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Agglomeration, urbanization and competitive performance: the natural experiment of English football

Calvin Jones [a] and Declan Jordan [b]

ABSTRACT

There are sound theoretical and empirical bases for expecting productivity and innovative benefits for businesses located in large urban areas, and for those located closer to others in the same or related industries. However, the size and precise origin of these effects remain uncertain and complicated by potential endogeneity from businesses' location choice. English football is proposed as a natural experiment with immobile businesses and evidence is presented from the English Premier League (EPL) that suggests urban scale affects clubs' relative performance. It is found that teams in larger conurbations perform relatively better, and it is suggested these benefits probably originate from the sport's novel labour market.

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INTRODUCTION

It has long been recognized that firms in the same or related industries locate close to each other, and that the reasons for this co-location goes beyond easily identifiable rationales such as access to immobile inputs or to large markets (Henderson, 1997). While some benefits will accrue to firms simply as a result of economic or population scale, there may be other, more complex benefits associated with firms' co-location. These may include access to specialized labour markets, common suppliers, near firms' technologies and/or productivity-enhancing public institutions. These 'agglomeration' benefits may increase the efficiency of the firm and/or its ability to innovate. Agglomeration theories have a long pedigree, going back to Smith (1776) and Marshall (1890), who both recognized the benefits that firms and sectors might gain from co-location in urban areas. Particularly following the work of Krugman (1991), Porter (1998) and others the concept has gained a position of some importance in city, regional and national economic policy debates.

Despite this longevity and attention, the causes and size of agglomeration benefits are still not fully understood (Combes, Duranton, & Gobillon, 2011; Puga, 2010). There are several reasons

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for this. The relationship between a firm and the space across which it operates is extremely complex: Individual plant size, distance from (often shifting) markets and suppliers, a developing product mix, and changing transport or distribution costs will affect productivity and growth in ways invisible to external (and sometimes internal) observers. Added to this are the complexities of competition and cooperation with other firms, the impact of wider environmental conditions – e.g., infrastructure, labour supply and government support – and the endogeneity between firm success and city size. It is unsurprising then that much of the economics of co-location remains unclear.

With annual revenues of approximately £3 billion among the 20 English Premier League (EPL) clubs (Deloitte, 2014), professional football is itself an industry for which it is worth exploring the effects of location on performance. It also provides a natural experiment for studying the effects of urbanization and agglomeration because of the lack of club mobility, which removes potential endogeneity between business location decision and city success. Sport can provide useful frameworks for examining economic ideas and models. As Palacios-Huerta (2014) argues, sports are in many ways the perfect laboratory for testing economic theories. In sport, as in business, clubs use their resources (individual and team athletic skills; managerial and strategic capability; off-field business strategy and marketing skills) to produce a product, a team performance, with the transparent and singular goal of out-competing rivals in a one-to-one, heavily regulated contest. Further, though repeated victories, the clubs lever greater financial rewards, brand awareness and future investment, hence increasing the potential for further success. That success, easily measurable using league or cup results, depends crucially on access to and management of individuals in a highly specialized and highly global labour market.

The special nature of sport, and European football in particular, is particularly useful in shedding a light on the effects of urbanization and/or agglomeration on business performance. First, 'firms' are largely immobile (with very rare exceptions, football clubs do not move more than a few miles from their founding location), and, in addition, new entrants are rare. This means there is a relatively unchanging landscape across time to help analyse location-related drivers of success. Second, plant size is more or less singular and settled. With the possible exception of specialized training facilities, clubs locate and conduct their core business activity (games) in one place. Third, highly regulated and constrained sport competition also allows one to discount purely geographical or environmental factors that often cloud agglomeration analysis, for example, where co-located firms are simply closer to key, immobile inputs than dispersed firms (Combes et al., 2011). Moreover, in the general case, the location of firms and growth of a city economy will improve not only firms' competitiveness but also the likelihood of workers moving to that place, changing the scale and nature of the urban area. These feedback relationships are largely absent in the case of football: a wealth of evidence suggests cities and regions are *not* changed economically by the sporting success of their teams, or even by the hosting of very large sports events (Baade & Matheson, 2001; Hudson, 1999; Jones, 2001).

The narrower range of variables affecting football competition allows one to judge more clearly whether the physical location of a team has any relationship with its success. Thus, whilst we might intuitively accept Szymanski's (1998) finding that sporting and financial performance are closely and positively correlated, we can go further in trying to establish whether these two elements are themselves related to exogenous spatial factors. There is strong evidence that sporting success is a function of financial wealth (Ferri, Macchioni, Maffei, & Zampella, 2017; Madsen, Stenheim, Boas Hansen, Zagheri, & Grønseth, 2018). For example, using data from Conn (2014), a bivariate analysis between final position in the EPL and club turnover for the 2011/12 and 2012/13 seasons shows 77% and 79% correlations, respectively. While financial wealth is strongly associated with sporting performance, there is evidence that location also matters, even after controlling for wealth (Doran & Jordan, 2018).

This paper shows that there is indeed a clear relationship between urban scale and team co-location and sporting success, and even more definitively, between a smaller urban scale and the

lack of success. The paper is exploratory in nature and seeks to shed a light on how location in various urban areas may provide advantages. These may influence performance partly through enhancing financial strength by, for example, providing a larger local market and/or by providing clubs with an additional benefit in attracting highly mobile talent. It sets out to explore the presence of urban locational effects on performance and, drawing on regional and labour market literature, offers explanations for the nature of these effects.

