ESTIMATION OF THE WILLINGNESS-TO-PAY FOR PRESERVING THE FOOTBALL ARENA IN GDANSK

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Abstract

The European Football Championship (Euro 2012) organized in Poland became the pretext for a number of infrastructural changes. A high level of expenditure makes the Polish event the most expensive among events of this magnitude. The fact that these changes were 100% financed by public funds raises the question of whether these funds were used in a substantiated way. Therefore, the aim of this study is to estimate the willingness-to-pay (WTP) among the community of the Pomeranian region, in connection with the construction of the stadium in Gdansk. A survey conducted among 299 respondents was the source of information. The results of the study show that the average value of WTP for the whole sample was 6.71 EUR_{2012}, while the aggregate value for the whole region was 15.4 million EUR_{2012}. The regression analysis showed that the level of WTP is determined in particular by income levels. The results thus confirm the existence of intangible benefits associated with the constructed facilities. However, it should be noted that the importance of these benefits is insignificant and does not compensate for the massive expenditure from public sources.

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INTRODUCTION

This paper is dedicated to an issue widely discussed in recent years, namely that of using public means to finance mega sporting events and in a narrower sense sports arenas (Swindell & Rosentraub, 1998; Siegfried & Zimbalist, 2000; Baade & Matheson, 2002, Pomfret, Wilson & Lobmayr, 2009). In specialist literature concerning the issues of the structure and scale of mega sport event financing, authors pose the question of whether public resources are used in a reasonable manner (Siegfried & Zimbalist, 2006; Dwyer et al., 2006). The same applies to sports facilities. The construction of these arenas from public source funds is most often justified by their beneficial effect on the economy of the region and its inhabitants (Groothuis, Johnson & Whitehead, 2004). Public officials frequently believe that the appearance of a new stadium or hall leads to a positive impact including increasing tax revenues, job creation, or improving the attractiveness of the area for tourism (Castellanos & Sanchez, 2007). This runs counter to the opinion of many researchers who diminish the scale of the positive impact of sports facilities on the economy (Baade & Dye, 1990; Coates & Humphreys, 2003) or even point to the negative effects (Baade & Sanderson, 1997; Pyo, Cooky & Howell, 1998; Feddersen, Groetzinger & Maennig, 2008).

Irrespective of what the actual impact of a sports event or a sports facility on the economy of the region is, most of the above economic impact studies overlook the valuation of certain intangible aspects, like civic pride or community identity. Only the consideration of such non-use values in the general account of costs and benefits allows the correct evaluation of the impact of an event or facility on the area and the justification for the use of public funds for its implementation.

In order to incorporate the above-mentioned intangible values to a cost-benefit analysis, it is essential to employ stated preference techniques, such as the contingent valuation method (CVM).

Poland's participation in the staging of the UEFA European Championships in 2012 is a pretext to attempt to determine whether the commitment of public funds in such major events is justified. The event became a catalyst for the execution of more than two hundred projects including the construction of three football stadiums and the modernization of one financed exclusively from public sources. The scale and structure of funding makes it far more problematic to justify the use of public sources based on economic terms alone. Therefore, an attempt was made to determine the intangible effects based on CVM.

The purpose of this paper is to assess the willingness to bear the costs and estimate the value of WTP for the construction of the new stadium in Gdansk in readiness for Euro 2012. These are tested using data from a survey of the citizens of the Pomeranian region (n=299). The indirect aim of this study is to identify determinants affecting the WTP of the region's inhabitants. Finally, the obtained results are interpreted from the efficiency point of view for the decision makers.

The structure of this paper is as follows: in the first section general information about CVM and its use in sport context is presented. The second section presents more detailed information on the scale and structure of financing of Euro 2012 in Poland. The third section deals with the conception and the basic features of the CVM survey and statistical methodology, as well as the results of the empirical analysis. In the last section the main conclusions are discussed.

