it was slightly less than 0,63% of GVA.

**Table 2. Total EURO 2004-related investment expenditure by region (million euros).**

	Norte	Centro	Lisboa e Vale do Tejo	Algarve	Total
<b>Investment in stadiums and car parks</b>	283,5	148,8	210,6	38,0	680,8
<b>Investment in access roads</b>	117,4	22,3	22,4	4,1	166,2
<b>Other investment</b>	43,2	21,4	48,6	4,4	117,5
<b>Total investment</b>	444,0	192,4	281,6	46,4	964,4
<b>Total investment [% of GVA in 2002]</b>	1,27	0,83	0,63	0,90	0,79

Source: Avaliacao do Impacto Economico do EURO 2004. Relatorio Final, Instituto Superior de Economia e Gestao, Universidade Tecnica de Lisboa, Novembro 2004, and the authors' calculations.

**Table 3. The number of stadiums constructed/upgraded in connection with EURO 2004 and the number of football matches played in the particular regions during the tournament.**

	Norte	Lisboa	Centro	Algarve
<b>Number of stadiums</b>	4	2	3	1
<b>Number of matches played</b>	12	10	6	3

Source: <http://www.uefa.com>

The impact of the above-mentioned investment expenditure on the development of the EURO 2004 host regions was estimated using a multi-industry model of the Portuguese economy based on an input–output table<sup>13</sup>. The results of this simulation are presented in Table 4.

<sup>12</sup> According to the data from 2003 and 2009.

**Table 4. The impact of EURO 2004-related infrastructure investment by region in 2002-2004.**

	2002-2004 total			
	Norte	Centro	Lisboa e Vale do Tejo	Algarve
<b>Increase in EURO 2004-related output (million euros/year)</b>	877,5	380,4	556,5	91,8
<b>Employment related to increase in output (person/year)</b>	18122	7853	11493	1895
<b>Gross value added (million euros/year)</b>	319,4	138,4	202,6	33,4
<b>Wages (million euros/year)</b>	170,6	73,9	108,2	17,8

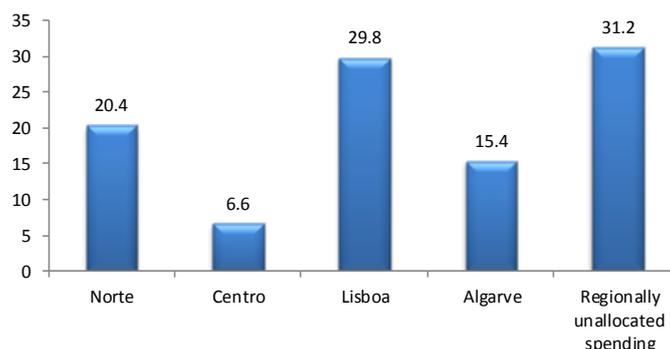
Source: Avaliacao do Impacto Economico do EURO 2004. Relatorio Final, Instituto Superior de Economia e Gestao, Universidade Tecnica de Lisboa, Novembro 2004.

The analysis of Table 4 allows us to find that EURO 2004-related investment had a positive impact on the economies of all the host regions. The greatest benefits in absolute terms (an increase in output, employment, value added and wages) were gained by the regions in which the nominal value of investment expenditure was the highest. Thus, the strongest effects of the above-mentioned investment were observed in the region of Norte, while the smallest ones in the region of Algarve. One can conclude that infrastructure expenditure increased the regional gross value added by, respectively, 0,91% in Norte, 0,64% in Algarve, 0,59% in Centro, and 0,45% in Lisboa. In the case of employment, these results were at a level of 1,05% in Norte, 1,04% in Algarve, 0,70% in Centro, and 0,91% in Lisboa. It is also worth adding that the additional increase in output in the particular regions was almost twice higher than the total cost of investment. As far as GVA and wages are concerned, the above-mentioned cost was in turn higher than the generated profits by 30% and 70%, respectively.

The organisation of EURO 2004 had also an effect on the tourist industry. In accordance with the estimates, total tourism revenue generated during the tournament (spending of non-residents, revenue from EURO 2004-related excursions organised for football fans, spending of the UEFA members and national football teams) was €103,4 million (0,08% of national GVA in 2002) – a breakdown of this amount into the particular regions is presented in Figure 1.

<sup>13</sup> A detailed description of the model is presented in the report “Avaliacao do Impacto Economico do EURO 2004. Relatorio Final”, Instituto Superior de Economia e Gestao, Universidade Tecnica de Lisboa, Novembro 2004.

Fig. 1. Total EURO 2004-related tourism revenue by region (million euros).



Source: Authors' calculations based on "Avaliacao do Impacto Economico do EURO 2004. Relatorio Final, Instituto Superior de Economia e Gestao, Universidade Tecnica de Lisboa, Novembro 2004".

The regions of Lisboa and Norte, where at the same time the largest number of matches were played (10 and 12, respectively), generated by far the highest tourism revenue. A major part of regionally unallocated spending includes expenditure of the organisers of the tournament, which was mostly made in Lisbon. The estimated impact of additional EURO 2004-related tourism revenue on the level of output, GVA, employment and wages in the particular regions is shown in Table 5. The analysis of the obtained results demonstrates that in nominal terms the region of Lisboa derived the greatest economic benefits due to the increased demand for tourist services (whereas the region of Norte gained the most on the implementation of infrastructure).

Table 5. The impact of the increase in EURO 2004-related tourism revenue in the particular regions.