The paper is structured as follows. It first examines the ways in which urban scale may affect competitiveness, and then makes the case that sports leagues are a useful lens through which to understand the basis of this relationship. The performance metric is then presented, whereby the success of teams appearing in the EPL is measured using league finishing position, aggregated over the league's 22 years and into different conurbations. The paper then examines which size conurbations perform best and worst in terms of their situated team or teams' average league finishing position. The paper then considers what urbanization or agglomerative factors might *a priori* explain the relative success of teams in large urban areas. The paper then concludes.

THE BENEFITS OF URBAN SCALE AND PROXIMITY FOR BUSINESS PERFORMANCE

The fact of agglomeration

In 1890, Marshall spoke of the mysteries of trade as being 'in the air', between firms 'in near neighbourhood' not within them, and arising from the complex interaction of suppliers, buyers, and workers (Marshall, 1890). Like Smith (1776) before him, Marshall left plenty of theoretical space to fill. Since then, the agglomeration framework has been strengthened, both theoretically and empirically. First and foremost, there is a strand of work that suggests agglomeration *exists*: that firms co-locate to a greater extent than random choice, the existence of immobile inputs or the vagaries of geographical classification would suggest, albeit with these co-location forces sometimes weak and applying differentially across industries (Ellison & Glaeser, 1999; Henderson, 1997). The existence of location economies is also inferred indirectly from the ability of firms to pay higher wages to workers in large conurbations (necessary to attract workers in high-rent areas) and, related to this, the apparently higher productivity of workers in larger cities, even after controlling for worker quality (Combes, Duranton, Gobillon, & Roux, 2010; Greenstone, Hornbeck, & Moretti, 2008). A number of studies find the benefits of co-location appear to decline rapidly over space; in keeping with Marshall's intuition that positive spatial effects stop, more or less, at the urban or industrial district boundary (Duranton, 1998).

The benefits of urban location

The higher productivity witnessed in cities may be purely geographical or attributable to worker sorting, or it may be that firms become more productive simply from operating in more populous (or population-dense) areas (Gordon & McCann, 2005; Markusen, 1996). Thus, location economies may relate simply to the nearness of large product markets, or access to services or infrastructures that have significant scale or spatial concentration efficiencies – transport networks or utility supply, for example, (Konishi, 2000; Krugman, 1991; Otsuka, Goto, & Sueyoshi, 2010). Co-location may bring additional efficiencies in the purchase or sale of intermediate goods – for example, with shared supply chains reducing costs for closely located buying and selling firms. A number of papers emphasize the extent and importance of input sharing by firms in related industries that enable a larger scale and more efficient supply of intermediate and/or primary inputs within clustered geographies (Cainelli & Iacobucci, 2012; Ellison & Glaeser, 1999; Jofre-Monseny, Marín-López, & Viladecans-Marsal, 2011).

Labour market factors are also often considered important explanations for agglomeration economies, highlighted by the fact that wages (and productivity) are typically higher in urban

areas. These effects are discernible at different spatial scales and may be greater in urban areas with clusters of related firms (Greenstone et al., 2008; Rosenthal & Strange, 2001; Wheaton & Lewis, 2002). Several factors may be at play here including labour market scale and consequent ease and efficiency of worker–vacancy matching, whereby more skilled workers must (and can) move to cities to claim the reward for their attributes, and interactions and knowledge spillovers within the urban labour market that increase productivity (Combes et al., 2011; Duranton, 1998; Puga, 2010). Geographical concentration may also increase competition in consumer markets. Such competition might drive out less efficient firms, resulting in higher levels of productivity for remaining firms. Here, the evidence is mixed, with the strength and direction of such effects depending on several factors, including the nature of product markets and degree of monopolistic power (Combes et al., 2010; Lu, Tao, & Yu, 2012). The prospect of such competition might of course dissuade agglomeration in the first case, leading to estimation bias. Whilst this last element of agglomeration economies has received limited attention, it is of potential importance in understanding the results of our work.

In summary, the potential benefits of location are manifold, encompassing (at least) economies of urban and market scale, relationships with nearby firms, and labour market efficiencies. Studies often find evidence for all these elements in concert. There remains significant uncertainty over their relative strength, and the possibility of significant feedback effects between different types of agglomeration economies. An examination of sporting competition offers the opportunity to bring some clarity, for one very talent-dependent and high-profile service-industry at least.

Agglomeration and competition in sport

The intention in this paper is to test for the existence of agglomeration and urbanization effects on the performance of sports teams, and to comment on their possible causes. The task is made easier by the particularities of athletic sports teams, and the competitions in which they appear. Interactions between sports clubs are relatively narrow in scope, encompassing direct competition, collaboration on competitive regulation and the transfer of (usually human) assets. This contrasts with more typical economic cooperation or vertical interactions in clustering firms' behaviour in other sectors. Between-firm synergies might then be less important in explaining performance. Additionally, whilst input sharing has been cited as an important co-location rationale across a number of sectors, the key 'inputs' for a sports team are almost wholly human in origin – either the players themselves, the scouts who discover them or the managers who organize them. This then excludes the relevance for our sports clubs of sharing 'hard' inputs or technologies within close geographical space – although this is not the case for sport as a whole; for example, the motor racing agglomeration of the UK East Midlands (Henry & Pinch, 2001).

This is not to deny the possibility of Marshallian interactions for sports clubs or to suggest knowledge spillovers may not be important, but rather to suggest that these are likely to be mediated at a very micro or individual level. An example is sports psychologist Steve Peters' 'inner chimp' that guided the Great Britain and Sky teams to cycling success (Peters, 2012). The extremely specialized nature of hard-technical inputs to athletic sport, combined with an extremely globalized workforce (a point to which we return), suggests knowledge spillovers are more likely to be national, international or even intercontinental than local – for example, the transfer of tactics or training methods when a manager moves clubs, often between countries (as happened when Arsene Wenger arrived in England in 1996 to coach Arsenal; Redknapp, 2014).