LITERATURE REVIEW

Contingent Valuation Method is a survey tool grounded in the theory of non-market goods connected with environmental and resource values (Freeman, 2003). It is used in the valuation of public goods which do not have a market price. Carson (2000, p. 1413) states that "Contingent valuation (CV) is a survey-based method frequently used for placing monetary values on environmental goods and services not bought and sold in the marketplace". In CVM research, respondents are chosen by a statistically valid method and are asked to play the part of market participants in a hypothetical scenario in order to assess their willingness to pay (WTP), or their willingness to accept (WTA). The choice between WTP and WTA depends on which Hicksian consumer surplus measure the researcher wants to obtain (Mitchell & Carson, 1989). WTA values assume substantially higher levels than WTP. Sometimes these differences are so significant that some economists are calling for abandonment of the use of willingness to accept compensation, recognizing the results obtained from this measure as unreliable (Dwyer, Kelly & Bowes, 1979). Even if we assume that the emerging disparity between WTP and WTA stem from the real preferences of surveyed entities rather than the hypothetical nature of the market, and are therefore not the result of methodological errors,

it will not justify the very likely distortion in the results achieved - different for the same good depending on the valuation measure. Therefore, in this paper the decision was made to use only one measure – WTP.

In common with all other methods, it is not fault-free; as pointed out by Whitehead (2005), there is the difficulty of establishing whether responses to hypothetical questions are credible and could be regarded as valuable and measurable. Consequently, some terms arise such as hypothetical bias, which results from too frivolous an approach to answering hypothetical questions (Walker & Mondello, 2007). Another objection is related to the notion of protest responses, which reveal themselves in the form of negative answers to the question of willingness to financially support a specified project. These do not involve, however, a lack of value for the project or a lack of funds (genuine zero) but rather are motivated by protest behavior, such as: „I'm not responsible for financing this project," or „I already pay enough taxes and other public charges" (Saz-Salazar & Guaita-Pradas, 2013, p. 81). Therefore, as noted by Dziegielewska and Mendelsohn (2007), it is important to separate protest responses from genuine responses in order to obtain more reliable WTP results. Nevertheless, opponents of CVM do not propose a viable alternative that would allow a better estimation of the intangible effects. Moreover, following Wicker (2011, p. 157) CVM is cheaper and less time-consuming than other methods with a similar purpose.

The use of CVM is not limited solely to environmental issues. Currently, the method is used to determine the non-market value for goods of general use, in order to estimate the degree of the efficiency of use of public money for their construction and maintenance. In contrast to market goods, the value of public goods is not subject to traditional valuation. Hence, a number of studies using CVM in the functioning of public libraries (Aabo, 2005), routes (Saz-Salazar & Guaita-Pradas, 2013), hospitals (Terashita et al., 2011) and above all sport have appeared in recent years.

The use of CVM in the context of sport is broad and covers several areas (Wicker, Prinz & von Hanau, 2012, p. 201-202). Most often it is used to justify the construction of a sports facility (Groothuis, Johnson & Whitehead, 2004), the hosting of sports events (Heyne, Maennig & Suessmuth, 2007), the functioning of sports clubs (Castellanos & Sanchez, 2007) and the valuation of sporting success (Wicker, Prinz & von Hanau, 2012). From this paper's point of view the most important are the first two of the above-mentioned areas.

In terms of the first area Johnson and Whitehead (2000) analyzed the level of WTP for the construction of two buildings: a basketball hall and baseball stadium in Kentucky. They found that the amount of WTP for both facilities was very similar – 6,17 USD and 6,36 USD for the stadium and hall respectively. At the same time the aggregated values proved to be insufficiently large to justify the high cost of the construction of these facilities. Similar conclusions were shared by Johnson, Groothuis and Whitehead (2001), who proved that only a small part of the Pittsburgh Metropolitan Statistical Area community support public funding for baseball and football stadiums in the region. Johnson et al. (2012) report the results of two Contingent Valuation Method surveys to determine the willingness to pay for new National Hockey League arenas in downtown Edmonton and Calgary in the Canadian province of Alberta. In both Calgary and Edmonton, the referendum to impose an annual property tax to pay for the extra cost of building the arenas would fail even at the lowest dollar amount.

