INTRODUCTION

The increased commercial and entertainment element of professional football (Relvas et al., 2010) has increased the focus on player recruitment and development.

As outlined by Union of European Football Associations' (UEFAs) Executive Committee (UEFA, 2005a), recruitment and development of players is a prominent part of the UEFA mission: "our mission is the development of young players through international competitions and educational activities". The development of youth footballers is a significant element of the sport and has been well researched (Vaeyens et al., 2005; Mills et al., 2012; Elliot and Weedon, 2010).

In professional clubs' organisational structure and ethos, the need to focus on youth development has intensified due to legislative directives affecting player quotas, namely the UEFA 'home-grown' rule introduced in 2006 (UEFA, 2005b). At the same that clubs are being regulated to develop their own players, they are participating in a highly competitive league that is being sold to an increasingly lucrative world market. Although the directives to remain competitive in the league and produce local talent are not necessarily conflicting, they have produced significant externalities that will be investigated in this paper.

The UEFA 'home-grown' rule was introduced as a response to negative trends identified in European football. These negative trends UEFA outlined were: perceived lack of incentive in training players, reduced identity in local clubs, clubs stockpiling players, problems for national teams, lower competitive balance in club competitions, the link between finance and success and reducing playing opportunities for players trained 'locally' (Dalziel, et al., 2013). The 'home-grown
rule’ stipulates that each club must name a pre-determined number of players that have been developed for at least three years between 15-21 years of age by a club competing in the same national association. This minimum number of home-grown players increased from four players in 2006-07 to eight players since 2008-09 (UEFA, 2005b). UEFAs intervention is an attempt to rectify a form of market failure through rule changes; i.e., influencing an inefficient allocation of 'goods' (players) within European football. This, however, is partial market failure not complete failure, as indigenous players are still being produced, just not necessarily the right quantity, as suggested by UEFA. The legislation applies to all national associations, although the research in this paper aims to examine the player outputs from English clubs following UEFAs market intervention.

This paper aims to quantify the outputs (the number of players, club and international playing data) from English clubs’ youth academies in the ten seasons since the UEFA home-grown rule (UEFA, 2005b) was introduced. It discusses the impact of this regulation change and future strategic direction for different stakeholders (e.g., the clubs, the Premier League (EPL) as a commercial entity, and The FA for the national team). The analysis provides insight into England's system of producing players eligible for the national team, and identifies differences in outputs between clubs and club types. The paper also discusses the new regulation introduced into a (relatively) free market in relation to the presence of market failure, and how the attempted regulation has influenced the area of the market sought to be protected; i.e., indigenous players.

LITERATURE REVIEW
This literature review outlines the context of youth development in English football, followed by an overview of the market (and market failure) for the labour market in football and associated organisational issues.

Context: Youth development in the English Premier League

The focus on talented youth players in the English academy system has increased alongside significant legislation at a European and national level. UEFA's Financial Fair Play (FFP) regulations, in which clubs have to operate with greater financial discipline to protect against debt and excessive spending (Wilson et al., 2013) and the home-grown rule legislation outlined above, are key developments in the last decade. In addition, on a national level, the removal of geographic catchment areas for youth players in England and global scouting and recruitment strategies are prevalent in the landscape of youth development, particularly involving English clubs (Poli et al., 2016; Bond et al., 2016). The EPL chief executive also noted that too few English players aged 18-22 successfully transition from youth and reserve teams to the senior team (Guardian, 2016a).

These legislative changes have resulted in clubs pursuing and purchasing younger and younger talent in order to gain a competitive advantage, a strategy that also helps to meet the home-grown requirements. As Elliot and Weedon (2010) outlined, senior figures in world football (FIFA and UEFA) highlighted an issue (termed 'feet-drain') where imports from overseas permeating the senior game is extending to the academy structure. This, however, has been identified as a positive experience for youth players as a cultural and knowledge exchange which increases standards rather than a potential threat for their progression (Littlewood et al., 2011; Richardson et al.,
The limiting factors for introducing academy scholars to the first team are more likely to be from the short-term pressures on the manager in a results driven business (Vaeyens et al., 2005; Bullough and Mills, 2014).

Youth development has clear links to the wider participation of football. As stated by O’Gorman (2015, page 2) "youth and junior grassroots football is the lifeblood of the professional game" because this part of the game offers the base from where players are developed and supporters are generated. O’Gorman outlined how football creates interest politically towards public policy as means for government to target social outcomes. In England youth football has changed significantly from a government intervention programme in the 1980s (Stewart and Sutherland, 1996) into a highly competitive, multi-faceted structure which contrasts previous pathways.