For sports teams the (mostly observable) quality of human capital within the club, individually and in interaction, is the key competitive driver (and if marginal productivity wage theory has anything say, it is largely that the best-paid workers – young, hyper-mobile and hyper-rewarded – will impact most on club performance). Agglomerative or place-related impacts on team performance might then focus on economies related to the labour market, and the interaction

between city and professional athletes. At the highest level, earnings in sport are vastly in excess of rental or other living costs, with players often locked in a Veblenist orgy of conspicuous consumption, and utility determined by more than marginal changes in income. Here we see in some ways a caricature of Castells's (1996) informational workers or Florida's (2002) creative class, where a subset of workers in key industries who are mobile, discerning and with strong intra-actions, have strong implications for city development (Trip, 2007). Their attraction by clubs is a large part of organizational success. If certain types and sizes of places benefit clubs by enhancing their ability to attract these workers, then perhaps it is here we should return to find the reason.

In looking for links between co-location and team performance, we should not exclude the potential impact of local competition. Whilst the league studied here extends competition, pairwise, across the geography of England and Wales, the impact on club performance of the strength of within-city local competition (derbies) has been a subject of some debate (Bäker, Mechtel, & Vetter, 2012). Perfectly competitive economic theory would of course argue that competition is good for the soul and for productive efficiency, but for sports clubs (and firms) in imperfect and geographically constrained markets it is not so clear. In the case of professional sport, competition is local (for proximate fans and gate receipts), national (for league success) and international (for investment, for brand awareness and hence sponsorship muscle). There is the potential for both city scale and the co-location of other local clubs to have impacts on the competitive environment at all these spatial scales, although the endogeneity between city size and number of local clubs makes analysis difficult.

DATA AND METHODOLOGY

Measuring the success of football teams

We examine the success of teams that have appeared in the EPL since its inception in the 1992/93 season until 2013/14. We include all teams that have appeared in the EPL for at least one season, as this demonstrates an ability to compete at the highest level of domestic professional football – and concomitantly pay wages, exchange and bid for playing and managerial staff, and attract investment at this highest level.[1] That is, these teams are, or have been, competitors with each other. There are 45 such teams, of which only seven have been ever-present in the EPL (see Appendix A). We measure success as a club's finishing position in the whole football league (92 teams in four divisions), averaging their result as an indicator of success over the 22 seasons. This means a team winning the EPL in every year would have the best possible score of 1, and higher scores indicate poorer performance.

The use of ordinal ranking to compare sports or firm performance is rare, although it has some pedigree in assessing industry concentration and firm performance over time (Ruefli & Wilson, 1987) as well as the competitiveness of sports leagues (Groot, 2008; Keller, Sinn, & Emonds, 2007). Our measure allows comparison of a large number of teams and is consistent and stable over time. For example, Goossens (2006) examines competitive balance in sports leagues across Europe using results from the Champions' League, but the scale of (and qualification for) this competition changed markedly after the turn of the Millennium. Our results data are uncontentious and easily accessed from sport statistics websites.[2]

There are, however, data limitations that prevent the use of alternative measures of sporting performance. For example, it may be beneficial to consider league position conditional on financial wealth, as clubs of different financial standing may be considered to have outperformed expectations without being in the upper levels of the league positions. The lack of financial data for all clubs, particularly those that have dropped through the English football league divisions, for the past 22 years prevents the generation of a financial–continent performance measure.

The promotion and relegation of clubs through the league system over the 22 seasons also precludes the use of winning percentages, or points totals since it is not appropriate to compare points totals in different divisions of the football league.

As with other measures of performance in the sports economics literature, there are some limitations with the measure used here. Its ordinal, ranked nature means we lose data about the *gap* between competitors (in terms of points). This may be considered of secondary importance for clubs, however, since prize money, qualification for continental tournaments and promotion/relegation are determined only on team finishing position, not points. In our approach we ignore some non-linearity in the league hierarchy. For example, a finishing position of first, third and third over three years might be judged (by fans or teams) as being more successful than a run of three second places, but would be assessed as worse in our metric. Additionally, key 'break points' – Champions' League qualification places (with significantly increased revenue and visibility) and relegation from the EPL are positions that imply both a greater 'success gap' than the norm *and* may have implications for future performance. Despite these limitations, our measure closely proxies the primary objective of our studied population, and is a useful, transparent and stable indicator of performance. As the results show, its application suggests important relationships between place and performance in football.

Geographical classification

Our earlier review suggests that agglomerative (or urban-competitive) effects are likely to be most important at urban scale. Our scale is defined by the UK's built-up urban areas (BUAs) as classified by the Office for National Statistics (ONS) using data from the 2011 Census of Population (ONS, 2013). The 45 teams fall into 27 discrete BUAs, with populations ranging from 9.8 million in London (with nine Premiership teams) to 147,000 in Blackburn (whose well-funded Rovers won the Premiership in 1994/95). Bristol (two teams), Brighton (one team) and Birkenhead (no professional team) are the three BUAs in the top 20 in England and Wales (by population) that have never hosted a Premiership team (Figure 1). BUAs are potentially subject to geographical classification and edge errors (Duranton & Overman, 2005). However, they are topical, robust and defensible classifications of urban settlements in the UK that (unlike some other measures) are intended for general use.

