The value of having a first-tier football club in the municipality (even) when tangible benefits are absent: A Danish CVM study

ABSTRACT

Purpose: The aim of this paper is to examine citizens' willingness to pay (WTP), in relation to having a professional first-tier football club in a medium sized Danish municipality, when tangible economic benefits such as economic growth and/or inbound migration produced by these are absent.

Design/methodology/approach: Using the Contingent Valuation Method on survey respondents, the study examines factors affecting WTP using binary logistic regression and interval regression and further extrapolate the WTP from the sample to the municipal population.

Findings: Citizens significantly value having a first-tier football club in their municipality even when tangible benefits are absent, although a large proportion of respondents stated to be against the municipality being financially involved in professional team sports clubs (PTSC). WTP is largely driven by interest in sports and the local football club. It is argued that the findings cannot be generalized across contexts.

Research implications: There can be circumstances where public subsidy of PTSCs is beneficial to economic welfare. However, authorities should be careful in their evaluation of whether to subsidize PTSCs.

Originality/Value: The study expands on existing research by informing respondents about the lack of tangible benefits produced by PTSCs, hereby focusing on WTP on an informed basis.

Keywords: Willingness to pay, WTP, Professional football, Contingent valuation, CVM, Tangible benefits, Intangible benefits, Public subsidies

Paper Type: Research paper

I. INTRODUCTION

A frequently used argument by club owners, officials, and politicians advocating for public subsidy of professional team sports clubs (PTSCs) is that the 'investment' will pay off in terms of increased economic activity (Värja, 2016). An extension of this argument is that PTSCs put the 'region or municipality on the map', thereby attracting new citizens, increasing the tax base, and initiating economic growth (Storm, Thomsen and Jakobsen, 2016). Contemporary literature, however, suggests that this is not the case (see Section II). Despite the lack of tangible effects, citizens may still place a value on PTSCs if they, for example, increase their happiness or are a source of pride (Süssmuth, Heyne and Maennig, 2010; Elling, Hilvoorde and Dool, 2014).

In this paper, we aim to elicit the willingness to pay (WTP) using the Contingent Valuation Method (CVM) for first-tier professional football in Denmark when tangible benefits are absent. Common arguments presented in the press are often based on the anticipation that PTSCs produce tangible economic benefits (Storm, Thomsen and Jakobsen, 2016), so it is possible that many citizens – contrary to the evidence – believe this to be true. Therefore, it is plausible that WTP may be overestimated for those citizens who believe that having a PTSC will benefit the community in tangible ways.

This study examines the degree to which public subsidies to PTSCs can be justified when respondents are aware of the academic evidence. Hence, we extend existing research eliciting the WTP for having a professional first-tier football club among 18 to 80-year-old citizens in the Municipality of Slagelse – a medium-sized municipality in the middle of Denmark with 60,434 inhabitants in this age group[1] – when informed about its lacking tangible effects. Further, we use extrapolation to assess the collective WTP in the municipality. In addition, the study examines how factors related to general interest in sports, interest and use of the local football club, proximity to the stadium and

various socioeconomic aspects influence WTP. A map of the 98 Danish municipalities with Slagelse highlighted can be found in the appendix.

To the best of our knowledge, no previous CVM studies on WTP have focused on smaller football nations, and the smallest communities studied were of approximately 185,000 inhabitants (Barlow and Forrest, 2015). Therefore, to help to an informed debate on the issue of allocating public subsidies to PTSCs in smaller communities, politicians, sport managers, civil servants and taxpayers need evidence of the value they produce, which can ultimately lead to more efficient decisions.

Our paper is structured as follows: First, we briefly review existing literature on WTP for PTSCs (Section II). Second, we present our case and methods (Section III), and, third, we present and discuss the results of our regression models and collective WTP estimates (Section IV). Finally, we conclude by focusing on potential for future research (Section V).

II. LITERATURE REVIEW ON THE EFFECT OF PTSCS

North American studies do typically not find evidence that sport franchises create tangible benefits for their communities in relation to employment, income or inbound migration (Baade and Dye, 1988; Siegfried and Zimbalist, 2000; Baade and Matheson, 2004; Baade, Baumann and Matheson, 2008). Lertwachara and Cochran (2007) even report negative effects on income per capita in areas hosting major league franchises.

The same question has been studied in a Scandinavian setting. Värja (2016) studied the tangible effects of PTSCs in football and ice hockey on migration and economic growth in Swedish municipalities, while Storm et al. (2016) also focused on team handball clubs in a study on Danish municipalities. Both studies report non-significant effects in relation to football clubs and negative effects for ice hockey. Professional and semi-professional team handball clubs had only a marginally positive effect on income in Danish municipalities. Due to the opportunity cost associated with public subsidy, the studies conclude that public investments in PTSCs are unsound, as such investments hinder a more efficient use of tax payer funds (Coates and Humphreys, 2003).

Although PTSCs do not result in tangible economic benefits, they may still benefit citizens in other ways. For instance, a study by Streicher et al. (2017) finds that social factors are more important than economic factors in relation to peoples support for hosting the Olympic Games. Additionally, Carlino and Coulson (2004) argue that subsidies for PTSCs can be justified if clubs are public goods – and hence a positive externality (Hudson, 1999; Johnson and Whitehead, 2000) – which increases utility among citizens in the community (Süssmuth, Heyne and Maennig, 2010; Elling, Hilvoorde and Dool, 2014). Feng and Humphreys (2012) reach a similar conclusion,

arguing that utility from sports facilities can be measured and expressed by the value local citizens attach to it.

The general problem when assessing the value of public goods is that behavior cannot be observed directly in terms of quantities and prices (Wicker *et al.*, 2016). The CVM has thus been developed to estimate the value of public goods, whereby respondents are presented with a hypothetical scenario asking them to state their WTP for a good or service (Johnson, 2008). In this way CVM makes it possible to assess whether goods or services are valued by users as well as nonusers (Johnson and Whitehead, 2000) and – further – whether there can be a case for public subsidy.