In 1983 the Youth Training Scheme (YTS) was introduced, evolving into the Youth Training (YT) in 1990 (Stewart and Sutherland, 1996), replacing the makeshift vocational apprentice programme. Between 1978 and 1983 the number of professional players and apprentices decreased to 1,930 and 303 respectively, with apprentices concentrated in the top two divisions (Stewart and Sutherland, 1996). The government introduction of YTS and YT increased the number of successful transitions to senior football, up to 2,740 professionals and 1,224 apprentices by 1994. This is an example of a successful intervention through governance changes, albeit in a very different market, as similar central government intervention in the sport is unlikely now. The number of elite youth players in the professional system has since increased to 7,500 in 2006 (Guardian, 2006) and 12,500 in 2015 (BBC,
2015) driven by greater investment from clubs in this area as commercial revenues have increased.

Within the English structure, there is a duality of purpose between its governing organisations at the highest level (The FA and The Premier League), who have different core priorities. The enhanced financial income into the EPL from an increased number of overseas consortiums or individuals from, for example, Abu Dhabi, USA and China, is due to strong commercial opportunities for investors. The wide broadcasting scope and international exposure of the EPL offer strong commercial opportunities to club owners. The way English clubs are owned and the investment models used have significantly altered during this time as the revenue in the EPL has increased.

Investment in elite English clubs has shifted from city institutions in the 1990s to wealthy individual owners (Wilson et al., 2013). The desires and motives of these new owners have also helped accelerate the global appeal of the EPL, and, as such, mean club priorities have the potential to move even further away from those of the FA. In 2013; nine of the twenty EPL clubs were foreign owned, and in 2016 this rose to 14. This is noteworthy as 14 votes are required at an EPL board meeting to approve any suggested changes to regulations (The Premier League, 2016a). Increasing revenues in English football, e.g. the 71% increase for the 2016-19 broadcast deal to £5.14 billion (Karak, 2016), means more funds are available, which can, in theory, be allocated to youth development (Wilson et al., 2013).
The influx of new capital has affected the transfer market, and approaches to youth development simultaneously by altering the way clubs approach player recruitment and development. As Carling et al., (2012) state, each club traditionally aims to identify young talent with potential and add them to their academy, although the approach varies depending on the type of club and the level in which they compete. An example of this international investment changing the approach is at Manchester City F.C., where the club has invested £200m in a youth academy facility which has been cited as surpassing the facilities and pathway provided at cross-city rivals Manchester United F.C. (Independent, 2015). British media articles have also outlined examples where a more aggressive approach to recruiting other academies' players has emerged, although this is permitted within the regulations.

Market failure and regulatory intervention

Previous research (Tervio, 2009; Acemoglu, 1997; Vopel, 2011) reveals that market failure is evident in professional sports leagues and demonstrates that third parties are affected because goods allocation is not efficient. Market failure in the market under investigation in this study, as identified by UEFA in their rationale for change (UEFA, 2005b), is where the 'goods' are players, and the third party (i.e. young indigenous players) are affected by the introduction of other goods (i.e. older or non-indigenous players). Tervio (2009) argued that organisations placed high bids to recruit tried and tested workers rather than the potentially riskier new talent. This activity is a negative externality in the market; i.e., a cost to the next generation of players (reduced playing time and stockpiling of young players) as a result of such economic transactions.
To regulate or not introduces several questions to consider. Vopel (2011 pp. 57), suggested that the most important question around a decision to regulate a free market is whether there is "a kind of market failure and if so who would be protected by regulation?" Although the focus on youth development is not new, the legislation changes in Europe have, amongst other activities, recognised that there are issue in the current market, and that a change to the dynamic of supply and demand was required through intervention. The legislation has the potential to increase the market value of home-grown players due to the quota required in elite squads. In England, previous studies have outlined that there is a limited supply of indigenous players (Slot, 2007; Bullough et al., 2016). Bullough and Mills (2014) outlined the number of English players in the EPL significantly reduced over 20 seasons, from 393 in 1992 to 212 in 2012, due in part to the Bosman ruling, and to the globalisation of football.

The declining number of English players transitioning through the 'player development structure' (Slot, 2007; Bullough and Mills, 2014) is a form of partial market failure. In terms of the 'introduction of other goods' into the English market, Poli et al., (2016) outlined that England is the principal destination for migrating youth players and their average age has decreased since 1995. England accounted for 180 (30%) of all footballers who migrated under the age of 18. Italy, the second highest destination country was under half this figure at 78 migrating youth players. Bond et al., (2016) also investigated this issue, and added that England sees no outward migration of under 18s. More youth players being recruited by English clubs combined with no English youth players going abroad is a supply issue.
The significantly increased youth labour migration into and within England may well be exacerbated by the high financial benefits of the EPL. These benefits are not just limited to the players and their families, but the agents and intermediaries who may also profit from such transactions for the young players they represent (Bond et al., 2016). The globalised nature of football has made the player development and recruitment markets increasingly complex. In England, the EPL clubs, those from lower leagues and every other country are operating in a free market for transfers at senior and youth level. The acquisition of other clubs' home-grown players (under 18s) before they have established themselves as a senior professional is evident, including purchasing non-indigenous players at a younger age in order to enable them to qualify as 'home-grown' (Littlewood et al., 2011; Vaeyens et al., 2008; Poli et al., 2016). This strategy means clubs with larger budgets could make strategic decisions to allocate resources to circumvent other clubs' development efforts by purchasing younger players, particularly if the outputs from a clubs' own academy are not at the desired standard. This type of activity by clubs affects the whole development system.