The second area is the use of CVM to assess the impact of a mega sporting event on the host economy. Heyne et al. (2007) evaluated the WTP involving the voluntary financial support of the German Society for the FIFA World Cup in 2006 in Germany. Although the majority of respondents were opposed to the financing of a mega sporting event from their own pockets, the radically different results from the ex ante and ex post studies deserve attention. Whereas almost 1/5 of the population had had a positive WTP (WTP>0) ex ante, it was already 43 % ex post. The aggregated values of WTP were also different. They were estimated at 351,5 million euros before the event, while at 831 million euros after it. This case confirms the importance of ex post studies and the need for their confrontation with ex ante research (Wasilczuk & Zawadzki, 2011, p. 82). Preuss and Werkmann (2010) used CVM to estimate non-market values in the context of a future event for the German community - the Winter Olympics in 2018. In this case, the potential aggregated values ranged between 617 million euros and 910 million euros depending on the scenario, and, according to the authors, were significant.

The literature review indicates that the utilization of WTP in the area of sport is more and more widespread. Nevertheless there is a research gap concerning WTP in evaluation of the sport's facilities value resulting from staging mega sport events in developing countries.

THE UTILIZATION OF PUBLIC FUNDS IN THE CONTEXT OF SPORT – THE CASE OF EURO 2012 IN POLAND

Euro 2012 proved to be the most expensive of the UEFA European Championships organised in the 21st century and, in all likelihood, in the whole history of the tournament (Table 1). A highly disadvantageous fact for Poland was the complete absence of any commitment of private funds in the financing of the preparations.

Since the execution of a great proportion of infrastructure projects in countries with less developed economies was accelerated due to the event and the projects would have been completed in the future regardless, it is difficult to compare the cases of the individual host countries in terms of overall expenditures made in connection with the UEFA Euro tournaments. Therefore, western specialist literature usually refers to expenses incurred solely with the purpose of preparing the sports venues (Feddersen et al., 2008).

Table 1: Size and structure of financing of the UEFA European Championships, broken down into public and private sources

Place and time	Financing [EUR$_{2012}$bn]			Participation in funding [%]	
	public	private	total	public	private
Belgium 2000	0.09	0.103	0.193	47	53
Netherlands 2000	0.078	0.202	0.280	28	72
Portugal 2004	3.4	0.6	4.0	85	15
Austria 2008	0.4045	0.023	0.4275	95	5
Switzerland 2008	0.303	0.230	0.533	57	43
Poland 2012	22.503	0	22.503	100	0
Ukraine 2012	2.97	0.72	3.69	80	20

Source: Zawadzki, K. (2013). Euro 2012 Economic Impact on Host Cities in Poland. Sa-arbruecken: LAP Lambert, p. 56.

Such an approach seems far more reliable than a comprehensive approach, taking into consideration multiple road, rail or air infrastructure projects.

In Poland, the total amount for which three stadiums were built and one was modernized was more than 980 million EUR2012 (Table 2). Among the twenty-first century European Championships hosts, only Ukraine has released more funds for this purpose, 1.09 billion EUR2012 (Zawadzki, 2013), although the share of private funding there is estimated at approximately 40%. Thus, the event organized in Poland should be considered as the most expensive in terms of public expenditure.

Moreover, the difficulties in generating sufficient revenues to cover the costs of maintenance and debt service are already being experienced. For the time being (the end of the third quarter 2014), all arenas are generating a deficit. Each of the operators has adopted a deadline of at least 3 years to reach break-even point,

Table 2: Expenditure connected with the preparation of the stadiums for Euro 2012, and the sources of their financing

Stadium	Scope of works conducted	Capacity	Central budget		Local government budget		Total expenditure incurred
		thousands	mEUR$_{2012}$	%	mEUR$_{2012}$	%	mEUR$_{2012}$
Gdansk	erection	43,615	32,4	16,7	161,64	83,3	194,04
Poznan	redevelopment	43,098	24,75	16,3	127,27	83,7	152,02
Warsaw	erection	58,500	430,71	100	0	0	430,71
Wroclaw	erection	44,308	24,75	12,2	178,72	87,8	203,47

Source: Author's own based on: Wasilczuk, J. E., Zawadzki, K. M. (2011). Euro 2012. Czy ten mecz można wygrać? Warsaw: CeDeWu., p. 43.

but after less than two years after the end of Euro 2012 it can be concluded that the implementation of this assumption will be very difficult.

Therefore, beyond the purely financial aspect it is worth taking into account impact of an intangible nature. It will help to take the view from a broader perspective and answer the question about the legitimacy of the use of public funds to build stadiums, which is difficult to discern based solely on tangible factors.