Studies of North American sport focus on the construction costs of new stadiums and arenas in comparison to the public good value produced by sport franchises. As franchises can relocate, scholars have often assessed citizens' WTP for attracting – or avoiding the relocation of – a franchise.

Johnson and Whitehead (2000) found that the WTP for a new basketball arena, for the local university team, and a new baseball stadium, with the purpose of attracting a minor league franchise, did not justify public financing. Other North American studies have reached similar conclusions in the sense that the construction cost of a new arena far outweighs the public value created by a Major League franchise (Johnson, Groothuis and Whitehead, 2001; Fenn and Crooker, 2003; Johnson, Mondello and Whitehead, 2007).

While the relocation scenario is realistic in North America, clubs in Europe are geographically bound (Storm, Thomsen and Jakobsen, 2016). Barlow and Forrest (2015) used the scenario of relegation from the English Football League's fourth-tier for clubs located in two English towns. They reported that the collective WTP through taxatation to avoid relegation was relatively high compared to the expected revenue generated by

ticket sales. Based on this evidence they suggest that public or municipal intervention in some cases can be justified.

Wicker et al. (2016) used fan bonds as the payment vehicle, estimating the WTP for achieving positive and avoiding negative outcomes for 28 German football clubs. They found, among other things, that nonusers were also willing to buy fan bonds, and for this reason concluded that local governments do not necessarily have to subsidize clubs.

A study of the Spanish football club Deportivo revealed that the local population's WTP – particularly non-attendees with little interest in football – was affected by the economic trends and the club's sporting success (Castellanos, García and Santos, 2014). This indicates that citizens' willingness to subsidize may be more pronounced when the economy prospers, and when the club is performing at a high level. In addition, Castellanos, García and Sánchez (2011) found, using a voluntary contribution approach, that the nonuse value of Deportivo represented more than four-fifths of its total value, which, was well below the debt of the club, but above the cost of a new stadium.

Summing up, the body of research of WTP for PTSCs is rather limited and mostly concentrated on the US Major Leagues and the biggest European football nations (Spain, England and Germany). This warrants more research on the subject to better understand to what extent PTSCs create public good value.

It is also clear that existing studies have paid little attention to whether WTP amounts are estimated on an informed basis in the sense that the general public may have different perceptions of the benefits (and costs) associated with PTSCs. In the section below, we present our case and approach.

III. CASE AND METHODS

The Danish Case

In Denmark, football is by far the most prominent commercial sport in relation to the number of spectators, television viewers and general media attention (Hedal, 2006). From 2007-14 approximately one billion DKK (€134 million) was invested in elite sports facilities primarily for the use of professional football clubs (Alm, 2014). Municipal sponsorships of professional sports clubs are not an uncommon phenomenon either (Storm and Brandt, 2008), and there are even examples of illegal subsidies being paid directly or indirectly by municipalities to PTSCs (Storm and Nielsen, 2015).

In 2017/18 the Danish first-tier, which consists of 14 clubs, had 5,880 spectators on average, while the second and third tiers averaged 1,346 and 347 spectators respectively. Clubs outside the third-tier are considered amateur and do not have license to sign contracts with players, and clubs in the second and third tiers must be approved by the Danish Football Association (Danish FA) to hire players on professional or semi-professional contracts. Therefore, any benefits of having a professional football club should clearly be more pronounced if it is positioned in the first-tier.

In 2012/13 the football club, FC Vestsjælland – a professional organization established from the amateur club Slagelse B&I – was promoted to the first-tier. However, after surviving its first year in the top division it was relegated the following season. In 2015/16, now playing in the second-tier, the club failed to pay out salaries. Shortly after, the board declared the club bankrupt, which resulted in a forced relegation to the fifth-tier where the reserve team was already placed. FC Vestsjælland was dissolved as a result and the club license went back to Slagelse B&I. In its first season (2016/17), Slagelse B&I was promoted to the fourth-tier and again to the third-tier the following year

(2017/18). When the survey was conducted, Slagelse B&I stood in a comfortable first place in the fourth-tier with high probability for promotion.

A problem with the CVM approach using a hypothetical scenario is that respondents may overstate their true WTP, but the risk is reduced if the scenario is realistic (Loomis, 2011). Although it can be cognitively challenging to compare one hypothetical scenario (playing in the second-tier relative to playing in the fourth-tier) to another (promoting to the first-tier), it was not long ago that the club was represented in the first-tier. Therefore, the citizens should have enough knowledge of the utility they attach to having a football club in the first-tier and hence the Municipality of Slagelse provides a suitable environment for testing WTP for PTSCs within the community.

Data: The questionnaire and variables

The study was designed as a cross-sectional survey in the spring of 2018 as an add-on to an online questionnaire (in Danish) on sports participation delivered through e-Boks[2] to 2,941 randomly chosen citizens in the Municipality of Slagelse between the age of 18 and 80[3]. The 934 (31.8%) respondents' completing the sports participation survey were invited to continue to additional questions concerning the importance of having a professional football club in their community.

In the introduction it was emphasized that the questions were also relevant to respondents who did not have a general interest in football. Of the 934 respondents completing the sports participation survey, 521 answered 'yes' to continue to the additional questions. Of those, 514 completed the questionnaire. Further 35 respondents were excluded due to inconsistent responses. Hence, the analysis is based on 479 respondents.

The participants were first asked about their general interest in sports followed by their interest in Slagelse B&I's first team (the full questionnaire is included in the

appendix, labeled Questionnaire). Both questions asked respondents to state their interest on a Likert scale ranging from 0 to 10. Although there are some issues associated with using Likert scales, for example treating it as interval scaled although it is ordinal scaled (e.g. Knapp, 1990; Kuzon, Urbanchek and McCabe, 1996 for further discussion) and that intervals between values cannot be presumed equal (Cohen, Manion and Morrison, 2000), we believe that no better alternative to measure the level of interest exists.