The complex context surrounding the market for indigenous player development in England raises the question as to whether it can ever operate in a way without market imperfections. With the differing organisational objectives between English clubs with differing budgets and parameters of 'what success looks like', allied to the difference in remit between The FA and the EPL, there are significant market imperfections. In particular, Vopel (2011, pp. 56) outlined how regulation (in the form of Financial Fair Play) can be applied in a market where competition is different to more regular markets as "it has been shown professional sports leagues
tend to cause market imperfections for two reasons: First, the competitive balance is inherently unstable since initially successful clubs can enhance their dominance. Secondly, the 'positional' competition in a professional sports league, which is similar to a 'rat race', implies a biased incentive for participants to take too high of risks. Hence, regulation might be needed at least from a theoretical point of view to remedy market failure occurring presumably in a professional sports league". The rules Vopel outline do not explicitly focus on regulating the labour market; rather, they focus more on the economic behaviour of clubs. Nevertheless, player recruitment (and the associated fees involved) is a direct contributor to the economic behaviour of clubs. Introducing this regulation of the labour market is, alongside FFP, part of UEFA's rationale to "balance" European football.

Organisational ethos affecting labour regulation in football

Organisational and structural approaches to youth development programmes in football vary between nations. The delivery models include national programmes, centres of excellence and systematic programmes through the club structure (Meylan, et al., 2010; Reilly, et al., 2000). As outlined by Williams and Reilly (2000) and Stratton et al., (2004), early identification of players is a fundamental part of forming elite clubs' on and off-field success.

Although there are differences between clubs, the approach to youth development forms a fundamental part of the organisational ethos of a club. There has been a radical shift in the way elite English football clubs operate, from a representation of a city or town (Holt, 1989) to large global businesses. It is important to consider the links between these local representations, local identity and local pride with the ethos
towards developing local players (Duke 2002, Holt 1989, Russell 1997). Supporters can feel part of the local community through the football club (Giulianotti, 1999). As Duke (2002) alludes, local football clubs have historically been seen by some local people as a fundamental part of their community rather than as an international company, with fans attempting to retain traditional cultures and maintain the links between clubs, fans and the community. The disconnection between clubs and their communities though the erosion of the identity between clubs and their region, alongside weaker links between clubs, and their community fan base was cited by UEFA as part of the rationale for the home-grown rule (Dalziel et al., 2013). Seeing local players appear in the first team is still an important part of the culture, acting as a link between clubs and communities, the declining evidence of which was cited by UEFA as a 'negative trend'. It enables commercial sport to preserve geographical character in a global commercial market (Miettinen and Parrish, 2007). Whether supporters care as much about having local players in the team is questionable in the modern era, with on-field success arguably a more important factor.

The organisational dichotomy in England between the remit of The FA (player development and "working for the greater good of English football", The FA, 2016) and that of the EPL (commercially driven interests) was outlined by Bullough and Mills (2014). This dichotomy suggests the priorities of the key stakeholders are not aligned which is a potential conflict of focus (i.e., development of the best product from the league perspective versus development of the best English players from the governing body perspective). This is not to say the Premier League is not concerned with indigenous youth development as they provide funding for this part of the sport. However, the league as a product is the EPL's key success factor, with a desire to
have the best players in it to create the most interest and commercial return. With the influx of overseas ownership, managers and players into the EPL, it is debatable whether the current structure really aims to develop indigenous players, or the best prospects regardless of nationality.

Nesti et al., (2012, page 24) summarising Woodman and Hardy (2001), suggested that "a limited awareness or ambiguity concerning organisational direction alongside a lack of role definition" were key issues in elite sport organisations. Relvas et al., (2010) found that elite football clubs had limited written (or formalised) "clear and coherent strategic and philosophical practices and positions within the top level". A lack of clear strategic direction in clubs may affect clubs' organisational approach and structure for youth academies (Relvas et al., 2010). Although player development is an individual process (players having different needs, motivations, developing at different speeds and with different paths), it is underpinned by the organisational philosophy of the clubs hosting the academies. Wilson (2001) suggested working philosophies are transferable between generations, teams or even individuals and such philosophies directly influence the inputs (resources) and activities that each club allocates to their youth development programme. This is imbalanced and not consistent between clubs or the governing organisations in England.

