Do They Make a Difference? Professional Team Sports Clubs' Effects on Migration and Local Growth: Evidence from Denmark

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Abstract

It is a common made argument in Denmark that municipal involvement in professional team sports can be justified on the grounds of local impact. The use of public funds to directly or indirectly subsidise local professional team sports clubs (PTSCs) is often seen as warranted due to the PTSCs' positive effects on local economic growth or (inbound) municipal migration. However, can PTSCs be associated with tangible effects at all? This question has never been answered properly in a European context. Based on data covering the 2008–2013 period, and using spatial panel regression models, this article examines this issue in relation to three dominant professional sports in Denmark: Football (soccer), handball and ice hockey. The study only finds effects on one of the sports examined, with Danish handball clubs exercising a marginal effect on average income. Ice hockey's effect is negative and football remains insignificant in all models deployed. Concerning migration, negative effects are found in relation to female handball clubs. These findings are consistent with previous research and have implications for local sport policies and managers. Municipal politicians, public authorities or sport managers should stop rationalising the use of public funds for local PTSCs on the assumption of (tangible) economic effects or population growth. In short, it seems like an inefficient use of public money. If policy makers or sport managers want to increase municipal income or inbound migration, they should engage themselves in developing more appropriate strategies.

Keywords: Professional Team Sports, Economic Growth, Migration, Denmark.

1. Introduction

Danish municipalities provide facilities and, sometimes, substantial financial support for professional team sports clubs (PTSCs) (Bang, Alm, & Storm, 2014; Danish Competition Authority, 2003). Many base their (public) investments on the assumption that successful PTSCs can generate income for a municipality through job creation, branding or inbound investments. Some even argue that sports clubs can have a positive impact on population growth by encouraging their supporters to move to the municipalities in which they are based (Danish Competition Authority, 2015; Olesen, 2012).

The notion of elite sport's positive impact on the municipal population base and prosperity seems to be derived from arguments typically raised in connection with major international sporting events such as the football World Cup or the Olympic Games. In this context, host nations often claim that the tangible effects of these events are significant so they can leverage political support for the large amounts of public resources they spend on hosting them, including constructing large stadiums and other infrastructure deemed necessary to fulfil the bidding requirements (Andreff, 2017).

According to Storm et al. (2015), the International Olympic Committee (IOC) has played a key role in perpetuating the notion that major international sporting events have a substantial impact on host cities and their respective nations. At a time when the use of public funds is being placed under increasing scrutiny – at least in the Western world – various forms of tangible 'returns' on public investments are often mentioned to increase politicians' willingness to spend public money on events. According to Bille et al. (2016), this goes for cultural events as well.

In addition, it can be argued that the increasing focus on sporting and cultural events as economic growth drivers – which emerged in Denmark before the global

financial crisis in 2008 (Storm, 2009) – helped to establish the notion that professional sports can have positive effects on a nation's or a region's economy (Bille & Lorenzen, 2008; Storm & Brandt, 2008). However, is this really so? Can we find empirical evidence to support this notion?

While the question of major sporting events' economic impact is generally well addressed in the international literature – see, for example, Tien, Lo and Lin (2011) on the Olympics, Zimbalist (2015) on the Olympics and the World Cup, and Baade and Matheson (2016) on the Olympics – there are fewer local studies on the effects of smaller team sports on municipalities, cities or nations. Furthermore, the existing research is mainly focused on the North American leagues, whereas the European context is less thoroughly examined. This is a problem in terms of assessing tangible effects, because there are major differences between the US and Europe in terms of league structures (closed versus open leagues (Szymanski, 2015)), financial regulation (large redistribution versus de-regulated capitalism (Szymanski & Zimbalist, 2006)), club ownership (privately owned/franchise models versus limited liability/stock holding companies (Andreff, 2015)), the geographical distribution of clubs (due to the closed versus open league structure) and inverse softness versus (ex post) softness of budget constraints (Storm & Nielsen, 2015). These differences make it impossible to arrive at general assumptions across all levels of sport and across both continents (Wicker, Whitehead, Johnson, & Mason, 2016).

Therefore, this article seeks to expand on European research on tangible effects of PTSCs by examining the situation in Denmark. We aim to test whether municipalities with a professional (or semi-professional) football (soccer), handball or ice hockey team in the first and second national Danish tiers experience positive impacts in relation to their population base or average income. We include two tiers in

football and handball as almost all teams in these tiers are professional or semi-professional. In ice hockey there is only one league on which we can focus. The study is relevant for policy makers and sports managers because it underscores that decisions made on PTSC subsidies are often based on the assumption of (positive) tangible effects without sufficient evidence to back them up.

The article is structured as follows: First, we briefly review existing literature on the impact of sports events and PTSCs on their municipalities (Section 2). Second, we present the data to be analysed and the methodology to be applied in the study (Section 3). Third, we present and discuss our results (Section 4), and finally, we consider the implications and limitations of the study (Section 5). Section 6 provides an overview of the literature referenced throughout the article.