SURVEY AND SAMPLE

The survey was conducted by a specialized center for social research using the direct interview method, in December 2011 and January 2012, i.e. half a year before the beginning of Euro 2012. Respondents were adults, i.e. over 18 years of age, living in three municipalities: Gdansk (30%), Gdynia (20%), and Sopot (10%), and their vicinities (40% in aggregate). The inclusion of the municipalities next to the tournament venue was obvious. However, it was resolved to go deeper into the neighbouring communities in order to determine the effect of distance on respondents' WTP.

The assumption of an inverse relation between distance and the level of WTP was adopted at the same time. In order to ensure the representativeness of the sample research, the company conducting the survey applied a quota controlled procedure. As a result, the basic parameters, such as age, sex, education, income are representative of the population of the Pomeranian region. This allowed for the transfer of the values obtained in the survey to obtain the aggregate level of the entire region. A detailed comparison of the entire population in the Pomeranian region and the research sample is presented in the Table 3.

Of the 300 people surveyed eventually 299 correctly identified responses were obtained (n = 299). The use of three hundred respondents was not accidental. Such an amount is indicated in many sources as a minimum in the context of statistical reliability and portability of the sample to aggregated values (Bortz, 2005 as cited in Wicker, 2011, p. 161). In addition to basic information, respondents were asked about their interest in football in general and about watching football matches on TV or attending football matches in stadiums in particular. The catalogue of specified variables is provided in the Table 4.

Table 3: Population characteristics in the Pomeranian region

Specification	Pomeranian region population (Data for the year 2011)		Research sample	
Age median [years]		37,1		37,1
Average household size [person]		2,81		2,86
Average monthly gross wage [EUR2012]		748,71		769,03
Gender [%]	Males Females	48,77 51,23	Males Females	48,16 51,84
Marital status [%]	Single Married Widowed Divorced	30,06 56,9 7,2 2,6	Single Married Widowed Divorced	31,1 60,9 3,3 4,7
Education [%]	Tertiary Secondary Basic vocational Lower secondary Completed primary	17,6 31,3 21,9 5,0 17,3	Tertiary Secondary Basic vocational Lower secondary Completed primary	17,6 31,3 21,9 5,0 17,3

Source: Author's own based on: Statistical Yearbook of the Regions – Poland, Central Statistical Office, Warsaw 2011. Retrieved from http://stat.gov.pl/obszary-tematyczne/roczniki-statystyczne/roczniki-statystyczne/rocznik-statystyczny-wojewodztw-2011,4,8.html

Table 4: Description of variables in the data model

Metric/ordinal variables						
Variable	Description	Scale	Mean	S.D.	max	min
WTP	Willingness to pay in EUR2012	metric	17,61	35,25	271,06	0
lnWTP	Natural log of WTP	metric	1,87	1,45	5,60	-1,49
AGE	Age in years	metric	39,6	15,27	76	18
HHSIZ	Household size in persons	metric	2,86	1,52	8	1
INC	Gross income per month in EUR_{2012}; 9 = more than 1129,43 EUR_{2012}; 1 = up to 225,89 EUR_{2012}	ordinal	4,69	2,77	9	1
FOOTINT	General football interest; 5=very strong; 1= not interested at all	ordinal	2,89	1,35	5	1
FOOTMAT	Participation in football matches; 5=very often; 1=never	ordinal	2,15	1,16	5	1
FOOTWAT	Watching football matches on TV; 5=very often; 1=never	ordinal	2,85	1,26	5	1
Dummy variables						
Variable	Description		% of respondents			
WTPYES	1 = Stated WTP>0	dummy	38,12			
DIST	Distance from the place of residence to the constructed arena; 1 = Gdansk, Sopot, Gdynia	dummy	69,9			
EDU	Education; 1 = university degree	dummy	31,44			
GEND	Gender; 1 = male	dummy	48,16			
MARSTA	Marital Status; 1 = married	dummy	60,87			

Source: Author's own

The selection of such determinants for WTP is consistent with the previously executed research on the impact of sports events (Suessmuth, Heyne & Maennig, 2010; Heyne, Maennig & Suessmuth, 2007). In this study, it was decided to apply them in the context of building a sports facility specifically for the occasion of Euro 2012. It is assumed that WTP is positively affected by the level of education (Suessmuth et al., 2010), income (Atkinson et al., 2008; Wicker, 2011) and general interest in football, including watching matches on TV and in stadiums (Atkinson et al., 2008; Carson et al., 2001). What has a negative impact on WTP is the distance from the venue of the event and the construction of the stadium (Sarwar & Keinosuke, 2006), the age of the respondent (Wicker,

Prinz & von Hanau, 2012), gender (for women) (Walton, Longo & Dawson, 2008) and the number of people living in the household (Castellanos & Sanchez, 2007).