England's elite player development system was restructured in 2011 (The Premier League, 2011). The creation of the Elite Player Performance Plan (EPPP) involved replacing the reserve team competition with 'Premier League 2', an under 21 league, since revised to under 23 for the start of the 2016-17 season (The Premier League,
The EPPP has four stages of development, Foundation (5-11), Youth Development (12-16), Professional Development (17-21) and Senior Professional (The Premier League, 2011). The acknowledgement of four stages in the structure promotes a longer term vision, from an individual development perspective, and the overall organisational environment. As Martindale et al., (2005) identified, the quality of the environment in which player development occurs is crucial.

Youth development policies and aims

The traditional mandate for professional clubs' youth teams was to directly develop players for the senior team, with those not of the requisite level released annually. However, the legislative change to the composition of elite squads appears to have impacted many clubs' approach. In the last decade, there are some clubs where youth development has remained a focal point, while in others, youth players have increasingly not made the successful transition to the senior team. Clubs outside the elite of the EPL have less chance of keeping young talented players within the current rules and enhanced spending power of the richest clubs. For example, a rule modification emanating from the EPPP guidelines concerned the geographical limits placed on player recruitment for under 16s being lifted. This rule change means clubs can now sign youth players from anywhere, rather than being limited to their catchment area (limited to a one hour drive for 9 to 12 year olds, or 90 minute drive for 13-16, Elliot and Weedon, 2010).

Fears from clubs competing outside of the EPL and lower down the football pyramid were voiced around the viability of operating an academy if the level of protection from other clubs taking their best players was diluted. As a result, some academies
have since closed (e.g., Yeovil Town and Wycombe Wanderers, BBC, 2013). **Set in**
the context of a rich elite league, the approach to player development across the whole structure is important for English football because not all players come through EPL club academies.

**METHOD**
In order to quantify and categorise player opportunity and development since the UEFA regulatory rules for home-grown quotas were imposed in 2006, a database was created detailing: player name, year of birth, youth academy(s) played at, club played for, top-flight league played in, number of appearances, minutes played, appearances at international under-age teams (under 16 to under 21), and senior international appearances. **These variables were then categorised into sub-groups and aggregated for analysis.** These criteria were selected in order to quantify the number of players and playing time, to attribute their development to their club(s) of origin and to quantify their international experiences. The database was created by extracting the player and playing data for each club from club websites and cross-referencing this with existing football data websites (e.g., Soccerway). The international appearance data for each player up to the end of the 2015-16 season was added from The FA website, with similar cross-references.

The collation of these variables was designed to allow the quantification of playing data to create a development model (see Figure 2). One area the variables do not quantify is the amount of time spent in each academy, as some players can join clubs under the age of 11 and some at 16 to 18. Other players move between clubs in their formative years, although there is no weighting attached to this. The database also
does not reflect whether players have been sold or released prior to their debut, or whether their playing statistics was done when on loan from a parent club.

Sample

The sample timeframe for inclusion was determined by the start of the home-grown rule; therefore, any English professional footballer making his top-flight debut between the 2006-07 season and the 2015-16 season is included in the sample. As the focus of the study is looking at outputs from the academy system since quota regulations were imposed, players making the elite grade before 2006 are excluded. This sample timeframe covers ten full seasons, with the first three seasons incorporating the staggered introduction of the quota level as follows: four (of the 25 player squad) in 2006-07, six in 2007-08 and eight from 2008-09 onwards (UEFA, 2005b).

Within the aforementioned timeframe, 37 clubs have competed in the EPL. To aid the analysis, these 37 clubs are divided into five categories based on their participation, outlined in Table 1. Categorising clubs allows the researchers to identify from where players are emerging, which is important to assess the player development efficacy by club and club type. Categories include the eight ever-present clubs and the six clubs appearing once. The fifth group represents all clubs not having played in the EPL since 2006. This group is important to incorporate all types of potential pathways into top-flight football in England. There are notable examples of players emerging from non-league clubs to the senior England team (e.g., Jamie Vardy, Ben Foster).
RESULTS

Since the start of the 2006-07 EPL season, 369 English professional football players have made their top-flight league debuts, the aggregate of which is defined as the 'output' from the system in the sample timeframe. This figure includes players making their senior league debut, players promoted or transferred from lower leagues and players developed overseas re-joining the English system. This figure does not include players produced by the English system prior to 2006, for example Wayne Rooney who debuted in 2002.

