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Does Affirmative Action Work? Player Quality and Performance in the English Premier League

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Abstract

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The Sports policy in England regarding football, reflects affirmative action programme designed to alleviate the sharp influx of non-homegrown players. More concretely, the English Premier League (EPL) has been implementing the Homegrown Player Rule as affirmative action since its 2010 season which restricts the number of non-homegrown players to, at most, 17 out of 25 players in a first team squad. It is likely that homegrown players would have relatively more opportunities in the stadium since the rule was enacted, but actually the policy did not seem to work as it had expected. Using data from the English Premier League 2008 - 2018 seasons, this paper finds evidence that the Homegrown Player Rule does not guarantee opportunities for homegrown players. To support my argument, I have calculated the total number of starting appearances and total minutes played in a given season to figure out the opportunities given to each player. According to the difference-in-differences approach, homegrown players have had fewer opportunities than non-homegrown players under controlling for team fixed effects, position fixed effects, and year fixed effects. Furthermore, the individual fixed effects model shows that homegrown players who had entered the league prior

to policy intervention still played as many matches as non-homegrown which suggests that the negative spillover effect was driven by the new comers who joined the league after the policy intervention.

Keywords : Affirmative Action, Performance, Football, English Premier League
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Contents

1. Introduction

In the modern world, many countries implement affirmative action policies to deal with the existence and extent of social discrimination against minorities. Affirmative action is generally used to indicate policies or behaviours in different situations including: college admission in education; employment in the labour market and government contracting. It aims to favour socially disadvantaged groups in order to level the playing field. Affirmative action creates controversy because it allocates scarce resources between the majority and the minority. As for the football league, the number of the homegrown player quota can cause non-homegrown players to leave the league. Additionally, it is uncertain about potential benefits for those who are favoured under the policy. For example, the policy can possibly place the homegrown players in football clubs for which they are not well-suited. Critics argue that underperforming players might face the tough competition in selective football clubs; these players would be more satisfied in football teams where they can actually get opportunities on the pitch, not on the bench.

This paper may contribute to the few empirical findings until now in the sports industry by investigating the quality and performance of football players from the English Premier League between the 2008/2009 and the 2018/2019 season. Most of the relevant literature is based on qualitative approaches, so a quantitative analysis in this paper would be valuable. To do so, I have collected unique data from different sources which include players' match statistics and individual information. In the data

set, I can identify the quality of the players by measuring their number of starting appearances and total minutes played in a given season. Pass completion rate by players can be used to measure player performance. The data set also contains detailed information about players' height, age, team, total months registered in a given season and on-field position.

This paper does not only give quantitative evaluations but also it may widen our horizon by using the difference-in-differences method. As most of the literature about affirmative action focus on the issues about academic performance in schools, it would be worthwhile analysing other parts of the world. Academic achievements by students can be a good indicator but classrooms cannot represent the whole world. Using rich data from the EPL 2008/2009 - 2018/2019[1] season might provide us with a new insight into understanding the impacts of affirmative action. Put differently, this paper tries to look outside of the classroom, and see what might take place.

In the paper, I use ordinary least squares (OLS) and the individual fixed effects model. My cross-sectional estimates show a negative relation between the level of opportunities and beneficiaries under the policy. Conversely, the individual fixed effects estimator also known as the within estimator suggests that there is no evidence of opportunity drop in the homegrown players who entered before the policy.

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1) In the paper, year expression does not mean the calendar year, rather it stands for the football calendar year. As depicted in Figure 4, the English Premier League starts in the middle of August, and it finishes in the middle of May following year. It might be confusing if two years are put together, so only the former year is reported throughout this paper. For example, 2018/2019 season is written as 2018 which starts in August 2018 and ends in May 2019.

My paper is organised as follows: Section 2 presents various literature regarding affirmative action; Section 3 gives a brief overview about the institutional setting in the English Premier League to better understand the background; Section 4 defines variables and the sample used in the paper along with summary statistics and, in section 5, identification strategy and the corresponding results are reported. This paper concludes in Section 6.