The participants were also asked how many matches involving the club (first team) they had attended within the last 12 months. Instead of an open category, we used classes to ease the cognitive load. This enabled us to examine whether use of the club affects WTP. After this question, the respondents were introduced to a hypothetical scenario in which the municipality signs a one-year sponsorship deal with Slagelse B&I securing the club's promotion from the second to the first-tier, asking respondents to state their WTP without being informed about the academic evidence that tangible economic benefits produced by PTSCs are non-existent or marginal (see appendix, Questionnaire, Q5).

This first question served as a test to identify inconsistent responses to the second 'informed' question, which is the question of interest for our study. It should be noted that in Denmark, municipalities, like businesses, can legally engage in sponsorships with sports clubs if they receive an actual service related to the sponsorship in return. In the following question, the participants were provided with additional information about the research evidence suggesting that PTSCs have no or marginal effects on local economic growth and migration and were asked to state their WTP after reading this information (see appendix, Questionnaire, Q8).

To reduce starting point bias, anchoring bias and extremely high values (outliers), we used a payment card (Bateman *et al.*, 2002). To influence the respondents as little as

possible, we included 25 different values and asked them to tick off the maximum WTP per month (for a year) with values ranging from 0 to 500 DKK (€67) and an additional option for respondents willing to pay above 500 DKK (>€67). We used increasing intervals to capture the respondent's sensitivity in relation to small amounts, but at the same time challenged them on their maximum WTP (Smith, 2006).

All respondents stating a WTP of zero in the first question without information of lacking tangible effects were asked to indicate the reason for their answer. This enabled us to identify potential protest bids, and hence assess whether the respondents have potentially understated their WTP. In accordance with the definition outlined by Bateman et al. (2002), we identify potential protest bids as the following: 'I am against economic involvement from the municipality in a professional sports club' and 'I will not pay higher taxes' without giving one of the additional (valid) reasons: 'I cannot afford to pay' and 'I believe that the municipality should prioritize other areas'.

The respondents were subsequently asked to state the certainty of their WTP. In addition, the survey comprised questions about the respondents' gender, age and level of education. Further, GIS data allowed us to calculate the distance between the respondent's home and the stadium where Slagelse B&I plays its home matches.

Further, the 35 respondents increasing their WTP after receiving additional information about the lack of tangible benefits produced by PTSCs were excluded. From a theoretical perspective this information should not lead to an increase in utility for any respondent. Hence, increased values indicate that these respondents have ticked a random value or misunderstood the information.

Statistical analysis

We use a two-step approach first to explore determinants for accepting to pay for Slagelse B&I being represented in the first-tier, and hence distinguish between positive values (WTP > 0) and zeros. Second, we investigate the determinants of differences in WTP among respondents with WTP > 0.

In part one, we apply a binary logit model with robust standard errors to analyze the factors determining whether respondents would accept to pay for Slagelse B&I to be represented in the first-tier. We use a dummy as dependent variable which equals one if the respondent stated a positive WTP on the payment card, and zero if the respondent ticked '0'.

The use of a payment card with intervals means that respondents cannot necessarily state their true WTP, which can be between intervals. Therefore, we assume that the stated value on the payment card represents the interval between the value ticked on the payment card and the next (higher) value, a_{j+1}, $a_j \leq \text{WTP}^* < a_{j+1}$ (Donaldson *et al.*, 2010; Kronborg *et al.*, 2017). To consider this, we apply the interval regression in part two, which is based on the following criteria:

(1) $\text{WPT}^*_i = x_i\beta + \varepsilon_i$,

and the probability that a respondent's WTP* falls in the *j* category is given by:

(2) $P(\text{WPT}^*_I = j) = \Phi[(a_{j+1} - x_i\beta)/\sigma] - \Phi[(a_j - x_i\beta)/\sigma]$,

where x is a vector of observed characteristics of respondent i, β is the vector of coefficients, ε is a normally distributed error term, Φ is the standard normal cumulative

distribution function, and σ is the standard deviation of the error term. As a robustness check, we further apply OLS regression with robust standard errors using the actual value ticked on the payment card by the respondent. To deal with skewness and kurtosis we use the natural logarithm to WTP.

We include the following background variables as independent variables in our regression models: Whether the respondent is female; the respondent's age divided into groups (18-33; 34-49 and 65-80 with 50-64 as the reference group); and whether the respondent has a higher education qualification (Education). We do not have information on the respondents' income. Yet, education and work experience – being important drivers of income (Polachek, 2003) – are (partly) captured by the background variables. We expect that respondents with a general interest in sport (Interest sport) and a particular interest in Slagelse B&I (Interest SBI) generally have a higher WTP and therefore enter a dummy variable which equals one if the respondent has ticked '5 to 10' where '10' is highest. Further, we include a variable indicating whether the respondent has attended a match including Slagelse B&I's first team within the last 12 months (Attended) expecting a positive sign. In addition, we include a measure of the respondents living distance from the stadium (Distance) with no expected sign *a priori* as the positive externality connected to pride should be strongest for those living nearby, but the same people will also suffer most from the negative externalities such as noise, potential vandalism and police shutting off roads on match days.

Collective WTP estimates

To examine the collective WTP for first-tier football in the Municipality of Slagelse, we use four different approaches, where we extrapolate the aggregate WTP from the sample to the municipal population. The first two approaches respectively (1) include and (2) exclude potential protest bidders, and while these samples are sufficient for analyzing

determinants of WTP, attendees are most likely overrepresented in the sample leading to biased (over)estimates. Therefore, we further present a WTP estimate based on (3) non-attendees.

Additionally, although respondents with a lack of interest in professional sport were urged to participate, it is reasonable to assume that individuals with an interest in professional sport would have a higher propensity to participate. Following the suggestion by Johnson and Whitehead (2000), we set a lower bound estimate of collective WTP and set all non-responses to zero, assuming that non-responses express lack of interest in the subject and hence have a low WTP. We therefore include an estimate (4) where participants answering 'no' to the additional questions related to having a professional football club in the community have their WTP set to zero.