2. Brief Review of Existing Research[1]

According to Zimbalist (2015), the majority of existing research shows that positive economic impacts deriving from major international sports events are rare. Kavetsos (2012) argues that it is a normal assumption that public spending on events will have multiplier effects, including positive impacts on employment and growth, in correspondence with Keynesian economic theory. However, the reality is that major international sporting events seldom produce the *ex ante* estimated revenue from tourists that covers the *ex post* costs associated with the event (Peeters, Matheson, & Szymanski, 2014). Massive cost overruns are usually the norm (Flyvbjerg, Budzier, & Stewart, 2016; Flyvbjerg & Stewart, 2012; Matheson, 2006), and the long-term effects on employment or average income in the host city or country are minimal (Baade &

[1] For a comprehensive discussion of methodical issues around measuring the economic impact of sporting events, please refer to Storm (2012), on which parts of this section of the article are based.

Matheson, 2002; Manzenreiter & Horne, 2005; Tien et al., 2011). In terms of opportunity costs, the effects of sporting events are largely disappointing (Taks, Kesenne, Chalip, Green, & Martyn, 2011).

There are also marginal effects from the international attention generated by hosting a major international sporting event, in that foreign investments in the host nation during the event are often minor (Jakobsen, Solberg, Halvorsen, & Jakobsen, 2012). Zimbalist (2015) illustrates this with his review of research on the economic impact of the Football World Cup and the Olympic Games:

> In sixteen cases, the games were found to have no statistically significant effect on employment or income, in seven cases a modest positive effect on income or short-run employment was found, and in three cases a negative effect on income was found. (p. 38)

While existing research indicates that there can be positive tangible effects from hosting a major sporting event, it also shows that when impacts do occur, they are usually marginal and short-term, and host nations cannot expect them to materialise as expected. Preuss (2015) points out that a 'legacy' must be seen as a *potential*, but, similarly, there are no guarantees that this potential will be realised. So-called 'white elephants', when stadiums built for a specific event are left more or less unutilised when circus has left the town, are examples of negative legacies (Alm, Solberg, Storm, & Jakobsen, 2014).

Studies focusing on professional sport leagues also point to marginal impacts. Baade, in his own studies and collaborative ones comparing American cities with and without a professional sports franchise (Baade, 1994; Baade, Baumann, & Matheson,

2008; Baade & Dye, 1988, 1990; Baade & Sandersoon, 1997), finds uncertain or non-significant hosting effects measured against normal economic indicators. In their discussion on tangible and intangible effects of hosting a NFL franchise, Carlino and Coulson (2004, 2006) argue that when considering a franchise as producing a public good, public subsidies can be justified. However, Coates, Humphreys and Zimbalist (2006) stress that Carlino and Coulson's evidence is weak.

Other researchers also point out that there can be negative impacts from hosting a PTSC. Lertwachara and Cochran (2007), for example, use an event study model to show that major league sports franchises have a negative impact on local per capita income in US markets and slow down income growth rates. Baade and Matheson (2001) similarly find that employment growth in the Major League Baseball's All-Star Game host cities was lower between 1973 and 1997 compared to other cities. Another of their studies on the NCAA Men's Final Four Basketball Championship shows that income in host cities was also low during the same period (Baade & Matheson, 2004).

According to Coates and Humphreys (2003), one possible reason for these negative effects is that public subsidies spent on local PTSCs crowd out more efficient uses of the funds. There is also little evidence in the literature of long-term branding effects, which challenges the assumption that PTSCs are capable of attracting new residents to a municipality (Zimbalist, 2015). Overall, the findings suggest that tangible impacts deriving from major international events or (local) professional sports franchises are usually marginal or non-existent, if not negative. In response to the question of whether public money – on these grounds – should be allocated to professional sports, "economists largely agree that subsidisation is undesirable" (Coates & Humphreys, 2008, p. 296).

Most of the literature on economic effects of sport in general focuses on major sporting events, such as the Olympic Games and the World Cup, whereas research examining professional team sports clubs in particular focuses on the US Major Leagues or dominant professional sports. To the best of our knowledge, only one unpublished study by Värja (2014) has been done on European professional team sports. It uses various regression techniques to test professional Swedish football and ice hockey teams' impacts on average income and the population base in Swedish municipalities. The findings are that no effects are found from football, while ice hockey exercise negative effects on the rate of average income growth.

As stated in the introduction, European and North American professional sport leagues differ significantly in relation to their league structures (open versus closed), size, geographical distribution of clubs, ownership issues and financial regulation. So applying findings from American studies to the European context is problematic. In North America, for example, clubs often threaten or do move to areas where they can receive the highest direct or indirect subsidies (Lertwachara & Cochran, 2007). This potentially minimises the overall economic effect on their communities because spending on PTSC subsidies could crowd out better public investments (Coates & Humphreys, 2003). In turn, public spending on PTSCs can result in cutbacks on community services, which could prompt residents to leave the area (Värja, 2014). In Europe, teams are very limited in terms of relocation – in practice it is more or less impossible – because the promotion and relegation system is based on the club's connection to a specific (geographical) place. This minimises the pressure PTSCs can put on their communities for subsidies, which in turn can affect economic or migration impacts positively, seen in relation to the US situation.

European leagues work in more de-regulated markets as opposed to the North American ones, which are effectively driven as monopolies (Storm & Nielsen, 2015; Szymanski & Zimbalist, 2006), and this difference could also have a positive effect on European PTSCs' impact. Even though decision-making in the German football clubs is restrained due to the 50+1 rule – which ensures that the member organisation holds majority influence over the club and thus potentially reduces the willingness of investors to engage – there are several PTSCs in the European leagues that are limited liability or stockholding companies (Andreff, 2015) and essentially work in a free, unregulated market environment. This is the case in Denmark, where close to all PTSCs included in the study are legally registered as companies, and some even have listed shares. Ten out of 24 Danish football PTSCs studied here were listed on the stock exchange during the period covered, and none were subject to ownership restrictions.