	Norte	Centro	Lisboa e Vale do Tejo	Algarve	Regionally unallocated spending
<b>Increase in output (million euros)</b>	36,3	11,8	52,9	27,4	55,4
<b>Employment related to increase in output (persons)</b>	897	292	1310	678	1370
<b>Gross value added (million euros)</b>	16	5,2	23,4	12,1	24,4
<b>Wages (million euros)</b>	8,1	2,6	11,8	6,1	12,3

Source: Avaliacao do Impacto Economico do EURO 2004. Relatorio Final, Instituto Superior de Economia e Gestao, Universidade Tecnica de Lisboa, Novembro 2004

EURO 2008, which was co-hosted by Austria,<sup>14</sup> can be another example of the effects of the European Football Championship on the economy. This country, due to its well-developed network of railway and road connections, suitable to handle an increased number of tourists travelling from the airports, well-developed ICT infrastructure, etc., made the largest investments to refurbish and modernise the stadiums during the preparations for the Championship<sup>15</sup>. The EURO 2008 tournament was held in 4 Austrian regions (NUTS 2): Vienna, Carinthia, Salzburg, and Tyrol. The most important data on EURO 2008-related investment expenditure, tourism revenue and economic benefits derived from the organisation

<sup>14</sup> Switzerland was the other co-host.

<sup>15</sup> Additional projects regarding preparations for EURO 2008 included primarily lengthen of the section of the U2 in Vienna; individual communication and improvement in access to the public transportation.

of the tournament in the particular regions are shown in Tables 6 and 7 (the tourism data are estimates).

**Table 6. Some data on EURO 2008 in Austria.**

	Investment in stadiums [million euros]	Number of stadiums	Number of matches played	Tourism revenue [million euros]
<b>Vienna</b>	17,96	1	7	227,7 - 348,5
<b>Carinthia</b>	59,35	1	3	74 - 128,8
<b>Salzburg</b>	27,7	1	3	65,5 - 97,7
<b>Tyrol</b>	30,82	1	3	60,8 - 91,3

Source: Helmenstein Chr., Kleissner, A. Volkswirtschaftliche Effekte der UEFA EURO 2008 in Österreich, Wien, Mai 2008; <http://www.uefa.com>.

**Table 7. The impact of investment in stadiums and EURO 2008-related tourism revenue in the particular regions of Austria<sup>16</sup>.**

	Total impact of investment in stadiums (direct, indirect and induced <sup>17</sup> )		Total impact of tourist demand (direct, indirect and induced) <sup>18</sup>	
	Value added [million euros]	Employment <sup>19</sup> [jobs]	Value added [million euros]	Employment <sup>20</sup> [jobs]
<b>Vienna</b>	13,57	265	146,27 - 226,08	3872-5849
<b>Carinthia</b>	45,66	877	101,92 - 160,98	2546-3955
<b>Salzburg</b>	21,43	409	71,19 - 104,55	1800-2612
<b>Tyrol</b>	24,41	455	68,05-100,11	1668-2430

Source: Helmenstein Chr., Kleissner, A. Volkswirtschaftliche Effekte der UEFA EURO 2008 in Österreich, Wien, Mai 2008.

The analysis of the above tables shows that the total cost of EURO 2008-related infrastructure investment in Austria was €135,8 million (0,05% of GVA in 2008), which was translated into the generation of €105 million in value added and more than 2 000 jobs. On the other hand, the tourist demand increased by the tournament contributed to the generation of additional €387-592 million and the creation of 9800-14800 jobs (depending on the options of the number of tourists). When the above results for the impact of EURO 2008 are compared with the results for Portugal, the host of EURO 2004, it can be said that in nominal terms Austria, in spite of 7 times lower investment expenditure and a twice smaller number of football matches played in this country, benefited much more from the organisation of the Championship in the case of additional value added (in the maximum scenario, it achieved results similar to the size of the impact of EURO 2004 on Portugal's GVA). In turn, Portugal gained almost 3 times more additional jobs.

<sup>16</sup> Input-output analysis, based on input-output tables, is the methodological instrument used in this analysis.

<sup>17</sup> That is, the multiplier effects.

<sup>18</sup> Estimated values.

<sup>19</sup> This study presents the results of method no. 2 used for job estimation, described in the cited report.

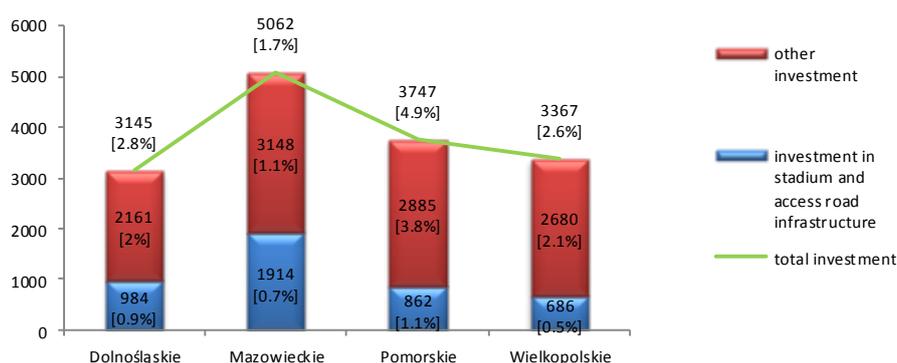
<sup>20</sup> As above.

## EURO 2012-related investment expenditure and tourism revenue in the Polish host regions

The analysis covered infrastructure investments included in the “List of projects related to the organisation of EURO 2012” prepared by the Ministry of Sport and Tourism – a total of 58 investment projects located in the host regions (without accommodation centres and 11 projects that were struck off this list or the time of their implementation was not yet determined). Information on the cost and time of implementation of these investment projects was derived from the periodic “Reports on the implementation of EURO 2012-related projects and on completed activities associated with Poland’s preparations for the final tournament of the UEFA European Football Championship EURO 2012™”. The spending profiles were estimated making an assumption that there was an even distribution of payments in the years of implementation of the investment projects (Fig. 3).