We asked respondents to state their WTP on an individual level, however, a study by Delaney and O'Toole (2004) revealed that two-thirds of respondents answering the question what would '…be the maximum 'you' would pay…' interpreted 'you' as the household. Other studies show that there is little difference in bids when asking about the individual's WTP as opposed to the aggregated WTP of the household (Strand, 2007; Lindhjem and Navrud, 2009), so it makes significant difference whether WTP is extrapolated on an individual or household level.

In the Municipality of Slagelse there are 37,983 households and 60,434 individuals (18 to 80-year-olds) living in them, so using the latter figure results in a collective WTP that is 59.1% higher than the first[4]. Therefore, we run estimates at both levels.

Presentation of data

The individual maximum WTP for having Slagelse B&I represented in the Danish first-tier varies from 0 to 400 DKK (€54) per month for a year (see Table 1). 256 of the

479 (53.4%) respondents stated a WTP of zero, whereas 130 (27.1%) had a WTP between 1-10 DKK. The highest amount ticked (by only one respondent) was 400 DKK with the next highest being 150 DKK. The highest amount more than one respondent ticked was 100 DKK (15 respondents) with an average WTP of 12.14 DKK.

Assessing strategic behavior (Bateman *et al.*, 2002) in relation to potentially overestimated WTP bids, only the bid of 400 DKK stands out as 'very high'. To access whether this is believed to be an expression of true WTP or strategic behavior, it should be noted that the respondent had room to increase WTP further to 500 DKK or >500 DKK. The respondent expressed great interest in sports (ticked '8') and Slagelse B&I (ticked '9') and had attended matches within the last 12 months but stated to be uncertain about the ticked amount. Although this may be cause for suspicion, we treat the response as valid. When removing this respondent, the average WTP drops from 12.14 to 11.33 DKK.

--- Insert Table 1 here ---

Comparing the characteristics of the respondents in the sample with the 18 to 80-year-old population in the Municipality of Slagelse, a goodness-of-fit test reveals that the sample is representative of gender, but not of age group, where the 50 to 64-year-old group is overrepresented in our sample, whereas the 18 to 33-year-olds are underrepresented (from appendix, table 1). Furthermore, respondents with a higher education qualification are grossly overrepresented by 45.1% to 25.3% for the whole 20 to 69-year-old population (appendix, table 2)[5]. A plausible explanation for this overrepresentation is that individuals who are physically active are more likely to respond to a survey on sports participation and that the physically active, on average, are better educated (Pilgaard, 2008). Respectively 63.0% and 26.3% ticked a value of between 5-10 (10 being maximum interest) in relation to their interest in sports and Slagelse B&I, and 15.4% of the respondents stated that they had attended a match within the last 12 months.

Of the 256 respondents having a WTP of zero, more than half (140) stated that they are against the municipality being economically involved in a PTSC, while 57 respondents stated that they would not pay higher taxes. Many gave additionally valid reasons, so we identified 115 potential protest bids all together. Only six respondents answered ‘don’t know’ to the question following their zero bid. More than four-fifths (82.9%) of the respondents either stated they were certain or very certain about their maximum WTP (see Table 2).

--- Insert Table 2 here ---

Interestingly, the consistency test revealed that WTP did not decrease for most respondents after receiving additional information about the lack of tangible effects produced by PTSCs. Only 37 of the 223 (16.6%) respondents with a positive WTP lowered their amount after receiving this information[6].

IV. RESULTS, DISCUSSION AND LIMITATIONS

Determinants of WTP

In the first part of this section, we examine the results for whether respondents are willing to pay for their local football team to win promotion to the first-tier (see Table 3). As expected, both models report significant effects at the 1% level for 'Interest sport', and 'Interest SBI' indicating that respondents with a general interest in sport and in the local club are more likely to be willing to pay than respondents with no interest. The results are robust across the specifications.

When including potential protest bidders (Model 1), we find that if a respondent has attended a match within the last 12 months it has a positive significant effect at the 5% level with an odds ratio of 1.9. Yet, when excluding potential protest bidders (Model 2), the variable becomes non-significant with a p-value of 0.232.

We find no significant differences for gender, living distance from the stadium or whether respondents have a higher education qualification, while the 18 to 33-year-olds are less likely to have a WTP of > 0 relative to 50 to 64-year-olds (10% level) when excluding potential protest bidders.

--- Insert Table 3 here ---

In the second part of this section, we assess the amount that respondents are willing to pay among the 223 who stated a positive WTP (WTP > 0) (see Table 4). The results are consistent in the two models, reporting a significantly higher WTP (10% level) when the respondent has an interest in Slagelse B&I, while the WTP is significantly lower for females (5% level). Both the 34-49 (5% level) and 65-80-year-olds (1% level) have a significant lower WTP relative to the 50 to 64-year-olds, while the 'Age 18-33' has a negative sign but is non-significant with p-values of 0.165 and 0.155 in the respective models. Further, 'Interest sport' is non-significant with the expected positive sign, but close to the cut-off with p-values of 0.112 and 0.113 dependent on the model. The results are robust across models.

--- Insert Table 4 here ---

Respondents with a higher education qualification have a slightly higher WTP (13.39 DKK) than respondents without (11.12 DKK), but as the effect of education is non-significant, the overrepresentation of respondents with a higher education qualification is not likely to bias the estimates heavily. It is likely that the (significant) differences between age groups can – at least to some degree – be ascribed to income differences as 34-49 and 50-64-year-olds earn substantially more than 18-33-year-olds – which include a high proportion of students and individuals with little or no work experience – and 65-80-year-olds consisting of individuals over the retirement age of 65. As the underrepresented group of 18 to 33-year-olds has a significantly lower WTP (10.15 DKK) than the overrepresented group of 50 to 64-year-olds (16.38 DKK) the collective WTP estimates will be biased upwards. Under the assumption that the average WTP is

dependent on age, the average WTP for the total population is 2.5% lower than for the sample. We use this information to adjust our conservative estimate accordingly.

Collective WTP in the Municipality of Slagelse

We estimate the collective extrapolated WTP among the 18 to 80-year-old population in the Municipality of Slagelse, where respondents were provided with the evidence failing to support the argument that PTSCs produce tangible benefits.