URBAN LOCATION AND SUCCESS IN ENGLISH FOOTBALL

Clubs in larger conurbations have performed better in the Premiership era than those in smaller places. Table 1 demonstrates the relationship between performance and urban scale, classifying clubs according to the population of their host city[3] and indicating a discernible 'big–small' split. Clubs in conurbations of > 750,000 people (in 2011) considerably outperformed those in smaller conurbations. These football-successful areas comprise England and Wales' seven largest built up areas, containing 24 Premiership appearing clubs.

A similar size effect is evident when considering population per club. Table 2 shows that clubs in BUAs with over 1 million people per club (i.e., those in London) are the most successful, but there is also a distinct relationship below this level. Moving to BUAs with a population per club of 500,000–1 million; to > 300,000–500,000; and to ≤ 300,000 has deleterious marginal impacts on average club performance. Lower levels of population per club are associated with worse club performance on average over 22 years.

The data strongly suggest that urban scale matters for professional football success. First, London has produced the most successful clubs (on average) in terms of league finishing position. Second, major urban areas, notably in the North West, North East and the West Midlands, all with populations of ≥ 2 million, have enjoyed success over and above that seen elsewhere. Third, teams within the smallest urban areas have lower levels of success. Whilst the data set is not

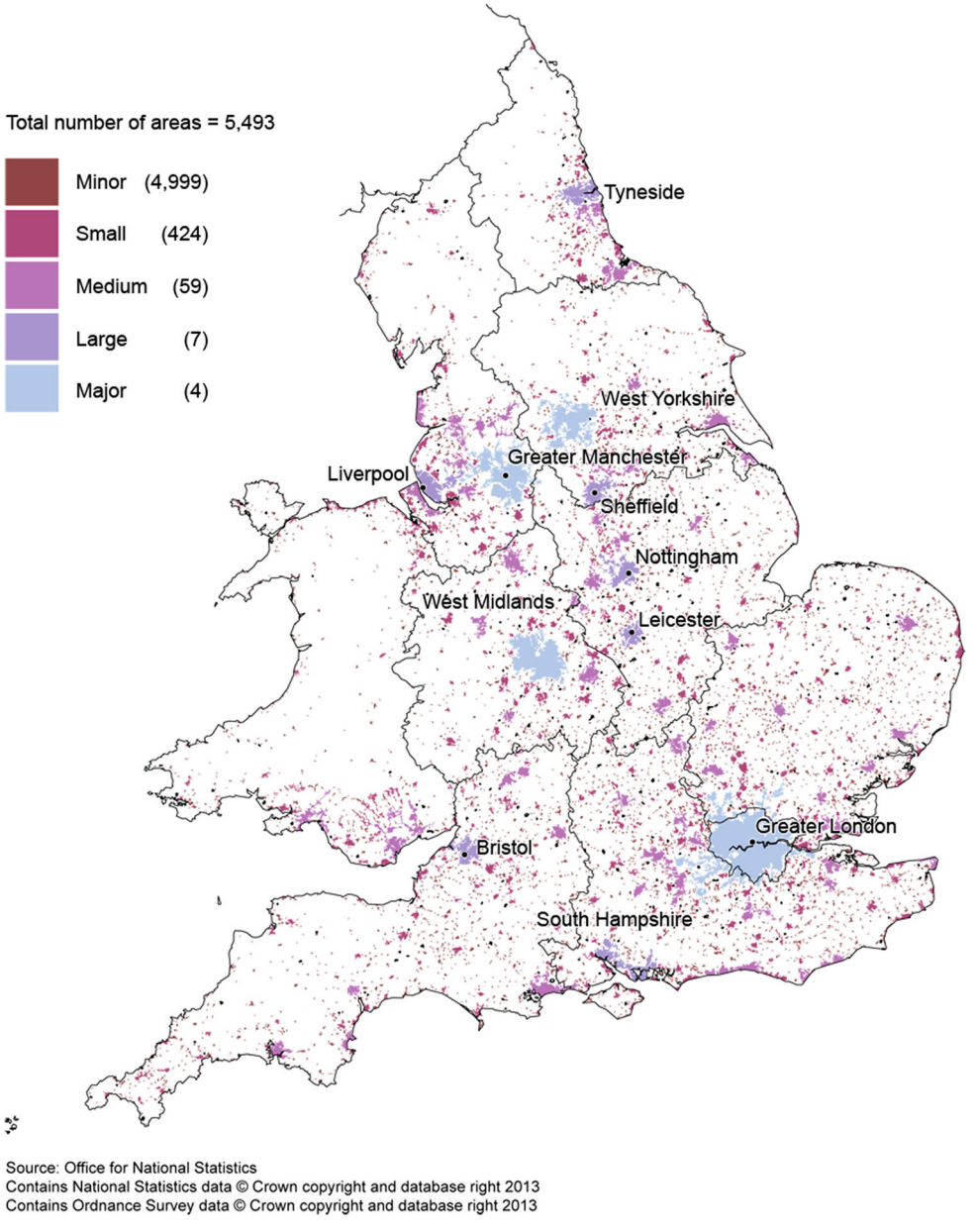


Figure 1. English Premier League football clubs in built-up areas in England and Wales.

exhaustive of clubs within the 20 largest England and Wales BUAs, the inclusion of the 'missing clubs' (i.e., of Brighton & Hove Albion; Bristol City and Bristol Rovers) would not alter this picture; in fact, it strengthens the relationships.

Restricting the analysis to urban areas that host only one club enables one to judge whether urban scale has an impact on club performance irrespective of club co-location, albeit only for smaller urban areas. Table 3 again indicates that clubs from bigger urban areas (population of at least 350,000) have done best. However, this finer disaggregation shows that clubs from the smallest conurbations have on average outperformed those from slightly larger places.[4]

Table 1. Average finishing position and urban population.