Theoretically, the European PTSCs are more effective as they operate as fully commercial entities with fiercer market competition than those in the US (Szymanski, 2015). Competing commercial clubs enter the market more easily, and club managers are often monitored by a broader set of shareholders. This can result in higher levels of growth, and in turn attract new inhabitants, to the communities in which they are based.

The question of impact still prevails in the public debate regarding (major) sports events as well as PTSCs in Europe and Denmark (Olesen, 2012), and providing new evidence on the subject will assist sport managers and policy makers in making better decisions about the support they give to PTSCs. Thus, this article aims to test whether the existing research findings on professional team sports in the North American major leagues can be applied to PTSCs in the European context by studying the impacts of the three most commercialised team sports in Denmark: football, handball and ice hockey. The following section explains the data and methodology used

in our study before turning to the results and their implications for policy makers and further research.

3. Data and Methodology

In order to analyse the tangible effects of PTSCs, we deploy a range of spatial panel regression models. This approach allows us to test objective effects of the presence of PTSCs in Danish municipalities while controlling for other factors that might influence them. This choice of modelling accounts for the lack of independence among observations, both when it comes to nesting of yearly observations into municipalities and the spatial dimension.

3.1. Dependent Variables

The variables used for the regression models are presented in Table 1. We use average income and average income growth, as well as population on the municipal level, as dependent variables. The motivation for this is that these variables are relevant factors in determining the economic impact on the average citizen as well as increases/decreases in the municipal tax base, i.e. tangible effects seen from the perspective of politicians and local taxpayers (Värja, 2014).

----Insert Table 1 here----

3.2. Independent Variables: Controls

For the independent variables, we have entered data that would hypothetically have an influence on the dependent variables as controls. The first independent variable is population growth (net migration). We have entered this variable in order to see whether net migration in itself yields effects on the dependent variables. Hypothetically,

increases in migration might be a proxy for a city's general popularity that is caused by other things than sport.

The second and third control variables contain information on the share of municipal population aged 16 years or younger and the share of elderly (old) people aged 65 years or older. The motivation for this is that a high proportion of young people in a municipality might be a proxy for a large number of families, thus affecting income and/population positively. On the other hand, a greater proportion of elderly (old) people might affect income and/or population negatively due to high welfare costs associated with their care.

Furthermore, the underlying assumption behind entering an education-related variable – which is our fourth control variable measuring the share of the municipal population (between 25 and 64 years) with a higher education (beyond high school) – is that it may by a proxy for earning opportunities which could attract migrants (Lundberg, 2003). The fifth control variable is population density (municipal inhabitants/square kilometres), and is entered with the anticipation that it might have a positive effect on income. Some studies show that, despite a minor correlation between density and GDP levels worldwide, high density areas in Western European countries, especially in the Northern Hemisphere, are connected to high levels of wealth (Gallup, Sachs, & Mellinger, 1999).

Our sixth, seventh and eighth control variables are municipal income tax level (in percentages), municipal public annual costs/capita, and annual income from state equalisation grants and/or other state grants per capita respectively. These controls could all affect the dependent variables. For example, Helms' (1985) results suggest that a high spending on public services (i.e. a high cost level) affects growth. In turn, it is reasonable to assume positive spill over effects on inbound migration. In contrast,

high tax rates might reduce growth and/or inbound migration. In some regions, equalisation (and other state) grants are an important state subsidy provided for municipal public spending. Their purpose, according to Värja (2014, p. 4), is to "create equal economic opportunities for all local governments to provide services irrespective of their residents' income and other structural differences". It is necessary to control for such factors when assessing potential effects of PTSCs in Danish municipalities, which is why we have entered this variable. Finally, high levels of unemployment might affect income and/or population negatively (Värja, 2014), thus making it necessary to control for such effects in our model specifications. Information of the municipal unemployment level (in percentages) among the workforce (between 17 and 64 years) are contained in this independent variable.

All data concerning the dependent variables and independent control variables are harvested from official Danish sources: Statistics Denmark and the Danish Ministry of Social Affairs and the Interior. The cost level data were accessed in February 2016, and all other data were accessed in December 2015.

3.3. Independent Variables: The Sporting Environment

Information on the elite sporting environment in the Danish municipalities is divided into four independent variables. First, 'elite sports' takes the value of 1 if there is a PTSC in one of the three sports covered (in the first or second tier for football and handball; only the first tier is included for ice hockey) in the municipality in question. Second, disaggregated individual dummies for each sport are entered: 'elite football', 'elite ice hockey', and 'elite handball' take the value of 1 if the municipality has a PTSC in the best or second best tier in the respective sport. We include male clubs for football and ice hockey and male and female clubs for handball, as Danish football and ice

hockey only have professional teams for males, whereas both male and female professional teams exist in handball.