The estimates for collective WTP are presented in Table 5. It appears that there are relatively large differences, ranging from an annual WTP of 2.9 to 7.3 million DKK (€0.39-0.98 million) when broken down by households, and from 4.6 to 11.6 million DKK (€0.62-1.55 million) when broken down by individuals for the year. Further, it should be noted that in three out of four estimates, more than half of the population have a WTP of zero.

--- Insert Table 5 here ---

Discussion

We find that interest in sport does determine whether a respondent is willing to pay, but it does not significantly affect the magnitude of their WTP for a first-tier football club. Similarly, whether a respondent has attended a match within the last 12 months also seems to have a positive effect on whether the respondent is willing to pay, but quite

surprisingly has no effect on the magnitude of their WTP. Interest in Slagelse B&I (interest SBI) is the only constantly significant variable that both affects whether respondents are willing to pay and the magnitude of their WTP.

In line with Barlow and Forrest (2015), we find our conservative estimate of 2.9 million DKK (€0.39 million) on a yearly basis to be most reliable. It seems grossly overstated that 15.4% of the population have attended a match within the last 12 months as it is the case in the first estimate, while it is 18.1% in the second estimate. A summary from Slagelse B&I's general assembly in February 2018 revealed that the club's average attendance was 738 in the Danish fourth-tier (SBI, 2018). Within the last 12 months Slagelse B&I played 15 league home games and three cup games (including a cup match against Hobro IK with 1,446 spectators). Based on the available information, the aggregated attendance for these 18 games is approximately 14,000, which makes up 23.2% of the 18 to 80-year-old population (60,434). Yet, demand studies show that a large proportion of attendance is made up of core support (Peel and Thomas, 1992; Pawlowski and Nalbantis, 2015). We expect this to increasingly be the case for lower level football, which do not appeal to the masses. It is therefore reasonable to assume that the number of unique attendees is well below 14,000. This means that the number of attendees is likely to be overrepresented and, as attendees have an average monthly WTP of 26.18 DKK compared to 9.58 DKK for non-attendees, this may result in an overestimation of the collective WTP.

When including non-respondents – assuming they do not attend matches – in '(4) All recipients and age adjusted', the proportion of attendees falls to 8.3%. This is probably closer to the true number of individuals in the municipality's population that have attended a match, but it may still be exaggerated. Yet, as the WTP is 4.37 million DKK among the (3) non-attendees in our sample, we argue that it is unlikely that the

community's true WTP for a first-tier football club under the given circumstances is below our conservative estimate of 2.9 million DKK.

Barlow and Forrest (2015) estimated, also based on conservative estimates, annual benefits of approximately 2.0 (€0.27 million) and 2.3 million DKK (€0.31 million) for Bury (population: 183,300) and Luton (population: 188,800) by avoiding relegation from the English fourth-tier, which is equivalent to approximately 9-10% of the revenue generated from ticket sales. In comparison, Castellanos et al. (2011) reported that the total annual benefit of the football club Deportivo in A Coruña in Spain, covering an area of 300,958 inhabitants, was approximately 26.1 million DKK (€3.5 million) with the non-use value (€2.9 million) making up about 3% of the annual club budget. Unsurprisingly, these results indicate that there can be large differences in the collective utility across sports, countries, cultures, size of the community and the sports performance of the respective clubs.

The results demonstrate that citizens generally attach significant value to having a first-tier professional club in their community – relative to having a top second-tier club – even when made aware that the effect on the local economy is absent or marginal. In other words, PTSCs, or at least football clubs located in smaller communities, produce a significant level of intangible utility for citizens. From a policy perspective, if Slagelse B&I wins promotion from the second to the first-tier it will generate value in the municipality worth 2.9 million DKK. This indicates that there can be circumstances in which public subsidy of PTSCs can increase social welfare.

According to annual reports from 2016/17 the 12 clubs in the Danish second-tier had average total personnel expenses of 9.7 million DKK ranging from 4.4 to 22.7 million DKK, while the 14 clubs in the first-tier averaged 59.3 million DKK ranging from 21.6 to 159.9 million DKK. The hypothetical scenario used in this study refers to the extreme

situation where the club in question will either win promotion to the first-tier or stay in the second-tier. However, as clubs normally operate in a non-deterministic environment in competition with other clubs, it is highly uncertain whether a municipal sponsorship of 2.9 million DKK would materialize in promotion. Yet, it is a significant amount for any second-tier club allowing them to increase their spending on talent, while the effect would be rather limited for most first-tier clubs. In this respect, it should be stressed that if promoting a club proves costlier or if a municipal sponsorship does not materialize in sporting success, this would lead to a net welfare loss for taxpayers. If all municipalities with clubs in the second-tier invest in sponsorships – which the clubs then invest in talent – the effect on promotion would be offset. Hence, the taxpayers' money will be wasted in those municipalities where the local club is not promoted. Therefore, municipalities should be utmost careful in their evaluation of whether to subsidize PTSCs. Moreover, they should be certain not to interfere with EU law when engaging with PTSCs.

This study has focused on public subsidy in the form of sponsorships, but in Denmark the most substantial public subsidies given to PTSCs are investments in football stadiums (Bang, Alm and Storm, 2014). Danish professional football clubs must meet the licensing requirements set out by the Danish FA in 2003 – and these are currently managed by the association of Danish professional elite soccer clubs (Divisionsforeningen) – which typically require investments well over our estimates.

In this sense, it is important to note that although PTSCs produce significant value for the municipality, most respondents – 74.9% in our conservative estimate – have a WTP of zero. From a democratic perspective this is interesting, as it would mean that if citizens were to decide whether to sponsor Slagelse B&I by voting, the proposition would be declined. Alternatively the club could resort to crowdfunding, issuing fan bonds – as

suggested by Wicker et al. (2016) – or floating stocks to materialize WTP among citizens with a positive WTP.