2. Background Literature

Affirmative action policies help the group of people who are socially disadvantaged because of their gender, ethnicity, age, or other backgrounds. The policy can give developmental opportunities in the form of hiring, promotion, and admissions in school.

A wide range of literature suggests the impacts of the policy. However, economists have not come to a consensus on the question of whether affirmative action actually guarantees developmental opportunities and improves performance. Fryer and Loury (2005), for instance, discuss seven myths and misconceptions in the controversial issue of the racial affirmative action. Fryer, Loury, and Yuret (2008) compare the efficiency issues of affirmative action between colour-blind and colour-sighted people in college admission. A theoretical model of college admission is developed by Bodoh-Creed and Hickman (2018) to discuss two different approaches of affirmative action: quota and admissions preference systems. Hafalir, Yenmez, and Yildirim (2013) suggest that affirmative action with minority

reserves gives obvious merits over majority quotas.

As for empirical papers, researchers who investigate affirmative action mainly shed light on education in the US. They show that affirmative action reshapes the admission procedure in the US which gives more chances for minority groups to enter prestigious colleges. Bowen and Bok (2000) show a race-neutral policy would dramatically decrease the black students in top schools. Long (2004) tries to find that there would have been a negative outcome of 27 percent reduction in elite college admission if a preferential policy for students in minority groups had not existed. Epple, Romano, and Sieg (2008) find that affirmative action results in lower tuition fees and higher admission to upper-tier colleges for minority students in the US. Howell (2010) suggests that a race-neutral decision is expected to decrease minority groups at the most selective colleges by 10%.

As for the anticipated impact caused by affirmative action on minority groups, researchers have different answers. Alon and Tienda (2005) find that minority students achieve more than white students who attend highly selective institutions. Fischer and Massey (2007) test the two common questions by critics of affirmative action and find no adverse impact of the policy for students. Bagde, Epple, and Taylor (2016), using unique data about numerous college applicants in India, provide no evidence of an adverse effect of affirmative action such as mismatch. On the other hand, Sander (2004) presents the negative impacts of law school admission policies to black students, whose grades are low, so that their performance is poor on the bar exam. Davidson and Lewis (1997) show a gradual convergence of

academic progress between the special consideration admission and the regular one at a medical school. They argue that the differences between the two groups are prominent in the basic science classes in the first two years, but the gap gets narrower later on.

Because a fair amount of researchers are interested in the education sector to figure out the impacts of affirmative action as above, there is not enough evidence from other sectors. Ozmen (2012) investigates players in the Turkish Basketball League (TBL), where foreign player quota is implemented, and finds that there is no quality difference between foreign and domestic players in the top teams. However, there seems to be obvious differences between the two groups in the regular teams.