In order to quantify the level of progression within the sample, Figure 1 categorises the 369 players based on their highest international achievement and their top-flight experience. This creates a 'hierarchy of attainment' based on the highest level achieved internationally since the players' EPL debut and whether they have recorded a greater or lesser number of minutes played than the median for the whole sample (830 minutes).

Since 2006-07, 52 of the 369 players (14%) who have made their EPL debut have played at least once for the England national team in the 110 fixtures since home-grown legislation was implemented (although to date 13 of this 52 have only one cap). The second largest group in this data set consists of those players with no international experience at any age group, and a lower than median number of EPL
minutes (74 players, or 20% of the sample). An additional 61 players (17%) have no international experience at any age group. From a player development perspective, it is interesting to note that 9% of the sample has played international football at the Under 21 level (in one of the 106 fixtures played), but with less than the median amount of minutes played. This has implications in terms of player transition, as it means age-restricted international teams are being populated by players not playing regularly in the elite league.

Table 2 aggregates the number of players graduating from each club’s academy, and their playing statistics. Five of the top six clubs producing English players are in category 1 (ever-present) although two (Chelsea and Manchester City) have produced fewer players in comparison. Additionally, only a small proportion of appearances by players emerging from Manchester United and Arsenal occurred at their club (14% and 20%, respectively), compared to other category 1 clubs (Everton at 54%, 71% and Aston Villa at 44%). Southampton (category 3) stands out in this aggregation as a team competing in fewer than half of the seasons in the sample, but still producing 19 English players. Manchester City, in 2016/17, has three England internationals in its squad (Delph, Sterling and Stones), but they were signed for a combined transfer fee of c. £100m with little evidence of the club producing English players from their youth system (see Table 2 and Table 5). The data also reveals that Swansea City (five seasons) and Cardiff City (one season) - the two Welsh clubs in the EPL - have not successfully brought an English player through their academy to the senior team. This scenario is not replicated often across world football, where non-indigenous teams compete in an elite league, and is a potential impingement on the development of young English players.
Based on the comparative number of players in Table 2, the market regulation appears to have had a mixed impact on a club-by-club basis. These inconsistent outcomes linked to Wilson's (2001) study on organisational culture and the implications for corporate marketing, in which he outlined that clubs align themselves to working philosophies which are transferable between generations, teams or individuals and directly influence the inputs and activities. In this particular case, clubs are trading off short-term investments in player recruitment for longer-term player development.

Table 2 Academy ‘outputs’ ranked by number of players produced

Chelsea FC and Southampton FC are two EPL clubs with different levels of output that highlight the contrasting approaches to player development in the league. Chelsea is an illustrative example of a club "stockpiling" potential talent in case they emerge elsewhere and can make an immediate impact. In addition to its 25-man squad, Chelsea FC has 38 players out on loan in the 2016-17 season (Guardian, 2016b). In contrast, is Southampton FC, where five England internationals have originated from their academy in the last ten years. These five players generated a reported £89m in direct transfer income (Soccerbase, 2016) from Chambers (£16m), Lallana (£25m), Oxlade-Chamberlain (£12m), Shaw (£27m), Walcott (£9m, debuting at Arsenal). In addition, since 2006, Wales' Bale (£7m to Tottenham; then £80m to Real Madrid) and Ward-Prowse (107 EPL games for the club 2012/13-2015/16) are notable academy graduates. Southampton's 'outputs' in terms of players
produced is an example of the potential club level impacts possible (players playing for the first-team and income generation - see Figure 2).

Providing indigenous players the opportunity to play could be addressed by clubs ranked lower in the league structure as long as players are English. However, a question remains around whether there is a need for the elite system to produce players through the top clubs. Having English players playing in the top teams (e.g., title-chasing, Champions League teams) increases their exposure to the very highest level, and thus makes a (potential) higher quality sample of players to pick from internationally. Although the Category 1 clubs (Table 3) are producing the most players, which could be expected given they have had the most seasons in the league, only 25% of those playing minutes were recorded at a Category 1 club. Clubs in Category 5 (i.e., those not having competed in the EPL between 2006 and 2016) have produced 81 players and generated the second highest number of overall appearances and minutes played. This is an important point to consider in terms of future planning for resource allocation for youth development if those clubs not in receipt of the higher revenues generated through EPL participation can successfully generate outputs (players) for the elite level.

Table 3 Academy 'outputs' by club type - here

When compared on a season-by-season basis, the contrast between player outputs by club in the English system is stark (Table 4). Each season the three promoted teams have, apart from 2015/16, given more English players their top-flight debut than the eight ever-present clubs; i.e., the title-winning and Champions League competing
clubs. This data suggests that youth development and providing opportunity is not equal between EPL clubs. Creating a new competition that allows clubs to hold onto players up to the age of 23 and not playing first-team football may not be the most constructive response to this issue, particularly when looking at the average age of English debutants in the EPL at 21.5 years (Table 4). The average debut age for clubs in categories 1, 2 and 3 is between 19.5 and 21.5 years, category 4 (one season) is 21.9 years, and category 5 is 24 years.