The literature points to different formats of formulated questions regarding WTP. Among these questions there should be open-ended, bidding game, single-bound dichotomous choice and double-bound dichotomous choice (Sarwar & Keinosuke, 2006). These different methods have their supporters and detractors, but most often the choice falls on dichotomous methods, in which respondents indicate the specific amount to pay (Would you be willing to pay the amount of (…)?) (Johnson et al., 2012), and open-ended, in which the question is directed to indicate the

maximum amount that the respondent would be willing to pay (What is the maximum amount of money you would pay (...)?) (Wicker, Prinz & von Hanau, 2012). In the present study open-ended questions were used in the hope of more exact estimates. According to guidelines contained in the NOAA report, when questioned, respondents were reminded that allocating specific amounts for goods which are the subject of this study would result in the loss of exactly this amount in the household budget and may limit the ability to acquire other private or public goods (Arrow et al., 1993).

However, given the possibility of hypothetical bias associated with the administration of excessive amounts, which, in fact, the respondent would not be able to deliver, it was originally planned to limit the maximum level of WTP (maxWTP) to 300 PLN, taking into account the state of wealth of the society, especially outside large residential area agglomerations. All of the answers above the stated max WTP were to be rejected. The author, however, resigned from this intention after the survey, when it turned out that only four people (1.3%) indicated a value exceeding 300 PLN (500, 600, 850 and 1,200 PLN). These were also people with high incomes, which provides a plausible explanation for the specified willingness to pay. It can therefore be assumed that the choice of questions in an open-ended format was suitable and did not distort the obtained results.

Each of the respondents was read an event scenario, which was worded as follows: "Euro 2012, an event staged in Poland, has proved to be too expensive to be able to be financed from public funds only. The lack of necessary funds to complete the ongoing infrastructural projects, including the construction of the Gdansk stadium, could lead to the withdrawal of this event from Poland and its transferal to Germany in whole or in part, which is prepared for this eventuality, with the infrastructure from the World Championships in 2006, which fully meets the needs of UEFA. The other three host cities in Poland managed to gain the appropriate amount of money to prevent Euro 2012 from leaving. The only solution for preserving Euro 2012 in Gdansk is to obtain funding from citizens. To pay the extra cost of the construction of the football stadium in Gdansk, the local government could impose a one-off property tax surcharge".

After the scenario description a question was read relating specifically to the WTP: "In view of the possibility of the loss of Euro 2012, would you personally be willing to agree to the one-off tax increase in order to finish the construction of the football stadium in Gdansk?" An affirmative response to this question resulted in another question: "What is the maximum amount of the tax you would agree to pay?" A negative response to the former question resulted in the cancellation of the maximum bid rate question. However, in this case a question was asked about the reason for the unwillingness to pay, the intention of which was to differentiate protest responses and genuine zero responses. Only the lack of value for the Euro 2012 financing and the inability to afford it were classified as genuine zeros.

These responses accounted for 46% of all responses for WTP = 0. This means that the response to the protest zeros accounted for most of the WTP = 0 answers and amounted to approximately 33.4% of the test sample (100 protest zero replies out of 299 respondents). Although there is no consensus in the CVM literature, in this paper protest responses have been excluded from the data sample, following, among others, Meyerhof and Liebe (2006). Removing protest zeros resulted in an increase in positive WTP responses in the total response from 38% to 57%.

EMPIRICAL MODEL

In addition to the descriptive statistics presented above, aimed at defining the structure of the test sample, the empirical part of the study is based on testing the proposed models and identifying determinants affecting WTP. For this purpose, three regression models were used. This is consistent with the canon presented by most authors dealing with the CVM subject (Noonan, 2003).