The decision to enter dummies for each sport is motivated by the fact that the selected sports have different characteristics and may therefore affect population or average income differently. Football is the most popular sport in Denmark and has high levels of media exposure, large crowds and strong fan bases across all clubs. Handball comes in second in popularity and is considered a winter sport compared to football, which is mainly played in spring, summer and autumn. Handball clubs are, in terms of economic revenue, far smaller than the average football club (Storm, 2013), but experience quite high levels of media coverage (Hedal, 2006). Ice hockey is the smallest professional sport of the three sports entered, with lower club revenue's and popularity in terms of spectators, fans and media coverage.

The information gathered for the sporting variables is based on data from Danish federations representing these sports (the Danish Football Association, the Danish Handball Federation, and the Danish Ice hockey Union). All data for dependent and independent variables cover the period from 2008 to 2013. The lagged variables are from 2007 to 2012. The starting date of the examined period was chosen because a public sector reform was put into effect from 1 January 2007 in Denmark, reducing the number of municipalities from 275 to 98. Thus, we have included data from that date so as not to obscure the analysis. The end date, 2013, is chosen as the total period covered has a significant number of data points relevant for the regressions (N=582).

3.4. Spatial dimensions

In addition to the above variables, we have also considered geographical data (representing all 98 Danish municipalities, except Bornholm, which is excluded as it obscures the spatial dimensions and does not have a PTSC in any of the examined

sports) for the period covered. This means that we have taken into account the panel data structure as well as the spatial dependence. In total, we present five spatial fixed effects models, as well as five spatial random effects and five fixed effects models, omitting the lagged dependent variable. To incorporate the spatial dependence we use a spatial matrix (based on the longitude and latitude of each municipality), as suggested by Anselin (1988). More specifically, we take into account the distance between municipalities. The rationale is that the presence of an elite sport team in a given municipality could also affect the neighbouring municipalities (having the strongest effect on the closest neighbours). By employing the XMLE command to estimate spatial panel models in Stata, we model that the effect of an explanatory variable on the dependent variable of a specific unit not only affects that unit, but also its neighbours (LeSage & Pace, 2009).

3.5. Regression models

The equations for our three full municipality fixed effects models (shown in Tables 2, 3, and 4) are:

[1]

$$income_{it} = \delta W_i(income_{it}) + \beta_1 income_{it-1} + \beta_2 pgrowth_{it-1} + \beta_3 population_{it-1} + \beta_4 young_{it-1} + \beta_5 old_{it-1} + \beta_6 education_{it-1} + \beta_7 density_{it-1} + \beta_8 tax_{it-1} + \beta_9 cost_{it-1} + \beta_{10} grants_{it-1} + \beta_{11} unemployed_{it-1} + \beta_{12} football_{it} + \beta_{13} handball_{it} + \beta_{14} hockey_{it} + \varepsilon_{it}$$

[2]

$$igrowth_{it} = \delta W_i(igrowth_{it}) + \beta_1 igrowth_{it-1} + \beta_2 pgrowth_{it-1} + \beta_3 population_{it-1} + \beta_4 young_{it-1} + \beta_5 old_{it-1} + \beta_6 education_{it-1} + \beta_7 density_{it-1} + \beta_8 tax_{it-1} + \beta_9 cost_{it-1} + \beta_{10} grants_{it-1} + \beta_{11} unemployed_{it-1} + \beta_{12} football_{it} + \beta_{13} handball_{it} + \beta_{14} hockey_{it} + \varepsilon_{it}$$

[3][2]

$$population_{it} = \delta W_i + \beta_1 pgrowth_{t-1} + \beta_2 income_{it-1} + \beta_3 igrowth_{it-1} + \beta_4 young_{it-1} + \beta_5 old_{it-1} + \beta_6 education_{it-1} + \beta_7 density_{it-1} + \beta_8 tax_{it-1} + \beta_9 cost_{it-1} + \beta_{10} grants_{it-1} + \beta_{11} unemployed_{it-1} + \beta_{12} football_{it} + \beta_{13} handball_{it} + \beta_{14} hockey_{it} + \varepsilon_{it}$$

Where δ (the spatial autocorrelation coefficient) allows us to test whether *y* in each municipality is related to *y* in the neighbouring municipalities, W_i represents the weight associated with municipality *i*, and (y_{it}) allows *y* to depend on *y* observed in neighbouring municipalities (y_{it}).

We are now comparing each municipality's values on the *y* against its own values on the *x* variables. The advantage with fixed effects is that, since they are able to control for all time invariant variables, we are able to overcome the problem of spurious relationships, as we get the more pure relationship between the independent (explanatory) variables and the dependent variable in our regression output. Our models include lagged dependent variables, which assist us by taking into account historical factors that may cause current differences in the endogenous variable that can be difficult to operationalise otherwise. We also performed a Hausman test, showing that fixed effects are preferred over random effects, and for robustness we ran several additional models producing results consistent with our main findings.

4. Results and Discussion

The results of our main regression models regarding average income, average income growth and migration are displayed in Tables 2–4.

[2] In order to converge the models, we did not include a lagged dependent in model 3 (as there is very little yearly variation in population). We did include it in our sensitivity models, and this did not alter the substantive results.

----Insert Table 2 here----

----Insert Table 3 here----

----Insert Table 4 here----

The tables show that no effects from our sports variables can be found in regard to population. The only effects that are evident concern average income and average income growth: Ice hockey is significant with negative coefficients and handball is significant with positive coefficients. Football is insignificant according to all models.