Population, 2011	Clubs	Average finishing position, 1992/93–2013/14
9.8 million (London)	9	20.0
> 2–3 million (Manchester; West Midlands)	8	22.0
> 750,000–2 million (West Yorkshire, Tyneside; Liverpool; West Hampshire)	7	22.0
> 300,000–750,000	11	31.6
147,000–300,000	10	36.4
All clubs	45	27.1

Table 2. Average finishing position and urban population per club.

Population per club (urban area)	*N*	Average finishing position, 1992/93–2013/14
> 1 million	9	20.0
> 500,000–1 million	13	24.3
300,000–500,000	14	29.7
< 300,000	9	34.4
All clubs	45	27.1

The data set suggests that urban location is a relevant but far from dominant explanation for club performance since there is significant volatility in club performance within cities. For example, in London, Watford had an average finish of 33rd compared with Arsenal's third to fourth (but Watford still performed marginally better than the average small-town club). This is consistent with wider work suggesting agglomeration has a *relatively* minor impact on productivity. For example, McCann, Dijkstra, and Garcilazao (2014) in a review of studies find doubling city-size increases productivity by between 3% and 10%.

Our results would in fact be a fairly straightforward story of 'size matters' were it not for notable exceptions such as well-funded Blackburn Rovers; and Leeds and Bradford. The last two, based in the large conurbation of West Yorkshire, have done far worse than their urban location suggests in terms of overall urban scale, population per club or their geographical neighbours (see Appendix A for club detail). The contrast in performance, particularly with the North West of England just across the Pennines, is stark. It suggests that location may matter beyond mere size, and we return to this discussion in the following section.

DISCUSSION: WHY MIGHT URBAN SCALE MATTER FOR CLUB PERFORMANCE?

Identifying the drivers of club performance

As outlined above, established studies and theories suggest several ways in which urban scale might positively affect firm performance, albeit with the exact mechanisms and impact of these factors uncertain (Puga, 2010). Leaving aside purely natural and geographical factors, we can broadly

Table 3. Average finishing position and urban population in single-club built-up urban areas (BUAs).

Population (urban area)	*N*	Average finishing position, 1992/93–2013/14
350,000–800,000	7	27.5
250,000–349,000	7	39.2
< 250,000	6	32.5
All clubs in single-club cities	20	33.1

distinguish these as relating to inter-firm relationships, market size or access, socioeconomic support structures and context, and labour market effects. Much of the debate on the benefits of firm proximity focuses on the potential for interaction between firms, either straightforwardly commercial or in more complex ways (Cainelli & Iacobucci, 2012; Henry & Pinch, 2001; Rosenthal & Strange, 2001). This potential for interaction exists for English football clubs, but in practice it is limited. Supply chains are short and involve extremely specialized services, and so a concentration of teams does not lead to the development of shared city-level supply chains.

Many key inputs and innovations, even outside of the workforce, arise and are procured internationally, for example, the innovative hybrid artificial pitches pioneered by Desso of the Netherlands and used by Liverpool, Manchester City, Arsenal and Swansea, as well as the Green Bay Packers (American football), and the English and Welsh rugby teams (Desso Sports Systems, 2015). Other key non-human inputs, for example, in the area of innovative sports science – biomechanics, physiology conditioning, etc. – are anchored in education institutions almost as immobile as football clubs. Meanwhile, key and well-respected medics in the treatment of sports injuries have players come to *them* (Bonham, 2009). Thus, whilst localized input–output or other relationships may well exist, they are unlikely to explain performance and we can largely discount these as a key explanation for location-derived club performance. With this in mind, we next briefly consider ways in which 'product' and labour market effects may apply in the football context, drawing on relevant examples from team and player behaviour. We also address the interesting question of why the conurbation of West Yorkshire seems to underperform relative to its population size.

Market effects

There is a strong correlation between both urban scale and population per club in the EPL, but the economic performance of a club is only partially related to its leveraging of its hinterland as a market for its product. Clubs will of course attract fans from outside the urban boundary, but, more importantly, the income a club receives is not restricted to gate receipts and fan merchandise. Indeed, in the 2012–13 season only Arsenal and Manchester United, of all EPL clubs, earned more from match-day receipts than television broadcasting rights (Conn, 2014). For smaller clubs, television rights income can be several times larger than gate receipts and merchandise sales. Since EPL clubs collectively negotiate television rights and proceeds are distributed (reasonably) evenly (Parlasca & Szymanski, 2002), and this latter element of revenue is dependent not on the quality, size or performance of individual clubs, but on their ability to stay in the EPL, television rights then serve to dilute the link between competitive and financial success (place-dependent or otherwise). Other elements (such as sponsorship, commercial activities and competition winnings) can be more clearly related to competitive success. However, it is not easy to isolate the effects of place on financial performance due to significant endogeneity between past success and current financial size or performance.

A further complication is the lack of relevance of usual financial metrics for several clubs. Chelsea is the best example. In 2014, the club had total debts of almost £1 billion (on which it paid zero interest) and incurred a loss of £57 million (Conn, 2014). Despite the pressures of the UEFA Financial Fair Play Rules, there seems little prospect of Chelsea, or several other clubs such as Liverpool or Manchester City, approaching standalone financial sustainability in the near or medium future. In assessing the impact of location on financial performance and league position, perhaps the appropriate question is the extent to which club location affects the likelihood of purchase by a (usually foreign) investor. Ownership data show some evidence of how far clubs in larger conurbations are able (or perhaps willing) to lever international investment compared with those more peripherally located (albeit with this somewhat dependent on past success). Table 4 shows that, of the six London clubs that played in the 2012–3 EPL season, only one was owned domestically (West Ham). Meanwhile, there was a more even share of

Table 4. Summary accounts of English Premier League (EPL) teams, 2012–13 (£, millions).