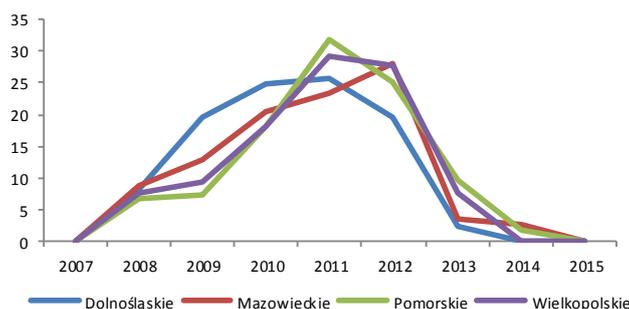
Investment in question related to, among others, the construction/expansion of 4 stadiums, together with access road and ancillary infrastructure (land improvements around the stadiums), modernisation of roads, airports, railway stations, railway lines as well as power supply systems. The total value of this investment was €3798,5 million (1,1% of national GDP in 2009) – a detailed breakdown of expenditure by region and by particular investment group is shown in Fig. 2. It is worth noting that in relative terms Pomorskie incurred the highest costs of organisation of EURO 2012 (4,9% of GDP in 2009), while for Mazowieckie these costs were the lowest (1,7% of GDP in 2009).

**Fig. 2. The value of investment from the “List of projects related to the organisation of EURO 2012” of the Ministry of Sport and Tourism (without accommodation centres) in the particular host regions (in million euros and in % of regional GDP in 2009)**



Source: Authors’ calculations based on the periodic “Reports on the implementation of EURO 2012-related projects and on completed activities associated with Poland’s preparations for the final tournament of the UEFA European Football Championship EURO 2012™”, Ministry of Sport and Tourism.

Fig. 3. The estimated spending profiles for EURO 2012–related funding in the particular host regions (%).



Source: Authors' calculations based on the periodic "Reports on the implementation of EURO 2012-related projects and on completed activities associated with Poland's preparations for the final tournament of the UEFA European Football Championship EURO 2012™", Ministry of Sport and Tourism.

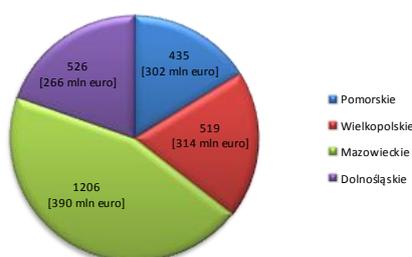
In turn, Mazowieckie dominated in terms of the number of matches played during the tournament (Table 8). At the same time, it is estimated that among the host regions the highest number of tourists (more than 1,2 million people) visited this region and their total spending was €390 million<sup>21</sup> (Fig. 4). In turn, the lowest number of matches were played in Dolnośląskie and Wielkopolskie (3 in each), but these regions managed to attract more tourists than Pomorskie where one match more was played.

Table 8. The number of stadiums constructed/upgraded in connection with EURO 2012 and the number of football matches played in the particular regions during the tournament.

	Dolnośląskie	Mazowieckie	Pomorskie	Wielkopolskie
<b>Number of stadiums</b>	1	1	1	1
<b>Number of matches played</b>	3	5	4	3

Source: <http://www.uefa.com>

Fig. 4. The estimated number of tourists (thousands) and total EURO 2012-related tourism revenue by region (million euros).



Source: Authors' calculations based on the following articles: "EURO 2012: Choć odpadliśmy z turnieju, to wciąż gramy o wielkie pieniądze" ["EURO 2012: Even if we have dropped out of the tournament, we are still playing for big money"] [<http://forsal.pl/>]; "Zarobić na EURO" ["To earn on EURO"] [<http://finanse.wp.pl/>]; "Podsumowanie fazy grupowej EURO 2012 w Polsce" ["Summary of the group phase of EURO 2012 in Poland"] [<http://www.2012.org.pl/>]; "Kibice Irlandii wydają w Gdańsku najwięcej. 1,7 tys. dziennie" ["Irish fans spend the most in Gdańsk – 1,700 per day"] [<http://wyborcza.biz/>]; "Przebrane zyski z EURO 2012. Kibice nie przyjadą do Polski" ["Lost profits from EURO 2012. Fans will not come to Poland"] [<http://biznes.gazetaprawna.pl/>]; „Poznań: EURO 2012 to doskonały interes dla wielu poznanianków” ["Poznań: EURO 2012 is a great business opportunity for many Poznań residents."] [<http://m.gloswielkopolski.pl/>].

It is worth adding that in the case of Portugal, the host of EURO 2004, the total cost of investment was relatively lower compared to the volume of investment expenditure of the Polish regions hosting EURO 2012. It was due to the fact that Portugal and its regions were at

<sup>21</sup> The number of tourists and their spending were estimated on the basis of available information (among others, press information).

the higher level of development than Poland (Table 9 and 1). As far as tourism revenue is concerned, the organisers of this year's Championship are expected to gain greater benefits.

**Table 9. Some indicators characterising the EURO 2012 host regions: Mazowieckie, Wielkopolskie, Dolnośląskie, Pomorskie, relative to Poland, Portugal and EU-27 (2-3 years before the start of the Championship).**

	2009/2010 <sup>22</sup>				2002	2010	
	Mazowieckie	Wielkopolskie	Dolnośląskie	Pomorskie	Poland	Portugal	UE-27
<b>Population [millions]</b>	5,22	3,41	2,88	2,23	38,17	10,33	501,1
<b>Area [km<sup>2</sup>]</b>	35 558	29 826	19 947	18 310	312 679	91 947	4 403 357
<b>Population density [person/km<sup>2</sup>]</b>	146,8	114,3	144,4	121,8	122,1	112,3	113,8
<b>GDP per capita [euros]</b>	13 000	8 600	8 900	7 900	9 300	13 600	24 400
<b>Gross value added (GVA) [million euros]</b>	60 361	26 151	22 678	15 655	312 292	122 853	10 965 400
<b>Unemployment rates acc. to LFS (aged 15+) [%]</b>	7,4	8,8	11,3	9,3	9,6	5,0	9,6
<b>Employment acc. to LFS (aged 15-64) [thousands]</b>	2 365	1 369	1 158	825	15 719	4 812	212 994
<b>Employment rate acc. to LFS (aged 15-64) [%]</b>	64,4	60,8	57,8	59,1	59,3	68,8	64,1
<b>Number of non-residents [millions]</b>	0,9	0,3	0,4	0,3	4,1	5,6	-
<b>Number of overnight stays of non-residents [millions]</b>	1,6	0,5	1,0	0,6	10,1	25,1	902,7 <sup>23</sup>

Source: Eurostat and Polish CSO.