As we have included women's and men's teams in our elite handball variable, we have performed additional models for handball teams, distinguishing between the men's and women's teams. The results – which are reported in Table 5 – for average income are consistent for both genders. However, the effect on income growth is mainly driven by the women's teams, and for our population models the effect from the women's teams is negative and significant, whereas for the men's teams it is positive and insignificant. The men's and women's team effects therefore counter each other in the main regressions presented above.

---Insert Table 5 here----

A relevant question following from these findings could be: "Why does handball seem to make a positive difference on average income and income growth when football and ice hockey do not?" Several factors could be at play, and below we will touch upon the most relevant.

First, the majority of the top tier Danish handball clubs are located in peripheral cities in Denmark, where the baseline economic activities and average income are low(er) than in the larger cities. This makes it easier for the handball clubs to have an impact on the dependent variables than football and ice hockey clubs, which are primarily located in or close to larger cities with higher baseline average incomes. In larger urban areas PTSCs are more like a drop in the ocean, meaning that they are less capable of making a difference to the general economic activity. For example, Mors-Thy Elite Håndbold A/S or Skjern Elite Håndbold A/S, which are both placed in smaller Danish cities, might in fact affect the economic environment compared to PTSCs placed in regions around, say, Copenhagen, where general economic activities are much larger. Second, handball has strong cultural roots in rural areas (with low income and growth), providing better and cheaper conditions for building a strong team that could affect the dependent variables.

Furthermore, it is relatively cheap for municipalities to host an elite handball team. Compared to football and ice hockey, the entry costs are low because facility costs are small. Danish municipalities in the peripheral areas in question run facilities that are multi-functional and regularly utilised for other purposes than elite sport, thus making it cheap to integrate handball team's training and games into the existing infrastructure. Elite football or ice hockey teams require larger (and more expensive) stand-alone stadiums for their matches and separate training facilities.

Such facilities are often unutilised, mainly because they are not multi-functional (Bang et al., 2014). As a result, the teams in these two sports are often more expensive to host compared to handball. As mentioned above, using relatively high levels of public money to support PTSCs could ultimately crowd out better (public) investments,

and such potential effects may help explain why football and ice hockey come out with no or negative effects in the analysis.

Finally, and despite their relatively small scale of operation, Danish handball teams attract – as briefly mentioned above – a high level of media attention compared to other Danish sports (Hedal, 2006). This might help attract investments to the municipalities in question, while at the same time help existing firms to grow, thus raising the average income in the area.

It should be noted that although elite handball's effect is positive, it is also small. Looking at the coefficients in Table 2, it can be seen that the effect of hosting an elite handball team on the average municipal income is 1,657 DKK per year. Compared to the average citizen in the sample, who earns 196,384 DKK a year, citizens in municipalities with an elite handball team can see his/her income increase to 198,041 DKK due to the presence of the team in their community. This is equivalent to a 0.8 percent (pre-tax) 'added' value compared to non-elite handball municipalities. The effect is also marginal seen from the municipalities' points of view. If Slagelse Municipality, for example, acquired an elite handball team, the tax effect on the total budget – which was 4.7 billion DKK in 2014 – would represent a growth of 0.7 percent.[3]

The concluding section will use these findings to discuss derived implications and argue on which grounds – if any – subsidies for PTSCs can be justified.

5. Conclusion, Implications and Limitations of the Study

This article has aimed to answer the question of whether the presence of a PTSC can

[3] Given a municipal tax level at 24.7 percent and 76,948 inhabitants (2014 numbers).

have an effect on average income in or migration to (from) Danish municipalities. It has focused on the three most commercialised sports in Denmark: Football (soccer), handball and ice hockey to test whether findings from the North American context can be applied to Europe. The analysis carried out finds that PTSCs only have marginal effects on income and income growth in relation to handball. For football and ice hockey effects are non-existent or negative. In total, PTSCs do not really make any tangible (positive) difference to their municipalities. These findings have several theoretical and practical implications.

5.1. Theoretical implications

The overall results are consistent with previous studies of PTSCs in the US context and indicate that the findings can be generalised, despite the structural differences, across the Atlantic. When effects of hosting PTSCs in general are very marginal, non-existing or even negative, it is difficult to support the use of municipal subsidies on PTSCs from a theoretical perspective. However, can any other arguments be made for supporting PTSCs than (tangible) economic effects or migration? The short answer is "yes".

A growing body of literature now focuses on the intangible effects of sport, the 'feel-good factor' of sporting events (see for example: Hilgers, Maennig, & Porsche, 2010; Wicker, Hallmann, Breuer, & Feiler, 2012; Wicker, Prinz, & von Hanau, 2012) or the national pride they evoke (Pawlowski, Downward, & Rasciute, 2014). Sport seems to be especially well-suited to forming identities (Storm, 2013) and, according to Tangen (1997, 2004), sport mirrors, and thus simulates, central, shared norms in late modern society in a way few other societal activities can match.

Such effects are real – despite being intangible – and might be used as part of a better argument for supporting professional sport in municipalities than the prevailing tangible ones (Walker & Mondello, 2007). As touched upon in the literature review,

some scholars, such as Carlino and Coulson (2004, 2006), argue that taking a broader approach – thus viewing PTSCs as producing a public good – might leverage arguments for using taxpayers' money on subsidies. Barlow and Forrest's (2015) study of small town English professional football teams also suggests that based on collective willingness to pay in the cities in question, there might be a case for public support of PTSCs. Research provided by Wicker et al. (2016) argues that issuing fan bonds might be a way of supporting local PTSCs that does not directly involve public money. Seen more generally, such findings suggest that Danish municipal inhabitants could also value their respective local PTSCs to such an extent that it would equal out the costs of hosting a PTSC in terms of willingness to pay.