The first (1) is a logistic regression model (Logit), in which the dependent variable is a dummy WTP (WTPYES). A set of independent variables was used to determine the variation in the dependent variable. Logistic regression is a tool used when the dependent variable is dichotomous (WTPYES). In order to determine the minimum of the loss function a quasi-Newton method was applied, which in each step assesses the functions to estimate the derivative of the first and second row. This form of nonlinear estimation allows the determination of the factors that affect a positive or negative response to a question about the willingness to support the building of a football stadium in Gdansk. In fact, the probability (P) is sought to reach WTPYES = 1. The form of the applied Logit model is as follows:

$$\text{LogitP} = Ln \frac{P(WTPYES=1)}{1-P(WTPYES=1)} = \beta_0 + \beta_1 AGE + \beta_2 DIST + \beta_3 EDU + \beta_4 GEND + \\ + \beta_5 HHSIZ + \beta_6 INC + \beta_7 MARSTA + \beta_8 \text{FOOTINT} + \beta_9 \text{FOOTMAT} + \beta_{10} \text{FOOTWAT}$$

(1)

In the second of the proposed models (2) the dependent variable is a metric WTP (WTP). This is based on the ordinary least squares model (OLS). In this case, it was decided to apply linear regression, the aim of which is to determine the weight of each variable in shaping the amount of WTP. Relying on the dependent variable (WTP) allows all the answers to be taken into account, including those for which WTP = 0. The linear regression model used in this case takes the form:

$$WTP = \beta_0 + \beta_1 AGE + \beta_2 DIST + \beta_3 EDU + \beta_4 GEND + \beta_5 HHSIZ + \beta_6 INC + \beta_7 MARSTA \\ + \beta_8 \text{FOOTINT} + \beta_9 \text{FOOTMAT} + \beta_{10} \text{FOOTWAT} + \varepsilon$$

(2)

The use of a third model (3), based on a natural log of the WTP value means that all the answers for WTP = 0 are rejected. There remain only those for which WTP > 0, making a total of 114 cases.

$$lnWTP = \beta_0 + \beta_1 AGE + \beta_2 DIST + \beta_3 EDU + \beta_4 GEND + \beta_5 HHSIZ + \\ + \beta_6 INC + \beta_7 MARSTA + \beta_8 \text{FOOTINT} + \beta_9 \text{FOOTMAT} + \beta_{10} \text{FOOTWAT} + \varepsilon$$

(3)

In the first two approaches (WTP, WTPYES) calculations were performed with the inclusion and exclusion of protest responses. In the case of lnWTP making this distinction was not necessary as in this model, the analysis included only the responses for WTP > 0.

RESULTS

Table 4 shows that 38% of respondents stated WTP > 0, and thus decided to allocate an amount of money to build the football stadium in Gdansk. Such participation does not differ significantly from the results obtained in other studies on similar subjects. The total value of WTP in the analyzed sample amounted to 2,007.68 EUR$_{2012}$. This means that the average WTP for the whole sample (n = 299) is 6.71 EUR$_{2012}$. If the total amount referred only to those persons who indicated WTP > 0 (n=114), then the average per capita would rise to the level of 17.61 EUR$_{2012}$. These values should be recognized as high, especially when taking into account the wealth of Polish society. As a comparison, the ex ante WTP estimated during the World Championships in 2006 among the much more prosperous German population amounted to 4.26 EUR/person (all respondents) and 22.90 EUR/person (only WTP > 0) (Heyne, Maennig & Suessmuth, 2007). On the basis of the answers of all the respondents (n=299), the aggregated value of WTP can be determined at 15.4 million EUR$_{2012}$. It stems from multiplying the average WTP by the total amount of Pomerania adult inhabitants in the number of nearly 2,3 million. This value expresses the willingness of the inhabitants of the region to financially support the construction of a sports facility in Gdansk.

The results of the regression analysis are presented in Table 5. Data resulting from the questionnaire was subjected to a statistical analysis with the use of statistical software – Statistica (version 10.0).

The presented results lead to the conclusion that three determinants had a statistically significant impact on the decision to bear the costs of the construction of the stadium in Gdansk (WTPYES). They are: income level (INC), a general interest in football (FOOTINT), and being married (MARSTA).