### **Analysis of the impact of EURO 2012-related investment on the economic development of the Polish host regions**

The investigation of the impact of the 2012 UEFA European Football Championship on the development of the Polish host regions (Dolnośląskie, Mazowieckie, Pomorskie, and Wielkopolskie) was structured as follows:

- First, using the regional HERMIN models, simulations were made of effects of EURO 2012-related expenditure on the economies of the host regions during the period 2008 (the first EURO 2012-related investment projects) – 2025 (a relatively distant time horizon that enables the long-term effects of EURO 2012 to be evaluated). The above-mentioned expenditure was divided into four groups for which the impact was evaluated separately: expenditure on the construction of stadiums together with access roads; expenditure on other EURO 2012-related investment; spending of tourists who came to participate in this event (including local football fans); and all the above expenditure categories together.
- For obvious reasons, in the case of tourist (football fans) spending the impact related only to the year 2012.

<sup>22</sup> Data on GDP per capita, GVA, gross fixed capital formation and the share of G-I sections in GVA concern the year 2009.

<sup>23</sup> According to the data from 2009.

- As regards the stadium infrastructure, two research options were selected: the first scenario that assumed only the demand (short-term) character of this type of investment and the second scenario that included a possible long-term (supply) effect of the above-mentioned infrastructure on the economies of the host regions. The possible effect of the stadium infrastructure on the supply side of the economy is associated with the following: the use of the stadiums by football clubs; plans to use the stadium facilities and premises for the needs of private businesses (among others, conference space rental, restaurants and pubs, hotels, rental of office, warehouse, retail and service space as well as paid car parks and museums) and to use the stadiums for the needs of mass sports and cultural events<sup>24</sup>. Worth mentioning are also the so-called *naming rights*, that is, the possibility to name a stadium after a corporate sponsor on a paid basis.
- The next step consisted in carrying out macroeconomic simulations that allowed the estimation of the impact of a hypothetical and purely abstract scenario of events, which assumed that no EURO 2012 had been organised in Poland, on the regional economies. Taking into account some expert studies [Łangalis 2012; Borowski 2010] which indicate that even if the EURO 2012 had not been organised in Poland, most investment projects would be implemented anyway, but with a 3-4-year delay, an assumption was made for the needs of the present study that the stadium infrastructure would not be built at all in the time horizon covered by the analysis (until 2025) due to the problems of the public finance sector and the related need of financial consolidation. The impact of spending of football fans was neglected in these “without EURO 2012” simulations, which is understandable. In the case of the *Other investment* category (that is, among others, roads, motorways, airports, etc.), an assumption was made that the implementation of these investment projects would be postponed by 3 years in relation to the present situation.<sup>25</sup> In other words, it was assumed that the EURO 2012 Football Championship would serve as a kind of catalyst for many infrastructure investment projects that were certain to be implemented irrespective of the organisation of the above-mentioned sporting event by Poland and Ukraine.

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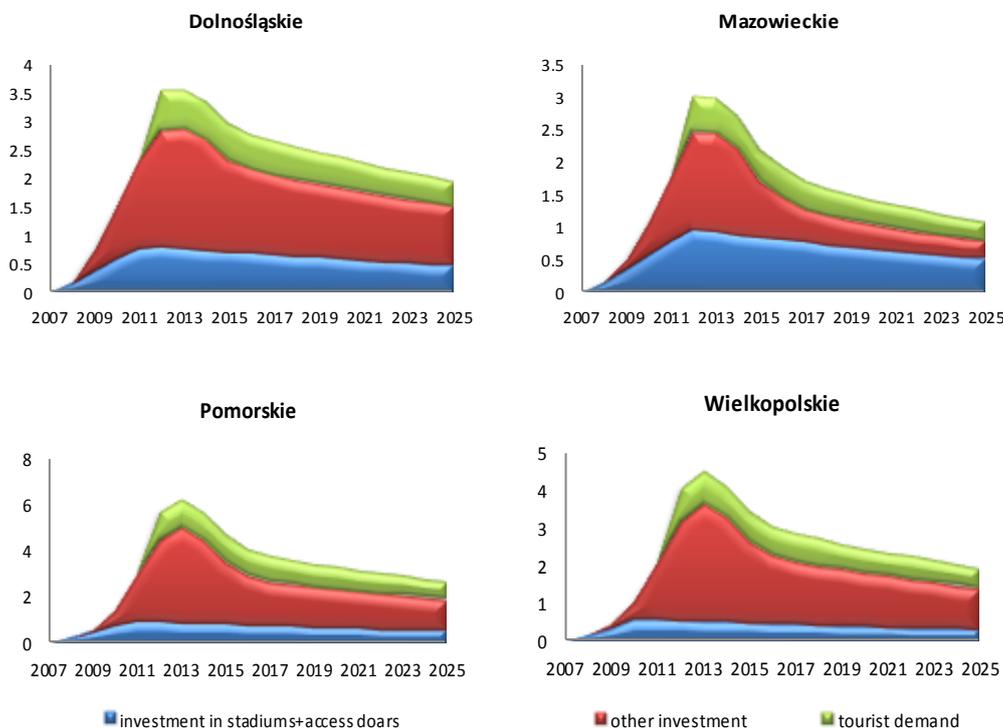
<sup>24</sup> In the case of the Polish stadiums, none of them is a facility that will be used exclusively for football competition. These facilities were designed as the so-called multi-purpose arenas that are suitable for the organisation of different types of events, not only sporting but also cultural, entertainment, business or social events such as, e.g., concerts, corporate events, fairs or even weddings and wedding receptions. Thanks to it, these facilities can be used not only for the needs of football matches. Not only will this allow these stadiums to be used effectively after Euro 2012, but it may also ensure that the costs of maintenance of these stadiums will be covered [www.2012.org.pl].