Table 4 'Outputs' by club type and playing statistics - here

The decision to increase the age limit of the Premier League 2 competition to 23 also appears detrimental when considering 'optimum peak performance age' for footballers (the average age of players at World Cups is 27, BBC, 2014). This extension may restrict or delay some players from making their top-flight debut if they are in the second team. This structure may also lead to players in their early twenties being retained by EPL clubs and playing 'under-age' football rather than playing first-team football elsewhere. Furthermore, some clubs are not producing players prior to this upper-age limit increase; therefore this may be a detrimental move. Chelsea, for example, have produced players with the third highest aggregated U16-20 England caps and the joint highest number of under-21 caps, yet none of those players has become a full international with England. Similarly, Manchester City has produced only one senior international (Daniel Sturridge, who also had youth contracts at Aston Villa and Coventry City), alongside a small proportion of age-limited internationals being developed. Apart from Southampton, Manchester
United, Liverpool and Tottenham (each with five), no other club has produced more than two players that have played at senior international level for England (Table 5).

Table 5 International playing statistics - here

Development model: Outputs

The literature and results outline the complexities and differences involved in player development in football, and the market in which legislative changes are aiming to influence positively.

As highlighted by the model in Figure 2, this paper argues that the range of different inputs through the academy structure (such as financial input, the programme structure, the organisational resources allocated, and the ethos towards youth development), is linked to the output produced (i.e., number of players and the output from each player and collectively). Such outputs result in different outcomes for the development of English players as a whole (e.g., the whole system focus on youth development, sustainability of individual youth academies, and wider club activities). The outputs generated ultimately result in one or more 'impacts' for individual players, clubs, and the national association. Excluding the player outputs, the model does not detail (empirically or normatively) the individual aspects of the model (this would require more detailed research with individual clubs.) Another limitation of the study is that the researchers do not investigate the cause-effect relationship(s) between the inputs, outputs, outcomes and impacts. Nevertheless, this study does provide an overview of the key activities and measurements to assess the efficacy of the development system in the future.
There are five potential different impacts on clubs from bringing players through their youth system (see Figure 2). These impacts at club level are categorised into:

(A): developing players to play in that club's senior team; (B): retention of players to fulfil home-grown quota rules, but who do not necessarily play; (C): players sent on loan to other clubs; (D): players sold (possibly with future sell-on fees); (E): others recognise ability of different clubs to provide playing opportunities and develop players, which influences choices made by the next generation of academy players.

In addition to these club impacts, there are national association impacts; i.e., the number of indigenous players achieving international recognition at (F) under-age and (G) senior level. Efforts to create more players (outputs) through the English football pathway can be appraised by employing this model. Utilising the Academy Outputs category (numbered 1-4 in Figure 2), it is possible to quantify and track indigenous player outputs over time to further understand how UEFA’s regulation continues to affect the number of players successfully transitioning into the EPL.

Figure 2: Player development outcome logic model here

In terms of player development, there is an apparent difference in perspective in between the three stakeholder groups; (EPL, national team, and between clubs). The national association focus on impacts F and G (Figure 2), and, over the longer term, it needs the clubs and the league to have a strong focus on impacts A and C to accomplish these goals. With their short-term needs taking priority, EPL clubs have taken different approaches regarding impact A; with impacts B, C, D, and E being secondary factors for some over the longer-term. Each club's philosophy towards
player recruitment, and the resources allocated to impact X, the purchasing of
players to play in the first team ahead of academy graduates, is an important element
of this dynamic. The EPL has a greater focus on the quality of the overall 'product',
and impact A is important, particularly as it allows the broadcasters to create stories
and perspectives linked to the club-community relationship, although player
nationality is much less of an influencing factor for the league as a product. There
can be an argument made that EPL clubs need to be delivering on impact A, or
impact C (if it is in an elite league) with a longer term view, which is generally not
the case in modern football.

Selling players produced from within a club's youth development system, but
deemed insufficient quality, can still be a self-fulfilling exercise, producing revenues
which effectively allows the academy to pay for itself. This financial benefit to the
club can include direct transfer fees, future sell-on clauses, and loan fees. Some clubs
will, however, retain players developed in England to satisfy UEFA's quota
requirements, but without them ever being selected.