Taking into account all the answers (WTP), which statistically significantly influenced the amounts offered was income (INC), football match attendance (FOOTMAT) gender (GEND), marital status (MARSTA) and household size (HHSIZ). Interestingly, the GEND coefficient had negative values, which means that women were more likely to be willing to spend large amounts to build the stadium than men.

The omission of protest responses in models 1 and 2 generally increases the absolute values of the obtained coefficients. However, it does not affect the significance of the parameters. The exceptions in this regard are the variable MARSTA in model 1, and the variable GEND in

in model 2.

Model lnWTP proved to be the best-suited model in which about 66% of the variation of amounts that respondents were willing to pay for the construction of the stadium in Gdansk was explained. In this model, the statistically significant independent variables again include income (INC), interest in football (FOOTINT), being married (MARSTA) and household size (HHSIZ).

Variables which are statistically insignificant in all of the cases include age (AGE), distance (DIST), education (EDU) and watching football games on TV (FOOTWAT).

To sum up, the greatest importance should be attributed to income (INC) which has a very positive impact both on the decision to pay as well as on how much money is donated. Moreover, a general interest in football (FOOTINT) also has a statistically significant positive effect on the decision to pay. These results are fully consistent with earlier assumptions regarding the impact of the given variable on WTP. Nonetheless, it should be pointed out that the signs by the coefficients are contrary to what was previously expected. The example here can be the level of education (EDU) which has a negative impact in each of the proposed models, or watching matches in stadiums (FOOTMAT) which has a negative effect in models 1 and 3. Still, there is no need to reach any hasty conclusions, as the results obtained in such a sample group should be considered statistically insignificant for these variables.

Table 5: Results of the regression analysis

Variable / statistic	Including protest responses		Excluding protest responses		
	Model 1 (WTPYES)	Model 2 (WTP)	Model 1 (WTPYES)	Model 2 (WTP)	Model 3 (lnWTP)
Constant	-6,13402 (-6,7184)***	-24,2965 (-4,031)***	-5,16 (-4,7933)***	-30,3854 (-3,3394)***	-1,23 (-2,4523)**
AGE	-0,00603 (-0,5107)	0,0667 (0,751)	-0,00654 (-0,4666)	0,0755 (0,5761)	0,0047 (0,7053)
DIST	0,75305 (2,1588)	-2,9991 (-1,119)	0,4227 (1,0125)	-4,5636 (-1,131)	0,1565 (0,752)
EDU	-0,36043 (-1,0507)	-3,7898 (-1,4276)	-0,3991 (-0,9894)	-4,5371 (-1,178)	-0,2345 (-1,2368)
GEND	0,21623 (0,6999)	-4,2417 (-1,6788)*	0,0949 (0,2541)	-5,0059 (-1,371)	-0,0397 (-0,2227)
HHSIZ	-0,03391 (-0,2968)	1,5709 (1,7172)*	0,0447 (0,329)	2,5029 (1,921)*	0,121 (1,9329)*
INC	0,18495 (3,0327)***	2,5937 (5,6261)***	0,2117 (2,8751)***	3,5524 (5,302)***	0,4087 (12,2999)***
MARSTA	0,84605 (2,1601)**	-5,4262 (-1,7965)*	0,7397 (1,5613)	-9,9555 (-2,254)**	-0,3904 (-1,7295)*
FOOTINT	1,07231 (4,0489)***	2,6701 (1,2466)	1,1155 (3,3114)***	3,1847 (1,022)	0,5478 (3,542)***
FOOTMAT	-0,109 (-0,552)	4,0504 (2,3999)**	-0,2521 (-1,0122)	4,3115 (1,8849)*	-0,0308 (-0,3041)
FOOTWAT	0,31921 (1,2855)	1,3706 (0,6568)	0,3335 (1,098)	2,0542 (0,6745)	0,0558 (0,3563)
Wald χ^2	127,23		85,29		
R^2	0,32	0,2320	0,3139	0,273	0,6592
R^2 adj	0,2647	0,2053	0,2329	0,2344	0,6261
F		8,7001		7,0625	19,9295

Displayed are the coefficients; t-statistic in parenthesis
*, **, *** denotes significance at 10%, 5%, 1% level respectively