3. Premier League and Homegrown Player Rule

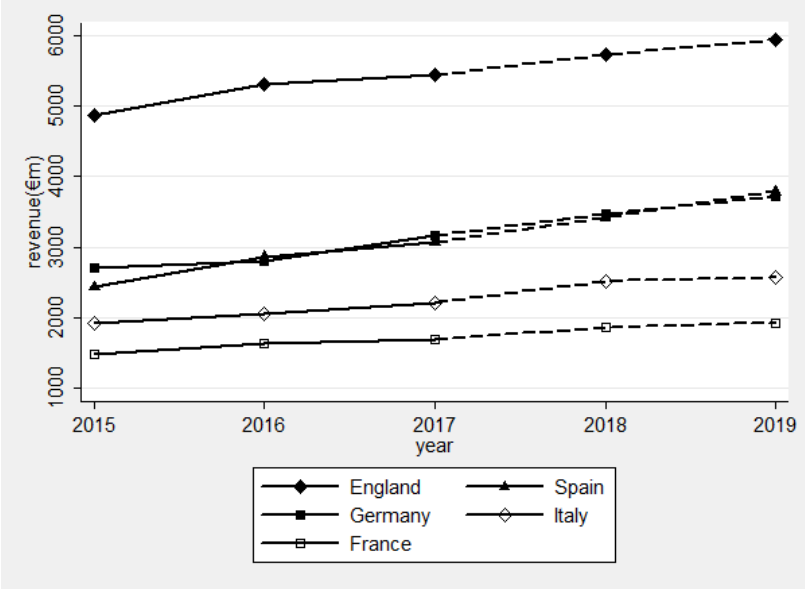
3.1 Premier League

England, the country where football was born, has the one of the most exciting football leagues in the world today. The recent success of English Premier League (EPL) could be reflected in the latest European Champions League Final match because both sides were English football clubs[2]. In addition to this, its revenue outnumbered the revenue of any other of the 'Big 5' in the European league (See Figure 1). Maguire (1996, 1999) suggests that sports labour migration is partly driven by money

2) The 2018 UEFA Champions League final between Liverpool FC(based in Liverpool) and Tottenham Hotspur(based in London) took place in Madrid, Spain on 1st June 2019.

itself. As time has gone by, footballers from all over the world have migrated and made the league more interesting and profitable.

Figure 1. Big Five European League Clubs' Revenue(in Billion Euros)



Source: Deloitte analysis(2019)

The line graph above (Figure 1) shows the relationship between time and football clubs' revenue by European football leagues. The x-axis ranges from the 2015 season to the 2019 season, and the y-axis is the revenue earned by the football clubs. The English league, German league, Spanish league, Italian league, and French league are represented by solid diamond, solid square, solid triangle, hollow diamond, and hollow square respectively. The projected revenues in 2018 and 2019 are demonstrated with the dotted lines.

Before the EPL was founded, in the 1980s, English football went through a tough time with hooliganism and falling attendance. The British government immediately responded to the issue by imposing strict regulations to get rid of hooliganism. After such difficult times, English football grasped its opportunity for a resurgence. Matches became more family-oriented and enjoyable with more intriguing television broadcasting.

Here is a brief explanation about how the EPL operates. When the Premier League started in 1992, there were 22 football clubs in the league. Shortly afterwards, it limited itself to just 20 clubs. The 20 clubs competing system remains in place. Each club competes against the rest of the clubs twice in a given season, and the match takes place at home and away respectively. After 38 match rounds are over, finally the bottom 3 teams in the league table will be relegated to the lower division league in the following season.

3.2 Freedom of Movement

Just like any other marketplace, the law of supply and demand we learn from economics works in the football industry. Under the international governing bodies of Federation International de Football Association(FIFA) and European Football Association (UEFA), football clubs can purchase or sell players. Prior to 1995 season, the number of migrating football players was not as many as today. There were two reasons why moving to other football clubs was not flexible enough. Firstly, even if a contract had expired with a current team and the player wanted to carry on his career in a different club, a transfer fee had to be paid. Secondly, football leagues operated strict protectionist controls on the number of foreign-born players who could appear in a team in a certain match.

Things changed completely after the Belgian football player Jean-Marc Bosman filed a lawsuit against his football club in 1995. When his contract had expired, Bosman was offered a new contract from his current club. However, he refused the proposal because it was not satisfactory enough. Despite this, his football

club decided not to sell him to any other football club. Bosman could have joined a French second division football club(US Dunkeque), but he was not able to sign a new contract due to the current club. At the end of 1995, the European Court of Justice ruled that his case was incompatible with Article 48 of the "Treaty of Rome" which is about freedom of movement of labour. Furthermore, it ruled that limiting the number of foreign players registered in a club was also incompatible. This would be one of the most historic moments in the football transfer market. Since this judgment, European Union nationals have been able to work on a non-discriminatory basis in any Member States.

It could be argued that the Bosman ruling would enhance the migration of foreign footballers at the expense of young domestic talent. Conversely, a lawyer, Carl Otto Lenz at the European Court of Justice, expressed that it was unlikely that migration of foreign players would increase to the extent that the chances of native players would seriously decrease[3].