<sup>25</sup> To include price movements in the simulations, when shifting the profile of investment expenditure (“Other investment”) 3 years forward, the above-mentioned expenditure was adjusted using the gross fixed capital formation expenditure deflator.

- Next, the results of the impact of the hypothetical and purely technical scenario, which assumed that the above-mentioned event had not been organized, were deducted from the actual scenario (which included the organisation of EURO 2012 by Poland and Ukraine).<sup>26</sup> For the purpose of transparency of this analysis, the above exercise was carried out (in the case of GDP)<sup>27</sup> on the year-on-year cumulative impact of investment expenditure on the economy (in both scenarios). This allowed us to derive the effect of EURO 2012 on the development of the Polish NUTS-2 regions in the period 2008-2025.
- Due to the volume constraints on this article, the analysis was concentrated on two macroeconomic indicators: GDP in constant prices and employment according to LFS.<sup>28</sup>

The results of this analysis are presented in the figures below. First, the GDP results are shown for the two options: the scenario that neglects the supply-side effects of the stadium infrastructure and the other scenario including this type of long-term effects.

Fig. 5 The percentage cumulative impact of EURO 2012-related infrastructure investment on GDP in constant prices of the Polish NUTS-2 host regions (2008-2025) – the scenario without supply effects of stadium infrastructure [%].



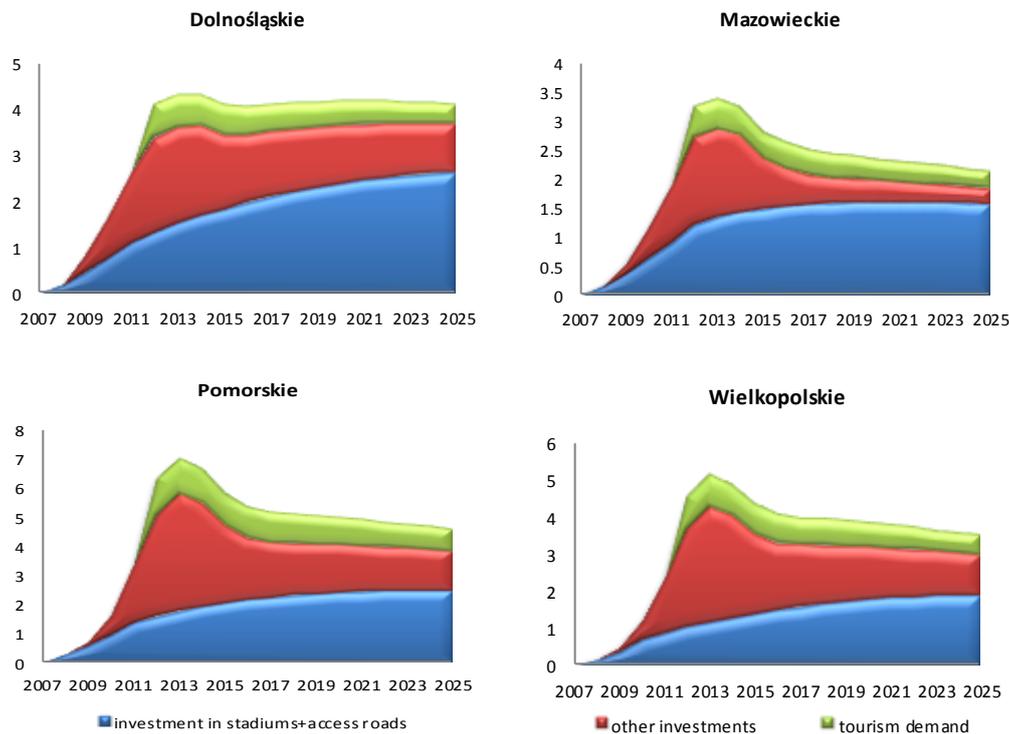
Source: Authors' calculations based on HERMIN simulations.

<sup>26</sup> In fact, the deduction was used only in the case of the *Other investment* category on account of the fact that in the scenario “without Euro 2012” the impact of tourists and stadium infrastructure is 0.

<sup>27</sup> In the case of employment according to LFS, the value of the impact in a given year is the total Euro 2012 impact on the labour market until that year.

<sup>28</sup> A more detailed analysis that will include a wider range of macroeconomic indicators will be presented in a separate report.

Fig.6 The percentage cumulative impact of EURO 2012-related infrastructure investment on GDP in constant prices of the Polish NUTS-2 host regions (2008-2025) – the scenario with supply effects of stadium infrastructure [%].



Source: Authors' calculations based on HERMIN simulations.

The analysis of the results shown in the above figures allows us to state that:

- In the case of the scenario without supply effects generated by the stadiums the total cumulative positive impact of EURO 2012 in the period 2008-2025 ranges from 1,1% of GDP in 2025, i.e. PLN 5,6 billion (approx. €1,4 billion) (Mazowieckie) to 2,74% of GDP, i.e. PLN 3,1 billion (approx. €0,8 billion) (Pomorskie)<sup>29</sup>. The respective percentage range in the case of the scenario that includes the supply-side effects of the stadium infrastructure is as follows: 2,16% of GDP, i.e. PLN 10,9 billion (approx. €2,7 billion) (Mazowieckie), to 4,6% of GDP, i.e. PLN 5,1 billion (approx. €1,3 billion) (Pomorskie). The leading position of Pomorskie results from the fact that the real weight of EURO 2012-related funding spent in this region on its economy, as reflected by reference to GDP, was the highest among the four regions under consideration (see the section devoted to expenditure). In turn, this will generate, through the Keynesian multiplier mechanism and then through the supply-side effects, the relatively highest impact on regional GDP<sup>30</sup>;

<sup>29</sup> The higher absolute value of the impact in the case of Mazowieckie results from the fact that it is the largest and richest NUTS-2 region in Poland, and what follows, it is characterised by the highest value of investment in nominal terms.