Further, the overwhelming number of zero bids and the large number of respondents stating that they are against that the municipality should be involved in the financing of PTSCs (54.7% of all zero bids) has political implications. If the objective of political parties is to maximize their number of votes, politicians should be concerned with the general public's attitude towards subsidizing PTSCs.

Limitations

The findings should be interpreted in relation to the study's potential limitations. First, it is not given that the respondents process the information that economic impact of PTSCs is likely to be marginal or non-existent. For instance, it is possible that some respondents disagree with the evidence and base their WTP on their own perceptions of PTSCs' effects on the local economy.

Second, we find that the differences in WTP before and after the information are marginal. This could indicate that only a small proportion of the total utility produced by a PTSC is attached to the belief that they produce tangible benefits; however, this should be interpreted with caution. Hence, although it is possible that many respondents were already aware of or believed tangible effects to be absent or marginal before receiving the information, we cannot rule out that it is caused by respondents being anchored towards their initial stated value (Bateman *et al.*, 2002), or being resistant to changing their WTP, as this can make them look ignorant or unaware (social desirability). A more suitable way of testing this could be to divide respondents randomly into two equally large groups with and without relevant information (e.g. Hansen, 1997; Pedersen, Gyrd-Hansen and Kjær, 2011). This has, however, not been possible in this study due to the relatively low sample size.

Third, the respondents are only asked about their present use (whether they have attended within the last 12 months) of Slagelse B&I and not their intended use, as done by, for example, Johnson and Whitehead (2000). It is possible that intended use is different from present use, and this can also be a determinant of WTP.

Fourth, the hypothetical context in this article assumes that the respondents have the cognitive capability to imagine the scenario and find it realistic. While the Municipality of Slagelse has previously hosted a first-tier football club, Slagelse B&I was an amateur club playing in the fourth-tier when the survey was conducted (Spring 2018) and cannot be promoted to the first-tier until the summer of 2020.

Fifth, as the WTP questions are an extension of a sports participation survey, it is likely that the survey appeals to those who participate in sports themselves and that individuals who participate in sports are generally more interested in professional sport. This is supported by Pilgaard (2008), who reports a positive relationship between sports participation and consumption of professional sport. This problem of self-selection could potentially bias the WTP estimates upwards. To assess whether this is a cause of severe concern, we ran additional models (not reported here) similar to those presented in table 3 and 4, where we included a dummy variable indicating whether the respondent answered ‘yes’ to the question ‘do you normally participate in sport/exercise’ but found it to be non-significant. So, although we cannot reject that the survey appeals more to people with a general interest in sport, it does not seem to have pronounced influence on their WTP and hence we expect any upward bias to be non-existent or marginal.

V. CONCLUSION AND FUTURE RESEARCH

This paper tested which factors had an impact on WTP and estimated the collective informed WTP for first-tier football in a medium sized Danish municipality. The latter results were gathered by providing respondents with academic evidence suggesting that the tangible effect of PTSCs are non-existent or marginal. Deploying regression estimation techniques on a sample of municipal inhabitants, we find that interest in the local club is an important driver of WTP being significant both in relation to whether a respondent is willing to pay and the magnitude of the WTP. Further, general interest in sport also seem to have importance, although being non-significant – but very close to the cut-off – in relation to the magnitude of WTP. We found that a first-tier football club had a conservative estimated value of 2.9 million DKK to informed citizens in the Municipality of Slagelse.

Our findings and the limitations of the study stated above point towards new research avenues. Most importantly, more research is needed on smaller leagues, other sports and other types of municipalities. This study focuses on a specific setting in a medium-sized Danish municipality – and a certain scenario – but it is likely that other contexts will reveal different results. It is thus imperative that the findings are expanded and tested in other studies. To be more concrete, case studies utilizing WTP approaches should ideally be used prior to political decisions on allocating municipal subsidies to PTSCs. This is because the utility attached to PTSCs can vary greatly, for example across urban areas and provinces. It is our hypothesis that utility for PTSCs is often greater in rural areas or provinces where a club can be a beacon for the city, compared to large urban cities that are dominated by other cultural institutions that attract attention and – thus potentially – define the city locally, nationally and globally. But if the public good value of PTSCs is significant, this can drive up collective WTP in high density areas. We hence

argue that city councils could apply the methodology utilized in this study to estimate the specific WTP for PTSCs in their municipality. This could provide them with valuable information about the value a specific PTSC produce in their local area, which as a side effect could provide scholars with rich data giving further insight to the subject.

Additionally, while North American studies have focused on WTP for sports stadiums, this has not been done in Europe as clubs are geographically bound. However, in light of the licensing requirements in Denmark, for instance, it would be interesting to find out whether the WTP for stadium subsidies in relation to obtaining a first-tier license would be any different from sponsorship subsidies. Future studies could aim at testing this in detail.

Notes

1. The data for 2018 were collected from Statistics Denmark. The total number of inhabitants in the municipality is 78,968.
2. e-Boks is an online digital mailbox for all Danish citizens connected to their personal registration number. e-Boks is used by Danish public authorities to send out all relevant personal information on tax, health issues, salaries and so on.
3. The survey was further distributed to 16 to 17-year-olds. As these respondents are under the legal age (18 years) and only few pay taxes, these individuals are excluded from the analysis.
4. Based on data collected from Statistics Denmark.
5. Based on data collected from Statistics Denmark. For education, data are not available for individuals over 69 years.
6. The additional information about lacking tangible effects led to a reduction in WTP from 13.27 to 12.14 DKK.

7. The number of respondents (892) in estimate (4) is the sum of respondents completing the questionnaire (479) and respondents answering ‘no’ to ‘participate’ (413). When adjusting for the age distribution the collective WTP is reduced from 2,971,882 to 2,896,305 DKK (households) and from 4,728,305 to 4,608,253 DKK (individuals) respectively.