Team	Ownership	Turnover	Gate and match-day income	Television and broadcasting	Other income	Profit before tax	Net debt
Arsenal	Foreign	283	93	86	102	7	93
Aston Villa	Foreign	84	13	46	16	–52	189
Chelsea	Foreign	260	71	105	84	–56	958
Everton	Domestic	86	17	56	14	2	45
Fulham	Foreign	73	12	49	11.3	–2	1
Liverpool	Foreign	206	45	64	98	–50	114
Manchester City	Foreign	271	40	88	143	–52	54
Manchester United	Foreign	363	109	102	153	–9	295
Newcastle United	Domestic	96	28	51	17	10	133
Norwich City	Domestic	75	12	50	13	1	–7
Queens Park Rangers	Foreign	61	8	43	9.9	–65	177
Reading	Foreign	59	9	44	6	–2	38
Southampton	Foreign	72	17	47	8	–7	19
Stoke City	Domestic	67	7	46	12	–31	36
Sunderland	Foreign	76	13	45	19	–13	78
Swansea City	Domestic	67	10	51	6	0	–4
Tottenham Hotspur	Foreign	147	33	57	57	4	55
West Bromwich Albion	Domestic	70	7	53	10	6	–
West Ham United	Domestic	91	18	52	20	0	77
Wigan Athletic	Domestic	56	5	44	7	1	12
All teams		2563	567	1179	806.2	–308	2363

Note: Values may not balance due to unreported items.
Source: Conn (2014).

domestic and foreign ownership of clubs from the smallest conurbations – indeed Norwich City and Wigan Athletic had *local* owners. Swansea City (population 300,000) and Norwich City (213,000) (both profitable clubs) were the only Premier League teams with cash in the bank rather than a net debt in 2011–12 and 2012–13, perhaps hinting at the inability or unwillingness of small, peripheral clubs to lever debt-based investment.

Whilst this does not provide definitive evidence that city size fundamentally drives investment in football clubs, it is notable that there are several high-profile and expensive investments in (or rather buy-outs of) EPL clubs driven either (apparently) by the personal whims of individual investors (e.g., Chelsea, Manchester City and Queens Park Rangers), or which required the levering of brand value at a global scale and over many years to provide potential returns (e.g., Manchester United and Liverpool) and that such investments *tend* to occur in large urban areas. Cardiff City, a national capital (of Wales) but a peripheral football area (within the English league, where it plays), is one notable exception.

The labour market in professional football

Given that the sporting, and subsequent financial, success of football clubs rests so squarely on their staff, we may expect that many place-related benefits arise from easing access to and/or increasing the productivity of scarce and high-quality labour (Wheaton & Lewis, 2002). However, the peculiar nature of labour markets for sports people adds complexity (Frick, 2007; Rosen & Sanderson, 2001). For professional sportsmen, at least those relevant here, average living costs are far lower than wages, even given the necessity to save for potentially very early retirement, meaning any dissuading cost effects of high-rent cities will be negligible. Also, marginal increases in wages may have less impact compared with other welfare-impacting factors, such as the likelihood of winning trophies or playing in international competitions, or related to the lifestyle associated with particular locations (Mallett & Hanrahan, 2004).

Perhaps for more than any other industry, in the case of professional football, firms prosper or fail based on their ability to attract and manage mobile, high-quality and choosy labour. The extent to which football players will choose particular clubs or locations, or require additional incentives to play in some places relative to others, may matter a lot. There are many individual cases that suggest players, when moving between teams, distinguish finely between types of (and specific) cities – albeit with this only one of several other deciding factors (Vallerand & Losier, 1999). In general, there seems to be a London bias relative to other places, particularly those locations more challenged economically or climactically. Anecdotally, England's North East seems especially affected with managers relating stories of players unwilling to play in the region (e.g., Sinclair, 2014).[5] The 'London effect' may be in evidence even in comparison with other large conurbations. In May 2014, highly rated French defender Eliaquim Mangala, when asked whether he preferred a move to EPL champions Manchester City or Chelsea, replied 'City or Chelsea? Chelsea because it is London' (Goal.com, 2014).[6] While generally there is emerging evidence of an inverted 'U'-shaped relationship between city size and firm productivity, for football bigger would really seem to be better (McCann et al., 2014).

These player preferences would appear to exclude some clubs from hiring the very best players on similar terms to clubs from more 'desirable' areas – or perhaps from hiring them in any foreseeable circumstance. Additionally, such preferences means London (or perhaps it is very large or capital cities) would have an advantage over other locations (controlling for other factors). The *origin* of these putative preferences (and hence part of city advantage) is harder to discern, and likely to be complex. We have already established, of course, that teams from larger cities are more likely to be league successful and, hence, will perhaps offer more medal chances and visibility for incoming players. Player preferences, however, are driven by more than sporting considerations and hint at a profession where players highly value social proximity to other players. For example, London-based players from a variety of clubs cluster in the Surrey villages

of Cobham, Esher and Oxshott, and in the North West similar clustering is seen in Alderley Edge and Hale in Cheshire (Salsbury, 2013). This clustering of players reinforces Veblen's long-ago observation that, once more than sufficient wealth is accumulated, flagrant consumption in front of one's peers is welfare improving. For towns and cities, a proliferation of high-level football clubs, and hence footballers, might then result in greater attractiveness for potential new migrants. Only the largest conurbations will be able to supply this social 'critical mass'. We can perhaps here discern elements of circular cumulative causality (Myrdal, 1957).