While it is relevant for researchers in Denmark and further abroad to disseminate the existing evidence on the missing tangible effects to the wider public, policy makers, and other stakeholders in this field, a recommendation for future studies is to broaden the perspective. Even though some studies on the intangible effects of European football have already been done, more are needed as the specific arguments pro et contra in relation to subsidies and/or other forms of PTSC support can only be made on the grounds of case studies on the communities in question.

5.2 Practical Implications

In regard to practical implications, the widespread claim of positive tangible effects associated with PTSCs has had two main consequences in Denmark. First, it has made Danish municipalities more willing to build new or refurbish existing stadiums and facilities, which has resulted in over-capacity in terms of seats, especially in Danish football stadiums (Bang et al., 2014). This has raised the question about underutilisation and adverse effects on social services, including welfare, as priority is given to

allocating public funds directly or indirectly to the clubs. These issues have also been encountered internationally, especially in connection to the hosting of major sporting events (Andreff, 2017; Zimbalist, 2003).

Second, there have been cases in which Danish municipalities have breached their authority and supported PTSCs financially on illegal grounds (Nielsen & Storm, 2017). According to Danish law, allocating direct or indirect public subsidies to commercial enterprises – such as PTSCs – is prohibited unless reasonable and market-based agreements benefitting both parties are made.[4] However, deals are often made directly on the assumption that tangible effects can be assured by the cooperation between the municipalities and the club. But, as shown above, it is difficult to find evidence to support this powerful assumption.

In short, our study implies that local politicians and civil servants considering giving direct or indirect support to PTSCs should stop using arguments about tangible effects to make their case. If politicians want to attract new inhabitants to their area, or raise average municipal income, then they should develop better strategies than arguing that supporting PTSCs will do the job.

In regard to sport managers engaged in PTSCs, who often appeal to politicians and/or civil servants in the municipalities for subsidies, the evidence also calls for them to rethink their arguments. Given the growing body of research on willingness to pay, sport managers should instead use evidence from the communities to support their case rather than the arguments about tangible effects. In case that community data in the field does not exist, it could be gathered through relatively simple surveys (either conducted

[4] With regard to competition law in the European Union, which applies to Denmark, direct or indirect public subsidies affecting cross-border competition among firms are also illegal.

directly by the municipality or with help from a research agency) in order to reveal whether a community is in favour of supporting a PTSC or not (despite the missing or marginal tangible effects).

In addition, Wicker et al.'s (2016) suggestion of issuing fan bonds is fruitful, and could help PTSCs to gain the financial support they need to develop activities, invest in new players, build new facilities or simply help them if they face financial problems instead of (continuously) pledging the public purse. Given that there is in fact willingness to pay among local inhabitants in the communities in question, fan bonds could be a powerful instrument for this cause.

5.3 Limitations of the Study and Future Research

Besides calling for more studies on intangible effects, this study also has some limitations which point towards potential future research. First, our analysis only brushes on why differences in impacts between sports exist. A deeper analysis into why handball, for example, which had positive effects – though small – would be interesting. Further studies on ice hockey's negative impact would also be of relevance. To policy makers such information could assist them in deciding where public subsidies to professional sport would take on the highest pay off (or the lowest loss).

Second, future studies should aim at incorporating model controls for sporting success. As our study has only dealt with the presence of a PTSC in the Danish municipalities, we have not examined whether being a successful team (e.g. winning the championship, ending in a middle position or being relegated) has any effect on impacts. Such additional information would assist both policy makers and sport managers to better understand the potential effects of sporting success.

Finally, more studies on tangible effects in different nations are needed. Even though in this study Europe has been seen as a homogenous unit compared to the US, it

is not entirely evident that studies on, say, Germany or Spain would yield the exact same results as the findings from Denmark. For example, and as pointed out above, regulation of ownership is different across European leagues. This – among other differences between the European Leagues – could potentially affect the (potential) impacts on economic growth and migration in the municipalities in question.

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Table 1
Variables and descriptive statistics, $N = 582$

Variable	Mean	Std. dev.	Min	Max	Measurement
Average income (Dkk)	196.384	36.861	128.691	366.047	Thousands
Income growth	0.668	2.289	-8.452	10.293	Percentage
Population	10.640	0.786	7.548	13.216	Original
Population growth	1.754	365.620	-814	4353	Log transf.
Young people (16 or under)	21.271	2.050	14.400	25.900	Share of municipal population in percentages
Old people (65+)	17.568	3.083	10.000	31.300	Share of municipal population in percentages
Higher education	22.832	8.286	12.600	50.500	Share of municipal population with an education above high school (percentages)
Density	5.151	1.320	2.773	9.354	Population/square km in thousands
Tax level	25.028	0.939	21.810	27.490	Municipal tax level in percentages
Cost level	41.095	4.803	32.647	66.090	Municipal annual costs/capita in thousands
State grants	13.968	63.283	-664.000	736.000	Annual state subsidies/capita in thousands
Unemployed	4.633	1.825	1	10.5	Municipal unemployment rate in percentage
Elite sports	0.431	0.496	0	1	Original
Elite football	0.247	0.432	0	1	Original
Elite handball	0.311	0.463	0	1	Original
Elite ice hockey	0.093	0.290	0	1	Original

Note: Average income, income growth, elite sports, elite football, elite handball, and elite ice hockey are from 2008–2013. The other (lagged) variables are from 2007–2012 (equations below).