The calculation of the outputs generated in the English system show limitations in
both quantity (number of players) and quality (e.g., playing time at Category 1 clubs).
In the 10 seasons included in this sample, only 20 English players have played
outside of the EPL in one of the other top five European leagues (Spain, France,
Holland, Italy, and Germany), generating 27,000 minutes of play in 412 appearances.
This is the equivalent of 1% of those generated in the EPL. When compared to the
number of players produced by other leading European nations, England (369) lags
behind both at home and abroad. The database quantifies the number of players
'produced' since 2006 for other major European nations; Spain (713), France (656), Holland (647), Italy (523), Germany (517).

DISCUSSION

This research quantifies the outputs from English academies in the ten seasons since UEFA introduced 'home-grown' regulation to address the negative externalities produced by partial market failures in the European game.

There are increased financial rewards on offer in the EPL owing to the league's commercial success. Whether it helps or hinders indigenous player development in England is debatable as the strategic priority towards youth development differs by club. It can create a culture where there is decreased incentive for players to seek regular football outside of the EPL, as players could be better-paid squad members in England than a first team player overseas. Also, elite English players as a commodity are rare. In fact, elite indigenous players are in such short supply as a resource that their market values are increasing (evidenced by higher and higher transfer fees) as EPL clubs seek to comply with home-grown regulations. This phenomenon of English players' market value increasing due to their short supply when compared to their non-English counterparts is perhaps one unintended consequence of UEFA's market intervention. The high financial rewards for players (and agents) mean England is such an attractive proposition for intermediaries to introduce third parties to the market (youth players from overseas) that it actually undermines the intended goal of UEFA's intervention. With limited regulation on agents and intermediaries, the current legislation is unlikely to change this movement.
The increased funding in the English game via the lucrative broadcast deal from 2016-17 is unlikely to "trickle down" into the lower professional leagues which, as evidenced in the results, has a track record of producing elite English players. The financial resources generated appear to be disproportionately allocated, going largely towards the recruitment of (and enhanced payments to) established elite players. Although investment is going into youth development (for example, Manchester City's new £200m academy), this is taking place alongside major investment in senior professionals with experience at the highest levels of domestic and international competition.

Even before the complexities of the worldwide player transfer market are considered, the organisational culture and ethos among EPL clubs is far from homogenous. Attempting to introduce effective regulation, therefore, in a system with 20 different clubs with wide-ranging resources and goals is challenging. The EPL's relegation and promotion system (wherein each year the three lowest teams are replaced by three teams from the league below) exacerbates this situation. Each club has a different measure of success, differing commitments (e.g. European competition), different executive and supporter expectations, all of whom operating in the same league. Considering the organisational differences in England between the national association and the league, such complexities make it a difficult market to regulate effectively. Legislation has, from the ten years of data, appeared not to correct this market failure in England, or create a better balance of the nationalities in the EPL.

Regulation to 'fix' market failure looks like a viable option in theory, but is difficult to implement because organisations must also work within current employment law.
The fact that the organisational power to implement regulation effectively is different in the EPL is significant. As Vopel (2011) outlined, professional sports leagues create market imperfections due to unstable competitive balance from successful clubs who have the incentive to take high risks. An example of a short-term higher risk occurring frequently in the EPL is the purchase of a ready-made player for a high fee rather than using a player developed from the youth team.

It could be argued that the greatest constraint on the England national team has been the creation, development and commercial power of the Premier League which has resulted in clubs having much greater financial resources for player recruitment. For all of the enhanced financial investment the league administration has generated, and the good work it clearly does in the wider communities, previous studies (outlined earlier) have quantified a decreasing level of English players. For any significant shift in the focus, the power balance would either need to change back towards those in charge of player development, or result in club level agreements where indigenous youth was at the forefront. Furthermore, The FA needs to have more influence with clubs regarding opportunities for young English players. In its current form, the relationships between clubs, the EPL and The FA are unlikely to facilitate this.

Future Outlook

Although originally designed to address market failure (from UEFA’s point of view), increased regulation has not brought greater control for The FA. The level of ‘output’ currently being generated through the English system is weaker than other leading nations. Indigenous player development is a key measurement for a national association, as opposed to revenue generation, profit and return on investment for
owners (alongside on-field success). Whether this is seen as a major challenge or
threat in the market from the perspective of all stakeholders is questionable.

Regulation of youth development and club finances is an area which has seen greater
scrutiny following governing body (UEFA) intervention, making the production of
players a key consideration for all stakeholders. With financial discipline a key
phrase in the FFP measures to help control debt levels and curb excessive
expenditure, it is important how clubs operationalise their strategy for the
development of youth players for the first team as a cost-effective method of
recruitment. Operationalising this strategy becomes a more viable option over the
longer term under these financial rules than simply purchasing established players
from other clubs.