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VII. DISCLOSURE STATEMENT

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Name	*Frequency (relative)*	*Sample mean (SD)*	*Min.*	*Max.*
WTP (DKK)		12.14 (28.85)	0	400
Distance (metres in 100)		76.81 (64.84)	3.31	23.23
Female	245 (0.511)			
Age: 18-33	88 (0.184)			
Age: 34-49	114 (0.238)			
Age: 50-64	169 (0.353)			
Age: 65-80	108 (0.225)			
Education	216 (0.451)			
Interest sport	302 (0.630)			
Interest SBI	126 (0.263)			
Attended	74 (0.154)			

Table 1.
Summary table variables (*n*=479)

Variable	*n (%)*
Stated certainty (n=479)	
Very uncertain	31 (6.5%)
Uncertain	51 (10.6%)
Certain	201 (42.0%)
Very certain	196 (40.9%)
Reasons for answering zero (n=256)	
I am against economic involvement from the municipality in a PTSC	140 (54.7%)
I cannot afford to pay	22 (8.6%)
I will not pay higher taxes	57 (22.3%)
I believe that the municipality should prioritize other areas	84 (32.8%)
Other	37 (14.5%)
Don't know	6 (2.3%)

Table 2. Certainty of maximum WTP and reasons for answering zero

Table 3. Logistic regression models with robust standard errors

	Model 1 (with protest bids)		**Model 2 (without protest bids)**	
Independent variables	*Coefficient (SE)*	*Odds ratio*	*Coeffcient (SE)*	*Odds ratio*
Female	-0.027 (0.206)	0.973	-0.158 (0.251)	0.854
Age 18-33	-0.185 (0.304)	0.831	-0.612 (0.326)*	0.177
Age 34-49	0.172 (0.259)	1.188	0.068 (0.311)	0.333
Age 65-80	-0.267 (0.276)	0.765	-0.061 (0.369)	0.941
Education	0.050 (0.208)	1.050	0.130 (0.260)	1.138
Distance (metres in 100)	-0.001 (0.002)	0.999	-0.0004 (0.002)	1.000
Interest sport	1.071 (0.234)***	2.919	1.071 (0.261)***	2.920
Interest SBI	0.843 (0.274)***	2.324	1.281 (0.385)***	3.600
Attended	0.648 (0.328)**	1.911	0.503 (0.421)	1.654
Constant	-1.025 (0.314)***	0.359	-0.381 (0.342)	0.683
Observations	479		364	
Log pseudolikelihood	-290.315		-203.842	
Pseudo R-squared	0.123		0.161	
Wald Chi-squared	69.67		61.89	

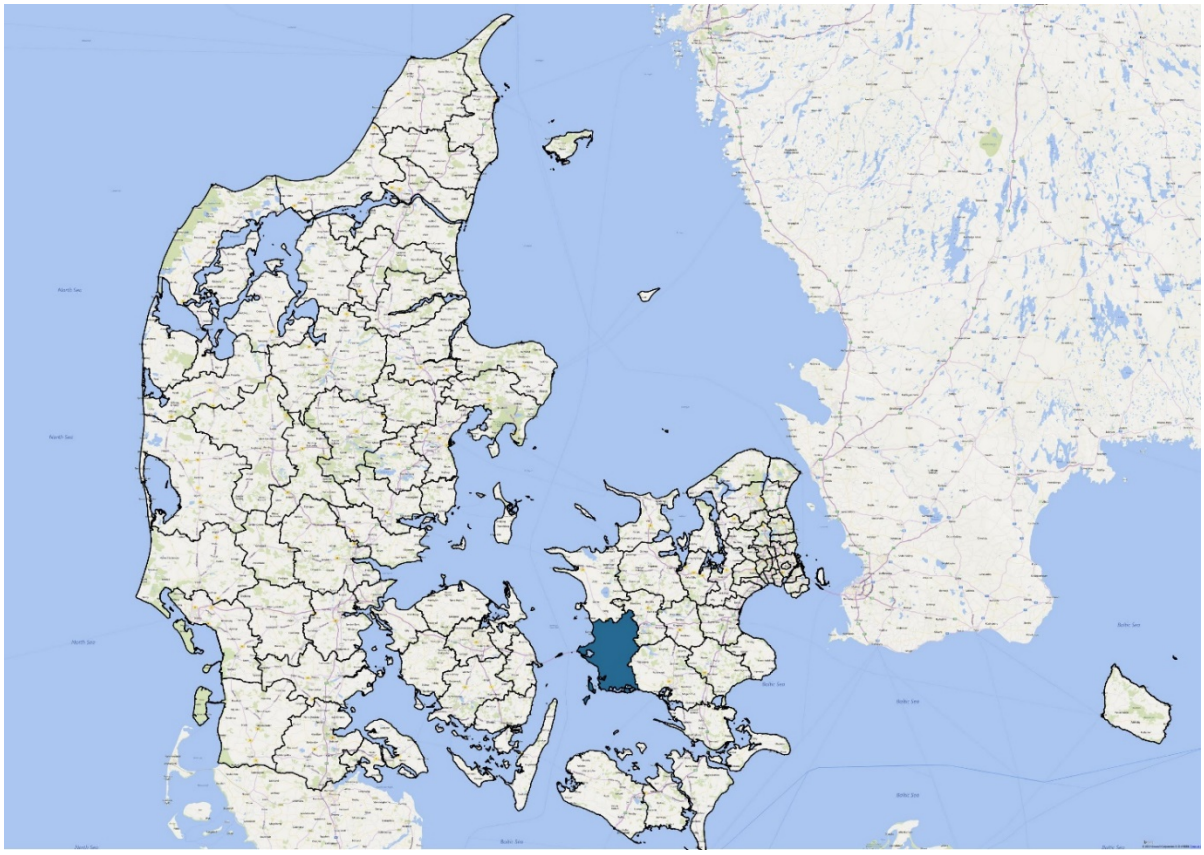
Table 4.
Interval regression and OLS with robust standard errors