Table 2

Spatial municipality fixed effects model on *average income*, 2008–2013, coefficients and standard errors in brackets

Variables	(a)	(b)	(c)	(d)	(e)
Average income$_{t-1}$	0.433***	0.434***	0.433***	0.435***	0.435***
	(0.035)	(0.035)	(0.035)	(0.035)	(0.035)
Population growth$_{t-1}$	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Population$_{t-1}$	-2.240	-2.623	-0.837	-5.230	-3.054
	(14.014)	(14.022)	(13.909)	(13.916)	(13.822)
Young people$_{t-1}$	0.173	0.136	0.024	0.194	0.042
	(0.758)	(0.761)	(0.754)	(0.752)	(0.749)
Old people$_{t-1}$	-0.305	-0.317	-0.360	-0.320	-0.377
	(0.300)	(0.301)	(0.298)	(0.297)	(0.296)
Higher education$_{t-1}$	-0.236	-0.232	-0.226	-0.180	-0.187
	(0.362)	(0.363)	(0.359)	(0.359)	(0.357)
Density$_{t-1}$	-0.204	-0.210	-0.074	-0.202	-0.068
	(0.528)	(0.528)	(0.525)	(0.523)	(0.521)
Tax level$_{t-1}$	-0.574	-0.564	-0.615	-0.636	-0.687
	(0.519)	(0.520)	(0.516)	(0.516)	(0.512)
Cost level$_{t-1}$	-0.016	-0.022	-0.010	-0.031	-0.018
	(0.091)	(0.091)	(0.090)	(0.090)	(0.090)
State grants$_{t-1}$	0.001	0.001	0.001	0.001	0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Unemployed $_{t-1}$	0.540***	0.537***	0.560***	0.560***	0.578***
	(0.171)	(0.171)	(0.170)	(0.170)	(0.169)
Elite sports	0.496				
	(0.514)				
Elite football		-0.243			-0.293
		(0.810)			(0.798)
Elite handball			1.657***		1.648***
			(0.511)		(0.506)
Elite ice hockey				-4.657***	-4.677***
				(1.466)	(1.456)
N	582	582	582	582	582
Groups	97	97	97	97	97
Rho	0.676***	0.678***	0.671***	0.675***	0.670***
	(0.037)	(0.037)	(0.037)	(0.037)	(0.037)
LL	-1451.093	-1451.513	-1446.329	-1446.553	-1441.187
Within R^2	0.395	0.391	0.412	0.406	0.425

Note: Levels of statistical significance are indicated by asterisks: *p<0.1; **p<0.05; ***p<0.01. *Population* and *density* are log transformed.

Table 3
Spatial municipality fixed effects model on *income growth*, 2008–2013, coefficients and standard errors in brackets

Variables	(a)	(b)	(c)	(d)	(e)
Income growth$_{t-1}$	-0.107***	-0.107***	-0.103***	-0.109***	-0.104***
	(0.026)	(0.026)	(0.026)	(0.025)	(0.025)
Population growth$_{t-1}$	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Population$_{t-1}$	-6.743	-6.712	-6.068	-7.592	-6.805
	(6.852)	(6.852)	(6.832)	(6.836)	(6.829)
Young people$_{t-1}$	-0.559	-0.566	-0.595	-0.550	-0.591
	(0.369)	(0.370)	(0.368)	(0.368)	(0.368)
Old people$_{t-1}$	0.064	0.062	0.043	0.062	0.039
	(0.145)	(0.145)	(0.145)	(0.145)	(0.145)
Higher education$_{t-1}$	-0.332**	-0.332**	-0.337**	-0.316**	-0.324**
	(0.158)	(0.158)	(0.157)	(0.158)	(0.157)
Density$_{t-1}$	0.065	0.064	0.108	0.067	0.109
	(0.256)	(0.256)	(0.256)	(0.255)	(0.255)
Tax level$_{t-1}$	-0.182	-0.182	-0.193	-0.207	-0.218
	(0.251)	(0.251)	(0.250)	(0.251)	(0.250)
Cost level$_{t-1}$	-0.154***	-0.155***	-0.148***	-0.159***	-0.151***
	(0.047)	(0.047)	(0.047)	(0.047)	(0.047)
State grants$_{t-1}$	0.000	0.000	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Unemployed $_{t-1}$	0.441***	0.440***	0.449***	0.449***	0.456***
	(0.081)	(0.081)	(0.081)	(0.081)	(0.081)
Elite sports	0.027				
	(0.250)				
Elite football		-0.079			-0.098
		(0.393)			(0.391)
Elite handball			0.503**		0.499**
			(0.250)		(0.250)
Elite ice hockey				-1.446**	-1.449**
				(0.717)	(0.716)
N	582	582	582	582	582
Groups	97	97	97	97	97
Rho	0.700***	0.701***	0.698***	0.698***	0.696***
	(0.034)	(0.034)	(0.034)	(0.034)	(0.034)
LL	-1033.946	-1033.931	-1031.938	-1031.925	-1029.883
Within R^2	0.430	0.428	0.438	0.440	0.447

Note: Levels of statistical significance are indicated by asterisks: *p<0.1; **p<0.05; ***p<0.01. *Population* and *density* are log transformed.