Suggesting reform, however, which may affect the overall quality in the short-term
could be seen as a counter-productive to the objectives of the modern commercial
game. For England to build a structure that can produce players for future
generations, a serious culture change would be required. Any changes would need to
be tailored to suit the different objectives at club, league and national association
level, and this is where complexities arise. With 14 votes required at an EPL board
meeting to approve regulation changes, and 14 clubs with international owners, this
may create different objectives. Any common rules and agreements may be difficult
to establish, with differing aims and influences driving key stakeholders’ interests
(and between different clubs). For any elite development system to produce teams
able to compete (in terms of tournament success) on the international stage, the
highest quality opportunities at club level are important. As with any level of reform,
it needs to begin somewhere, and the UEFA intervention has not worked in England at present.

So what, if anything, can be done to improve conditions in this market in order to produce more indigenous players that will successfully transition to the national team? Attributing the correlation of reducing outputs over time (i.e., lower number of English players) with the exact cause is difficult. Many of the organisational complexities and market forces are factors causing the partial market failure and thus become difficult to 'correct' in isolation. Moreover, the substantial differences between clubs' inputs to the market (in terms of financial resources, infrastructure, ethos, ownership, etc.), cause an imbalance, particularly when each club has different priorities and targets each season. As the UEFA rule outlines eligibility is 'regardless of nationality', this also impinges on the regulation's ability to influence the indigenous development 'market'.

Should the strategic direction of English football be more influenced by those tasked with generating players to represent England rather than the commercial objectives? There is a strong case to be made for questioning whether that could happen with the complex (and heavily resourced) ownership models in place. A 'collective bargaining', such as club-level agreement on indigenous player quotas would ensure protected status, although the complex international ownership of clubs would make this difficult. Central funding for elite academies is limited as clubs cover their costs, but such resources could be linked to the outputs clubs produce, or more evenly distributed down the league pyramid. The evidence in this paper demonstrates that development through non-EPL clubs is a viable route to play in the EPL, but
questions around whether such direct intervention would influence clubs with already large resources remain. Weighted funding could be applied to incentivise clubs through the provision of additional funds for those demonstrating a successful development system, although the origin of such finances would require negotiation. It would be prudent to suggest that any of these measures would not be tolerated or discussed in the highly competitive environment in which clubs are operating, with lucrative rewards and international status on offer.

Questions also remain regarding quality, in terms of players playing at the top end of the league and, likely, European competitions. Table 4 outlined that the clubs in Category 1 (i.e. ever-present, and taking the majority of European competition places) are producing players, but not necessarily for their team, they transfer to other, lower 'ranked' clubs. There is an argument that some of this responsibility lies with the very top clubs, producing their own first teamers playing for title-chasing and Champions League clubs, and also populate the national team. This is pertinent when the three promoted clubs are introducing more English players into the league for the first time than the eight ever-present clubs (Table 4).

Alternatively, does it matter where players develop from, but should more focus be put on the highest level of competition (club and international) they achieve? At present, the trend in England is that academy graduates from higher category clubs (from the categorisation in Table 1 of this study), transition into middle and lower tier EPL clubs. Lower league clubs are producing elite players (Table 3), but some are also closing their academies, and this scenario is a further restriction on the supply line. We can question whether the development route is an issue for the
English game, and this should be investigated in future research against other countries’ leagues and their outputs. Comparisons with development systems and pathways in other European countries such as Spain, France and Germany, where the data outlines a greater level of player outputs, allied with success on the international stage is necessary. This will determine whether this is a broader issue in European football due to UEFA's market intervention or simply a phenomenon manifesting in England.

CONCLUDING COMMENTS

The question remains regarding whether continent wide market regulation in football can influence one nation in isolation? Some clubs’ approach to youth development is designed for various (but not mutually exclusive) reasons, such as to populate their first-team, income generation, or to fulfil quota regulations. From a club and league perspective, nationality could be deemed irrelevant if players are of a sufficient quality. From a national association perspective, it is the opposite.

The English market exhibits characteristics outlined in UEFA's rationale to introduce regulation. Research has identified that England is the main destination for migrating young players, and the continued third party introductions to the market means the rules imposed have, thus far, offered limited protection to 'indigenous labour'. As English players generally do not go outside of the English leagues, the pathways available are not as varied as they are for players from other countries. Where non-English under 18s are willing to transfer to different countries.
It would be useful to extend this research beyond England to examine club outputs across Europe. Such an analysis will allow researchers to determine whether the more successful clubs in other countries have a different rate of player production compared to England. Furthermore, more investigation in the different national responses to UEFA's attempt to address their own identification of market failure for indigenous players could yield a more productive solution for the situation in England. The future challenge for the football market and its national outputs in England is both significant and complex. Better alignment of the strategic priorities of all stakeholders may lead to enhanced indigenous player opportunities. The potential commercial risk in the short-term if intervention affects the quality of the 'product' is a key challenge which may be difficult to overcome.
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