<sup>30</sup> It must be emphasized that our analysis does not take into account possible crowding out effects in the field of tourism (i.e. resignation of ordinary tourists, who are not football fans, from visiting a region/country due to difficulties with accommodation, higher prices, etc.) as well

- In the case of the scenario that assumes only demand-side effects of the stadium infrastructure, all the regions analysed- except for Mazowieckie, show a strong effect of *Other investment*, which is attributable to a relatively high real weight of this category of expenditure in relation to GDP of these regions, differently than in the case of Mazowieckie. The situation is different in the case of the scenario that includes the long-term effects generated by the stadium infrastructure. The “stadium” effects have the highest share in the total cumulative impact of EURO 2012 on GDP in all the four regions in this scenario, while obviously the one-year purely demand-side effects, induced by football fan/tourist spending, have the lowest share (at the maximum 1,28% of GDP in 2012 in Pomorskie);
- If we make an assumption that the built stadiums, together with access roads, will contribute to the development of the economies of the Polish host regions only during the period of their construction, thus only through the demand multiplier mechanisms, this will result in a reduction of the total cumulative impact of EURO 2012 on GDP from 2,1 percentage points (Dolnośląskie) to 1 pp (Mazowieckie). In other words, in a situation where the four modern stadiums built will not become self-financing by stimulating different types of economic initiatives, mentioned earlier, this will result in a financial benefit from EURO 2012 which is lower by at least PLN 13 billion (approx. €4 billion) in total for all the four regions in the period 2008-2025 in comparison to the scenario assuming the supply-side effects of stadiums. Of course, this benefit will also be reduced by the costs of maintenance of this type of structures. Therefore, the need to seek to use these investment projects as effectively as possible after the end of EURO 2012, which requires high quality management of the stadium infrastructure, must be considered to be extremely important<sup>31</sup>;
- Investment in stadium infrastructure was the only expenditure strictly related to EURO 2012 and in principle its creation was dependent only on this sporting event<sup>32</sup>. The aggregate effect of the construction of the stadiums for the four regional economies

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as in the field of investment (i.e. crowding out of private investment by partly public infrastructure expenditure). This is due to lack of precise and updated analyses of the scale of this effect in Poland. Making use, however, of the results of ex ante analyses regarding the impact of EURO 2012 on regional economies (where crowding out effect in the case of tourist expenditure was estimated at 2,8%)[Borowski, 2010] as well as assuming 20% crowding out effect in the case of investment (an average value taken from the estimations of the European Commission) [The European Commission, 2006], it was computed that the presented in our paper impacts on GDP of the four Polish host regions would be lower in 2025 by 0,6 pp. on average.

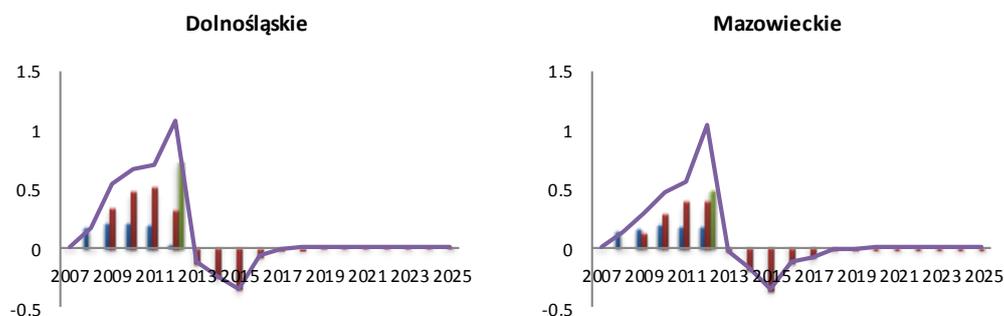
<sup>31</sup> Out of the ten stadiums built in 2003 as part of the preparations for the European Football Championship in Portugal, only the three largest ones are self-financed. Among others, Boavista Porto was not able to meet its financial liabilities; the modernisation of Estádio do Bessa, worth about €35 million, led the club financing this project to bankruptcy. Today, several hundred fans come to this stadium to watch football matches, while it can still accommodate more than 28,000 people – the article “Portugalia: Zburzenie najlepszą przyszłością stadionów Euro?” [Portugal: Is the demolition the best future for the EURO stadiums?] [<http://stadiony.net>].

<sup>32</sup> According to the information from the Wrocław Euro 2012 Office.

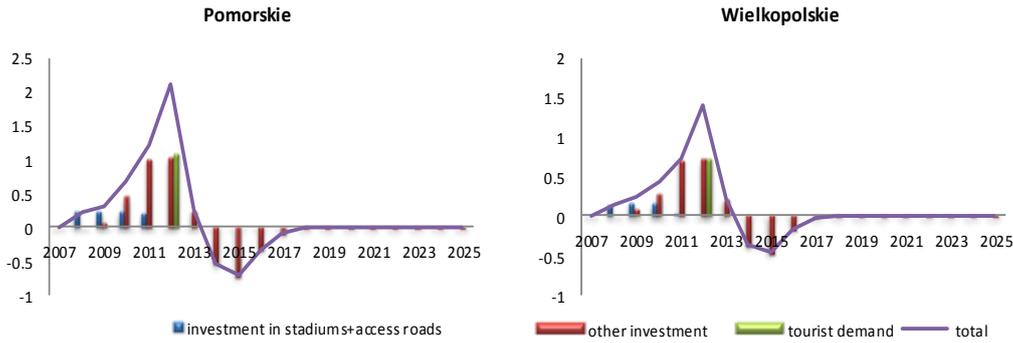
(investment effects + tourist spending), we arrive at a total amount of PLN 22,3 billion (approx. €5,6 billion) (the scenario including the supply-side effects of the stadium infrastructure) and PLN 8,8 billion (approx. €2,2 billion) (the scenario that assumes only the demand-side effects of the stadium infrastructure on the regional economies). This confirms the above presented conclusion about the need to effectively manage the stadiums and related infrastructure in order to generate as large supply effects as possible;