Table 4

Spatial municipality fixed effects model on *population*, 2008–2013, coefficients and standard errors in brackets

Variables	(a)	(b)	(c)	(d)	(e)
Population $growth_{t-1}$	0.808***	0.809***	0.808***	0.808***	0.808***
	(0.020)	(0.020)	(0.021)	(0.020)	(0.021)
$Income_{t-1}$	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Income $growth_{t-1}$	0.025**	0.025***	0.024**	0.024*	0.025*
	(0.009)	(0.009)	(0.010)	(0.009)	(0.010)
Young $people_{t-1}$	0.003***	0.003***	0.003***	0.003***	0.003***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Old $people_{t-1}$	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Higher $education_{t-1}$	0.003***	0.003***	0.003***	0.003***	0.003***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
$Density_{t-1}$	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Tax $level_{t-1}$	-0.001*	-0.001*	-0.001*	-0.001*	-0.001*
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Cost $level_{t-1}$	0.000**	0.000**	0.000**	0.000**	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
State $grants_{t-1}$	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$Unemployed_{t-1}$	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Elite sports	-0.000				
	(0.001)				
Elite football		-0.001			-0.001
		(0.001)			(0.001)
Elite handball			-0.000		-0.000
			(0.000)		(0.000)
Elite ice hockey				-0.001	-0.001
				(0.002)	(0.002)
N	582	582	582	582	582
Groups	97	97	97	97	97
Rho	0.208***	0.210***	0.208***	0.208***	0.209***
	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)
LL	2393.024	2393.725	2393.006	2393.192	2393.951

Within R^2	0.906	0.906	0.906	0.906	0.907

Note: Levels of statistical significance are indicated by asterisks: *p<0.1; **p<0.05; ***p<0.01. *Population* and *density* are log transformed.

Table 5
Spatial municipality fixed effects model with men and women's handball, 2008–2013, coefficients and standard errors in brackets

	Average income		Income growth		Population	
Variables	Women	Men	Women	Men	Women	Men
Population growth$_{t-1}$	-0.000	-0.000	0.000	0.000		
	(0.001)	(0.001)	(0.000)	(0.000)		
Average income$_{t-1}$	0.431***	0.435***			-0.000	-0.000
	(0.035)	(0.035)			(0.000)	(0.000)
Income growth$_{t-1}$			-0.109***	-0.105***	0.025***	0.026***
			(0.025)	(0.026)	(0.009)	(0.010)
Population$_{t-1}$	-2.412	-1.614	-6.616	-6.488	0.807***	0.809***
	(13.963)	(13.965)	(6.818)	(6.850)	(0.020)	(0.020)
Young people$_{t-1}$	0.059	0.071	-0.609*	-0.573	0.003***	0.003***
	(0.757)	(0.757)	(0.368)	(0.369)	(0.001)	(0.001)
Old people$_{t-1}$	-0.345	-0.353	0.045	0.055	-0.001***	-0.001***
	(0.299)	(0.299)	(0.145)	(0.146)	(0.000)	(0.000)
Higher education$_{t-1}$	-0.165	-0.214	-0.311**	-0.328**	0.002***	0.003***
	(0.362)	(0.361)	(0.158)	(0.158)	(0.001)	(0.001)
Density$_{t-1}$	-0.107	-0.213	0.117	0.065	-0.000	-0.000
	(0.528)	(0.526)	(0.256)	(0.256)	(0.001)	(0.001)
Tax level$_{t-1}$	-0.682	-0.509	-0.236	-0.171	-0.001	-0.001*
	(0.521)	(0.518)	(0.251)	(0.251)	(0.001)	(0.001)
Cost level$_{t-1}$	-0.023	-0.017	-0.155***	-0.152***	0.000**	0.000**
	(0.091)	(0.091)	(0.047)	(0.047)	(0.000)	(0.000)
State grants$_{t-1}$	0.001	0.001	0.000	0.000	-0.000***	-0.000***
	(0.002)	(0.002)	(0.001)	(0.001)	0.000	(0.000)
Unemployed$_{t-1}$	0.551***	0.540***	0.450***	0.441***	-0.001***	-0.001***
	(0.171)	(0.171)	(0.081)	(0.081)	(0.000)	(0.000)
Elite handball	1.352**	1.173***	0.670**	0.219	-0.002**	0.001
	(0.638)	(0.541)	(0.309)	(0.266)	(0.001)	(0.001)
N	582	582	582	582	582	582
Groups	97	97	97	97	97	97
Rho	0.675***	0.677***	0.700***	0.700***	0.213***	0.208***
	(0.037)	(0.037)	(0.034)	(0.034)	(0.026)	(0.026)
LL	-1449.316	-1449.218	-1031.611	-1033.612	2395.205	2393.427
Within R^2	0.400	0.397	0.426	0.431	0.907	0.906

Note: Levels of statistical significance are indicated by asterisks: *p<0.1; **p<0.05; ***p<0.01. *Population* and *density* are log transformed.