Quite apart from the welfare effects of social interaction, the largest conurbations offer a wide amenity set for hyper-mobile and extremely wealthy individuals and households. This may be as prosaic as easy access to international air routes for individuals who are typically a great distance from their wider social networks and who have the time and money for frequent travel. Meanwhile, it was the belief of at least one North Eastern-based manager that the retail and media attractions of London for players' wives were a significant influence on many of his potential recruits (Hickman, 2007). This focus echoes somewhat the work of Florida (2002) and his suggestion that a mobile and important creative class will settle more in 'technostructure' and amenity-rich places which are tolerant of diversity. However, a very particular set of attractions are required for this particular subset of labour.

Co-location and competition: the West Yorkshire conundrum

As noted above, our story here is mostly one of increased city size hosting more successful football teams, with the exception of West Yorkshire, where the constituent teams (Leeds United and Bradford City) have performed poorly since 1992/93 compared with teams in other large conurbations. The temptation is to link this football performance to poor *economic* performance, but other economically challenged conurbations such as Liverpool and Tyneside, despite being significantly smaller than West Yorkshire, host teams that have been notably more successful. There are footballing differences between West Yorkshire and other large English conurbations, the most notable of which is a lack of elite teams. The conurbations of Greater Manchester and the West Midlands are each around one-third larger than West Yorkshire, but host twice as many EPL-appearing teams. In many cities there are longstanding local sporting rivalries between co-located teams that are at least roughly comparable in size, media presence and cultural importance (e.g., Manchester City and Manchester United; and Liverpool and Everton). As Table 4 shows, this is not true for West Yorkshire, where of the only two teams to have appeared in the EPL, Leeds United is far larger than Bradford City.[7] It has been suggested that competition for 'kudos' between (particularly) key individuals in rival co-located firms is a performance motivator (Porter, 1998). The barest reading of press reports, fan websites and workplace conversations suggests that such rivalries are still very important in city sporting cultures, even if this is perhaps less true for the non-local players who now dominate EPL teams. The lack of such a rivalry in West Yorkshire may be in part an explanatory factor for the poorer teams' performance. The most important 'derby' in Leeds is a match with Manchester United (Dunning, 1999). We might then discern a parallel with the idea that local competition is, in fact, good for the soul and for productivity (Combes et al., 2011).

CONCLUSIONS

Urban scale and co-location has long been held to affect firms' competitive performance positively, with a variety of papers finding both that firms cluster together more than might be expected and that they gain benefit from doing so. However, the extent and origin of these locational economies are not well understood. The drivers of firm performance involve, for example, nearness to markets and inputs, relationships with other firms and with public agents, local rivalry with competitors, and the ability to source and use appropriate and competitively priced labour.

All these factors are related closely and in complex ways to location, with these relationships reciprocal and changing over time and space.

This paper shows, using a data set of 990 observations, that there is a strong, positive correlation between location and firm performance in the professional football sector. The natural experiment of professional football has the benefit of stripping away a number of complicating factors inherent in previous studies. Firms do not move to more competitive locations and rarely suffer the entry of disruptive new entrants or radical technological change. Regulatory change is minor and rare, and local public sector interventions in this market are similarly limited and weak. Meanwhile, unlike for other strong clusters, the sector is economically too small to affect the nature of the urban area or (in the case of English football at least) 'bend' it to provide a more benign environment. The results thus present a strong relationship between urban scale, co-location and competitiveness and where there is limited potential for unobserved place attributes or complex feedback effects to muddy the analytical waters.

To summarize, then, this paper suggests that agglomeration economies demonstrated across a variety of sectors are not solely a result of highly productive or highly influential firms using their power to capture and move to geographically advantageous locations, or bend regulations for their own benefit. For this quirky sector at least, conurbation size really does seem to matter, even as income sources become far less 'local' in origin,

If agglomeration, urbanization and co-location matter then the question is: Which of these and why? This paper can only hint at the answers. We suspect that the lack of any complex supply relationships between co-located teams (other than player transfers) or between the public and professional sport sectors, and the importance of the workforce for competitive outcomes, suggest the answers lie in the labour market rather than inter-firm or institutional factors. Cities that are attractive to elite professional footballers by nature of their geographical position, infrastructure and/or social milieu, might do better than those that are not. It is likely also that the last factor is dependent in part on an existing cohort of resident athletes and clubs.

Also worthy of further consideration is the impact of co-location. We note that for larger football-successful conurbations there are at *least* two professional teams of roughly similar size and 'visibility'. Indeed, several smaller conurbations feature teams that are relatively successful and strongly culturally competitive with teams from neighbouring cities (Newcastle and Sunderland in the North East, for example). The extent to which rivalry between co-located or near-located teams (for market share, media attention, city 'mind-space' and bragging rights) drives improved performance may also be worthy of further investigation, and may be important for firms more generally (Porter, 1998).