- Regardless whether we consider the scenario with supply effects of the stadium infrastructure, or without, one should conclude that as a result of EURO 2012, which served as a catalyst for investment, many investment projects will start to positively stimulate the regional economies at least 3-4 years earlier compared to the situation if the Football Championship had not been organised in Poland, and this will give measurable, though not breathtaking benefits during the period of analysis (until 2025). In the long term, e.g. over a 20-year period, if there is no restitution investment, the positive effects of EURO 2012 will begin to disappear. Therefore, worth stressing are the immeasurable benefits of this sporting event for the host regions, such as the strengthening of social capital through greater identification of their residents with the attractive (e.g. in terms of cultural and sports events) region or improved recognition of the region in the European scale;
- The relatively small effect of EURO 2012 for the economies of the Polish host regions is confirmed by the results relating to the labour market where the impact of this event is meagre – even if we take into account the supply effects of the stadium infrastructure.<sup>33</sup>

Fig. 7 The percentage cumulative impact of EURO 2012-related infrastructure investment on employment according LFS in the Polish NUTS-2 host regions (2008-2025) – the scenario without supply effects of stadium infrastructure [%].

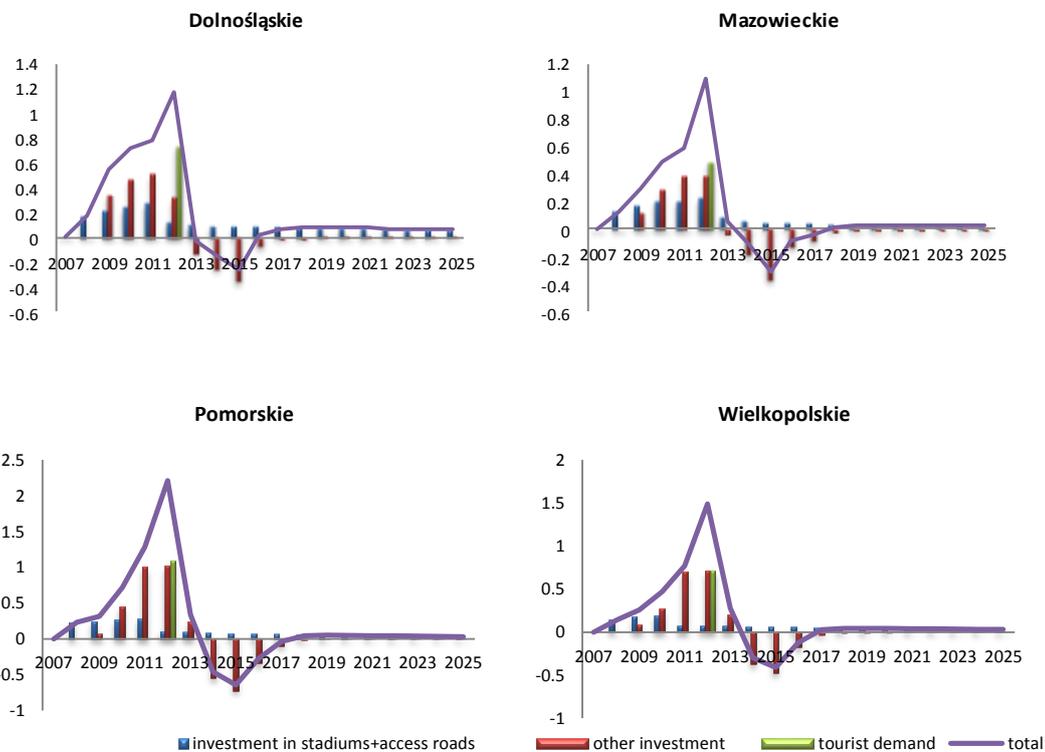


<sup>33</sup> The shift of *Other investment* in the scenario “without Euro 2012” by 3 years causes the impact of Euro 2012 on employment to show even negative effects in some years of the implementation of this category of investment. In the long term horizon, e.g. in 2025, the impact of Euro 2012 is positive, though small, as mentioned before.



Source: Authors' calculations based on HERMIN simulations.

**Fig. 8** The percentage cumulative impact of EURO 2012-related infrastructure investment on employment according LFS in the Polish NUTS-2 host regions (2008-2025) – the scenario with supply effects of stadium infrastructure [%].



Source: Authors' calculations based on HERMIN simulations.

## Summary

From the time when Poland was awarded to host EURO 2012, a part of politicians and media painted the vision that it would be a breakthrough event for the development of our country. They claimed that this event would be the “gate” to uninterrupted prosperity, while among others the expansion and modernisation of our transport and sports infrastructure as well as the related increase in tourist and investment attractiveness of our country and its regions would ensure an economic success. They also expected to derive benefits arising from revenue from tourists visiting our country during the Championship. As a result of this vision,

Poland, which is characterised by significant infrastructure gaps, became the largest construction site in Europe.