Source: Author's own

Discussion

The use of such a tool as CVM in Polish conditions is rare. If it is used, it refers to the context of nature and is related to forest policy (Bartczak et al., 2008) or air pollution (Dziegielewska & Mendelsohn, 2005). It has never before been utilised with regard to sports events or sports facilities. This implies certain methodological problems. It is worth mentioning at least two of them. Firstly, there is no reference point for Polish conditions. Thus, it is difficult to conclude whether the differences between the results obtained in this paper and other papers relating to sporting events or the construction of sports facilities in countries with more developed economies (Germany, USA) do not arise from the difference in the level of prosperity, or the citizens' awareness. Supporting public projects with private resources is a rather sensitive topic in Poland. This reluctance is expressed by the high percentage of refusals to donate any money to support the construction of the stadium in Gdansk (nearly 62%).

Negative social attitudes also reflect the reasons for refusal. Most of the WTP = 0 answers are protest responses. 100 of the 185 people who were not willing to bear the cost for the construction of the stadium in Gdansk made such a decision mainly due to their belief that they supply sufficient amounts to public finances by paying taxes and other financial obligations towards the State. The percentage of protest responses can be considered as high, however, it is difficult to recognize whether it is significant compared to other studies based on CVM. In world literature on this topic, even greater levels of protest responses can be pointed out (Saz-Salazar & Guaita-Pradas, 2013), although there are also those works where the percentage of protest responses was much lower (Owen, 2006).

The second issue concerns the event of Euro 2012. Up to that time, no other organised sports event had a greater rank in Poland. The infrastructural transformation far exceeded the preparation of sports facilities. Poland belongs to countries which are underdeveloped in terms of infrastructure (Zawadzki, 2013) and EURO 2012 was treated as a kind of catalyst for change in infrastructure. Therefore, the respondents, being aware of the scale of resources that were allocated for this purpose, may have assumed that the amount was big enough, and they may not have seen the need for additional support for those projects with their own money.

A reverse situation could also be considered. The inhabitants of the region could have assumed that it would be a shame to lose the opportunity to host the event, since so much had already been done and so much money had been spent. Such an approach would have resulted in a decision to allocate a specific amount for the construction of the stadium, despite a general dislike for the event. All in all, the aggregate sum obtained as a result of research is 15.4 million EUR_{2012}. This applies only to the region of Pomerania, but it seems unlikely that the inhabitants of the more remote regions of the Polish were willing to finance the construction of the facility in Gdansk. 15.4 million EUR_{2012} means less than 8% of the expenditure which was in fact incurred for the construction of the stadium in Gdansk. This confirms the previously obtained results that aggregated Willingness-To-Pay values are insufficient to cover the cost of the construction of sports facilities (Owen, 2006).

Those are the major reasons for the possible deviations between the case of EURO 2012 and other cases analyzed in literature regarding the impact of various determinants on WTP. It is significant, however, that among the analyzed variables, the most important one to have a positive influence on both the decision to bear the costs, as well as on the amounts allocated for the expansion of the Gdansk stadium, was level of income (INC). These results are fully in line with the trend occurring in world literature (Johnson, Mondello & Whitehead, 2007; Wicker, 2011).

Conclusions

The results presented in this paper, obtained on the basis of the CMV method, represent only a fraction of the answer as to how Polish society values public goods. The organization of Euro 2012 contributed to the analysis of the value of a football stadium in one of the host cities. The percentage of WTP > 0 and the value of WTP do not differ from the results obtained in other countries even wealthier than Poland. The regression analysis shows that the decision to allocate funds to support the construction of the stadium in Gdansk was made by people with high incomes, who expressed an interest in football and are married. In turn, the level of WTP was particularly high among women with high incomes, who attend football matches, and are unmarried but at the same time not single.

The results confirm that the social benefits from the construction of the stadium are relatively small,

investors. The use of public funding should instead be preceded by a public consultation in order to obtain information as to whether there is consent to transfer joint money for such investments.

The study constitutes an excellent foundation for future research in Poland. It would be particularly valuable to confront the obtained ex ante results with the ex post results, as well as to extend the research to other Polish cities which hosted the event in 2012, namely Warsaw, Poznan and Wroclaw.

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