	Interval regression	**OLS**
Independent variables	*B (SE)*	*B (SE)*
Female	-0.365 (0.155)**	-0.372 (0.161)**
Age 18-33	-0.350 (0.252)	-0.379 (0.265)
Age 34-49	-0.371 (0.188)**	-0.386 (0.194)**
Age 65-80	-0.595 (0.172)***	-0.591 (0.179)***
Education	0.082 (0.153)	0.101 (0.158)
Distance (metres in 100)	-0.001 (0.001)	-0.001 (0.001)
Interest sport	0.340 (0.215)	0.364 (0.228)
Interest SBI	0.303 (0.173)*	0.319 (0.179)*
Attended	0.111 (0.194)	0.102 (0.200)
Constant	2.817 (0.237)***	2.645 (0.249)***
Observations	223	223
R-squared		0.119

	(1) Incl. protests	*(2) Excl. protests*	*(3) Non-attendees*	*(4) All recipients and age adjusted*
Collective yearly WTP, households (37,983)	5,534,277	7,283,620	4,366,526	2,896,305
Collective yearly WTP, individuals (60,434)	8,805,479	11,588,824	6,947,493	4,608,253
Average monthly (yearly) WTP	12.14 (145.70)	15.98 (191.76)	9.58 (114.96)	6.35 (76.25)
Sample size	479	364	405	892
Respondents with WTP = 0 (%)	256 (53.4%)	141 (38.7%)	237 (58.5%)	669 (74.9%)

Table 5. Collective WTP for first-tier football in the Municipality of Slagelse (DKK)[7].

Appendix



Map. The 98 municipalities in Denmark (the Municipality of Slagelse is highlighted)

Questionnaire

Q1: *Thank you for completing the survey about sports participation in the Municipality of Slagelse. If you continue, you will be presented with a short survey regarding your interest in professional sports and the importance of having a professional football club in the municipality. This part of the survey is also relevant if you are not interested in sport. It takes 1-3 minutes to complete the questionnaire.* (A1: Yes please, I would like to participate; A2: No, I do not wish to participate.)

Q2: *How would you evaluate your general interest in professional sport (e.g. football, handball or similar) on television, online or as a spectator?* (A Likert scale ranging from '0' (no interest) to '10' (great interest) was presented to the respondent)

Q3: *How would you evaluate your general interest in Slagelse B&I's (football) first team?* (A Likert scale ranging from '0' (no interest) to '10' (great interest) was presented to the respondent)

Q4: *Have you attended any matches with Slagelse B&I's first team within the last 12 months?* (A1: No, I have not attended any matches; A2: Yes, I have attended 1-2 matches; A3: Yes, I have attended 3-5 matches; A4: Yes, I have attended 6-10 matches; A5: Yes, I have attended more than 10 matches)

Q5: *Imagine the following hypothetical scenario: In the coming years Slagelse B&I is promoted to the second-tier and is in a position to be promoted to the first-tier. A condition for promotion is to fulfill the requirements for economic robustness set by the Danish FA. To help the club achieve promotion, the Municipality of Slagelse signs a one-year sponsorship deal with Slagelse B&I (the sponsorship is revised when it expires). To finance the sponsorship, the municipality has decided to increase the municipal tax rates. Based on this scenario, what is the maximum you are willing to pay per month (via municipal taxes) for Slagelse B&I to be represented in the first-tier?* (A payment card was presented: 0 DKK; 1 DKK; 2 DKK, 3 DKK; 4 DKK; 6 DKK; 8 DKK; 10 DKK; 12 DKK; 15 DKK; 20 DKK; 25 DKK; 30 DKK; 40 DKK; 50 DKK; 75 DKK; 100 DKK; 125 DKK; 150 DKK; 200 DKK; 250 DKK; 300 DKK; 400 DKK; 500 DKK; more than 500 DKK) NB: For all amounts the equivalent yearly payment was written in brackets.

Q6: *How certain are you on your stated amount?* (A1: Very uncertain; A2: Uncertain; A3: Certain; A4: Very certain)

Q7 (Only shown to respondents with a WTP = 0): *What is the reason that you answered 0 DKK?* (A1: I am against economic involvement from the municipality in a PTSC; A2: I cannot afford to pay; A3: I will not pay higher taxes; A4: I believe that the municipality should prioritize other areas; A5: Other; A6: Don't know) NB: It was possible to tick multiple reasons.

Q8: *It is a frequently used (local) political argument that public subsidy of professional sports clubs pays back in terms of increased economic activity. However, research evidence suggests that professional sports clubs have no or marginal effects on local economic growth and migration. In light of this information, what is the maximum you are willing to pay (via taxes) for Slagelse B&I to be represented in the first-tier?* (A payment card was presented: 0 DKK; 1 DKK; 2 DKK, 3 DKK; 4 DKK; 6 DKK; 8 DKK; 10 DKK; 12 DKK; 15 DKK; 20 DKK; 25 DKK; 30 DKK; 40 DKK; 50 DKK; 75 DKK; 100 DKK; 125 DKK; 150 DKK; 200 DKK; 250 DKK; 300 DKK; 400 DKK; 500 DKK; more than 500 DKK) NB: For all amounts the equivalent yearly payment was written in brackets.

Q9: *How certain are you of your stated amount?* (A1: Very uncertain; A2: Uncertain; A3: Certain; A4: Very certain)

Q10: *If you have any comments regarding your WTP, please elaborate:* (Textbox)

Thank you for your participation! You have completed the questionnaire and your answers have been registered.

Age groups	*#citizens (relative)*	*#respondents (relative)*	*Average WTP (DKK)*
18-33	15,244 (0.252)	88 (0.184)	10.15
34-49	15,382 (0.255)	114 (0.238)	12.42
50-64	16,375 (0.271)	169 (0.353)	16.38
65-80	13,433 (0.222)	108 (0.225)	6.84

Table 1. Age distribution in the Municipality of Slagelse (18 to 80-year-olds) compared to the sample.

Higher education	*#citizens (relative)*	*#respondents (relative)*	*Average WTP (DKK)*
Higher education	12,608 (0.253)	216 (0.451)	13.39
No higher education	37,230 (0.747)	263 (0.549)	11.12

Table 2. Education distribution in the Municipality of Slagelse (20 to 69-year-olds) compared to the sample.