The aim of this paper was the quantitative evaluation of the impact of the implementation of infrastructure investments related to the organisation of EURO 2012 and of revenue from tourist spending during the Championship on the economies of the four Polish NUTS-2 regions in which the tournament was held - Dolnośląskie, Mazowieckie, Pomorskie, and Wielkopolskie. This study was carried out for the period 2008 (the first EURO 2012-related investments) – 2025 (a relatively distant time horizon that enables the long-term effects of EURO 2012 to be evaluated) using the macroeconomic HERMIN models for the above-mentioned four regions which allowed both short- and long-term effects of hosting the European Football Championship to be captured. The analysis covered infrastructure investments included in the “List of projects related to the organisation of EURO 2012” prepared by the Ministry of Sport and Tourism (without accommodation centres, due to data availability constraints). Tourist spending was estimated on the basis of available information (among others, press information). An assumption was made in the study that in the case of infrastructure investments the Championship acted only as a catalyst, accelerating their implementation by 3 years on average. The stadiums as well as their road access and ancillary infrastructure, which were constructed because of EURO 2012, are an exception. It was assumed that they would not have been built without this sporting event until 2025. The study analysed 2 scenarios of the effects of the stadium infrastructure investments on the economies of the host regions: (1) only through the demand channel, or (2) through the demand and supply channel. The results of the simulations show that:

- Pomorskie, the host of 4 matches, out of 15, and at the same time the region that invested the most in connection with this sports event (4,9% of GDP in 2009) will derive the greatest benefits. The cumulative growth in GDP in constant prices in 2008-2025 is estimated here to range from 2,7% (PLN 3,1 billion, approx. €0,8 billion ) in the scenario that does not include the supply effects of the stadium infrastructure to 4,6% (PLN 5,1 billion, approx. €1,3 billion) in the scenario that includes the long-term effects. In turn, the smallest impact (1,1% - 2,2% of additional GDP, depending on the scenario) will be observed in Mazowieckie which, at the same time, incurred the lowest infrastructure expenditure during the preparation for EURO 2012 (1,7% of GDP in 2009) but organised 5 matches, including one semi-final;

- In the case of the labour market, the investment impulse induced by EURO 2012 during the period of preparation for the Championship (2008-2012) contributed to the highest increase in the number of people employed in Pomorskie (2,1% - 2,2%, depending on the scenario), while the lowest growth in employment was observed again in Mazowieckie (1,0%-1,1%). Directly after 2012, following the completion of the construction projects and when the football fans leave our country, the effect of EURO 2012 on employment will be negative in the case of all the regions and scenarios and only after 3-4 years the situation in the labour market will stabilise. In effect, in 2025 the final impact of EURO 2012 will already be practically imperceptible;
- The stadium infrastructure, which was created only for the need to hold football matches during EURO 2012, may generate, after the end of the Championship over the period 2013-2025, a growth in GDP higher than the cost of its construction and maintenance in total for all the host regions only in the scenario assuming the long-term effects on the supply side of the economy. Otherwise, revenue generated will not be able to cover the increasing costs. This confirms the need to ensure efficient management of the stadiums and related infrastructure in order to generate as large supply effects as possible;
- If the obtained results for the impact are compared to the results of Portugal, the host of the 2004 European Football Championship, at the same time taking into account all factors limiting such comparability, one can state that they are higher than in the case of our predecessor.<sup>34</sup> The reason for this is mainly the analysis period of the impact, extended until 2025 in the case of the Polish regions (in order to capture the supply-side effects), while in the case of the Portuguese regions only the demand-side effects of investment in 2002-2004 were analysed. The same applies to the regions of Austria – the host of EURO 2008. Nevertheless, the results of the effects of EURO 2012 much differ from the initial expectations associated with the large scale of the impact of hosting such a prestigious sporting event on the further development of the host region/country. But, It must be emphasised that this event certainly accelerated the

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<sup>34</sup> It is worth stressing that in the case of most analyses of sporting events the CGE models or integrated input-output models have been used. The experience of the last years, dominated by unprecedented economic perturbations in the global economy, compels us to look with great caution at the methodological assumptions adopted in the CGE models (among others, the tendency of markets towards equilibrium, rational behaviour of individual market agents) which have been negatively verified over the recent years. Moreover, too high a level of arbitrariness resulting from too high a level of disaggregation of regional data necessary for modelling (as in the input-output models) creates a risk of distorting the derived results. In connection with the above, the use of macroeconomic models, such as HERMIN, which are a kind of compromise between, on the one hand, the theoretical assumptions that are sometimes too rigorous and incompatible with the reality and, on the other hand, information and interdependences resulting from this information which are presented by statistical data series, seems to be an interesting solution.

implementation of many infrastructure investments. Each year in which there is a lack of passable roads brings measurable losses in the form of investment projects that have not been implemented due to bad infrastructure. Besides, it should be remembered that the investment projects were implemented under the conditions of the global crisis, which was of great importance for the maintenance of the economic growth in the host regions and in the country as a whole;

- The organisation of the European Football Championship can be treated as a symbolic dividing line – the end of the socio-economic transformation started in 1989. However, one should not expect that EURO 2012 will be a kind of panacea for the maladies of the economic system of Poland and its particular regions – including in the first place the host regions. Structural reforms, which allow endogenous advantages of the regions to be used in the best way and exogenous processes to be better capitalised on, should be the foundation of regional development. Events like EURO 2012 give developing regions – such as the Polish regions – only a short-term impulse to accelerate the implementation of investments that are absolutely necessary anyway (such as, e.g., the construction and modernisation of physical infrastructure). In the case of Poland this impulse was only partially utilised. Many completely essential construction projects, such as for example motorways, were not carried out in the originally intended scale. As regards intangible benefits associated with a gradual improvement in social capital and better recognition of the host regions, which were not the subject of this analysis, their occurrence and possible effects on regional development will be dependent on many other, unrelated to EURO 2012, factors determining a region's attractiveness. The mere splendour arising from hosting this sports event and related interest in Poland will be with high probability short. Thus, the occurrence of the "Barcelona effect" in Poland only as a result of the organisation of EURO 2012 seems to be very unlikely;
- To sum up, it is worth emphasizing that only ex post analyses based on the actual data rather than on- often optimistic- forecasts and estimates will allow us to formulate the final assessment of the EURO 2012 tournament. One may not exclude that we will eventually come to the conclusion which is similar to the prof. Gert Wagner's statement about the 2006 Football World Cup hosted by Germany: "a great fun but not an economic success" [DIW Berlin 2007].

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