While based on a relatively modest quantitative analysis, this paper steps into novel territory and thus opens up scope for a fruitful research agenda. We report here a 100% census of finishing positions, averaged over time and within places, but there remains the possibility that the results obscure interesting club-level outcomes, or are the product not of place characteristics but of unconsidered random or structural factors. The temptation is perhaps to extend the analysis back in time to earlier iterations of English football leagues, or to a larger set of English clubs (perhaps the 100 plus professional clubs of the modern era). This could be done either by further data collection or by treating the results as a sample of a wider (temporal or club) set and applying appropriate statistical tools. Both of these extensions are problematic. The founding of the EPL closely coincides with the explosion of football commercially in the UK and Europe and with the development of its globalized and hypermobile workforce (indeed, the EPL shares its birth year with the European Single Market). Before 1990, and especially before 1961 when there was a rigid player salary cap, football teams were much more locally embedded and dependent on local talent, and the sport was structurally very different. Similarly, most teams that never attain the top tier of English football may be lucky enough to compete with clubs such as Manchester United in the annual FA Cup, but do so in no other meaningful way.

More productive lines of enquiry might begin by asking, first, is this urban scale impact a uniquely English (and here Welsh) phenomenon; and second, is it just football? In the first case there is ample opportunity to extend the analysis to other major European leagues to establish whether conurbation size is similarly correlated with success. In the second case, other team- and/or league-based sports might provide useful insight into the relationship between space and success, and provide the opportunity perhaps to test other (or further refined) performance metrics. Multivariate analysis would also need to control for other potentially relevant factors – such as organizational or manager quality – in assessing the *relative* importance of place in driving success.

Most Western economies and especially their large urban areas are well beyond the stage where the exploitation of natural resources, or their output of manufactures, are the key drivers of prosperity. The identification of 'city regions' as a key spatial scale in the UK, together with continuing debate about the importance of agglomeration in driving prosperity (e.g., in the UK's 'Northern Powerhouse'[8]) means the relationship between agglomeration, firm performance and labour markets (especially related to labour sorting over space) is becoming increasingly important. Services, particularly competitive and internationally tradable services, are increasingly central, and in these activities the attraction and retention of human talent matters hugely. Influential commentators such as Florida (2002) and others have suggested that the character of cities and their ability to foster and nurture such talent is key. Whilst the jury may still be out on the specifics of such mechanisms, our analysis does suggest that at the bleeding edge, in this talent-focused, globalized and hypercompetitive industry, place still matters.

Notes

[1] We exclude Wimbledon F.C., now MK Dons, as the only team to have moved a significant distance in this period (and suffered sporting sanction as a result). Note that Scottish teams play in a different league.
[2] See www.soccerbase.com and www.soccerstats.com for lower league and team specific information.
[3] Our classifications were chosen to present a reasonably even distribution of clubs; reclassification whilst retaining the same number of classes has a minor effect on the results in terms of the average finishing position by size class, but no effect on the key conclusions.
[4] Albeit since N here is rather smaller in each class, the impact of individual club performance on the average is greater.
[5] However, note the relative success of North East-based teams in the sample in Appendix A.
[6] Mangala actually ended up at City. Briefly.
[7] The two Sheffield teams are in the same county as Leeds, but geographically distant.
[8] For example, see https://blogs.lse.ac.uk/politicsandpolicy/hs3-northern-powerhouse/.

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APPENDIX A

Table A1. Average English Premier League football club finishing position and urban scale.

Club	Average finishing position, 1992/93–2013/14	Built-up urban area (BUA)	Population of the BUA, 2011 (thousands)	Population/club (thousands)
Arsenal	3.6	London	9787	1087
Charlton Athletic	27.5	London	9787	1087
Chelsea	4.9	London	9787	1087
Crystal Palace	28.2	London	9787	1087
Fulham	30.0	London	9787	1087
Queens Park Rangers	29.7	London	9787	1087
Tottenham Hotspur	8.6	London	9787	1087
Watford	33.1	London	9787	1087
West Ham United	14.2	London	9787	1087
Bolton Wanderers	20.0	Manchester	2553	638
Manchester City	15.3	Manchester	2553	638
Manchester United	1.8	Manchester	2553	638
Oldham Athletic	51.4	Manchester	2553	638
Aston Villa	9.4	West Midlands	2441	610
Birmingham City	25.5	West Midlands	2441	610
West Bromwich	25.5	West Midlands	2441	610
Wolverhampton Wanderers	27.5	West Midlands	2441	610
Bradford City	53.6	West Yorkshire	1777	889
Leeds United	21.9	West Yorkshire	1777	889
Everton	10.4	Liverpool	864	432
Liverpool	4.5	Liverpool	864	432
Portsmouth	32.2	South Hampshire	856	428
Southampton	21.2	South Hampshire	856	428
Newcastle United	10.2	Tyneside	775	775
Nottingham Forest	29.6	Nottingham	730	730
Sheffield United	29.3	Sheffield	685	343
Sheffield Wednesday	30.2	Sheffield	685	343
Leicester City	24.2	Leicester	509	509
Cardiff City	48.8	Cardiff	447	447
Middlesbrough	19.0	Teesside	377	377

(*Continued*)

Table A1. Continued.

Club	Average finishing position, 1992/93–2013/14	Built-up urban area (BUA)	Population of the BUA, 2011 (thousands)	Population/club (thousands)
Stoke City	30.4	Stoke	373	373
Coventry City	30.0	Coventry	359	359
Sunderland	19.8	Sunderland	335	335
Reading	32.7	Reading	318	318
Hull City	53.3	Hull	314	314
Swansea City	54.0	Swansea	300	300
Derby County	25.8	Derby	270	270
Blackpool	50.2	Blackpool	239	239
Barnsley	38.8	Barnsley	223	223
Norwich City	26.4	Norwich	213	213
Swindon Town	50.8	Swindon	186	186
Ipswich Town	26.0	Ipswich	179	179
Wigan Athletic	40.0	Wigan	175	175
Burnley	38.3	Burnley	149	149
Blackburn Rovers	13.5	Blackburn	147	147