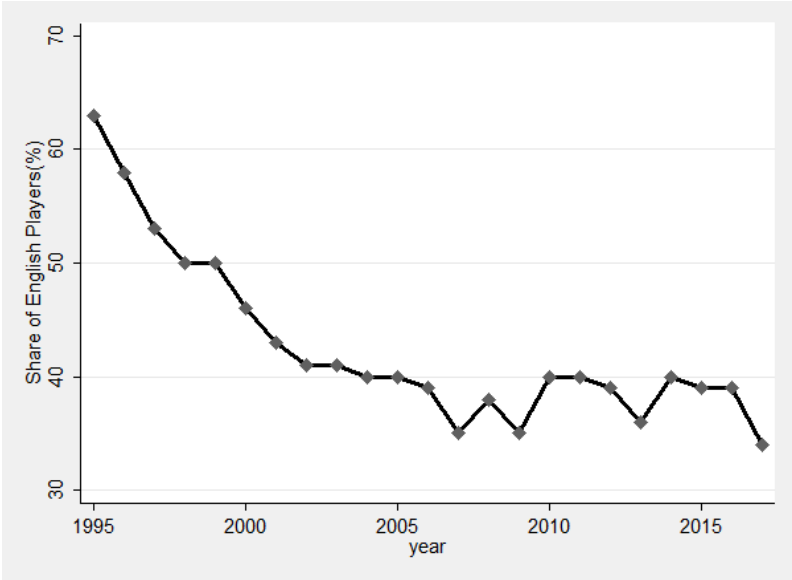
3.3 Homegrown Player Rule

The influx of foreign players increased sharply in all of the Big 5 leagues in Europe. However, it is not completely evident whether this dramatic influx can be attributed to the Court's decision(Frick 2009). Regardless of whatever the true causes might be, Figure 2 clearly shows that the share of English football players within the English Premier League has been decreasing gradually in the past few decades, which means that the number of their foreign counterparts has been going up in

3) Opinion of advocate general Lenz - case C-413/93 (1995)

the presence of freedom of movement. In 1995, as you can see in Figure 2, English footballers accounted for over 60 percent of the players in the domestic league. However, in the last few years, the figure has been nearer to 40 percent. There was a symbolic match that could describe the whole picture of the trend so far. On Boxing Day 1999, football club Chelsea, based in London, became the first football club to field entirely foreign footballers in their 11-player starting line-up.

Figure 2. Share of English Players by Year



Source: worldfootball.net[4)]

This line graph (Figure 2) presents the scatter plots of relationship between time and the share of English players. The x-axis spans from 1995 to 2017, and y-axis is the percentage of English players in the EPL

Until the 2009 season, an unlimited number of players from all around the world could join to compete in the EPL. Responding to this concern, beginning with the 2010 season, the EPL enacted the Homegrown Player Rule which restricts the

4) Where Athletes in the Premier League, the N.B.A. and Other Sports Leagues Come From, in 15 Charts (DEC. 29, 2017 The New York Times)

maximum number of foreign players up to 17 among 25 men per first squad. Therefore, at least 8 places are expected to be occupied by homegrown talents (see Figure 3).

To comply with the rule, each football club in the EPL is required to confirm and submit the list of 25 men in their squad before the league starts. In a 25 man squad, players over the age of 21 have to be included, otherwise they cannot play for their team throughout the season. Players who are under 21 can be called up whenever needed even though their names are not written on the 25 men squad list.

'Homegrown' can be defined as follows: A homegrown player refers to the one who has been trained with any club affiliated to the Football Association (of England) or the Football Association of Wales for at least 3 years prior to his 21 birthday. Therefore, the fact that a player is born in England does not necessarily guarantee homegrown player status. In other words, homegrown player status is irrespective of his nationality or birth location. Even if a player is born in England and has English parents, he would not be allowed to be classed as 'homegrown' if he is trained abroad. It is not, however, a prevalent case. Unfortunately, there is no such data available about each player's homegrown status. As noted in the next section, the obstacle can be overcome by using a proxy variable for homegrown status.

Figure 3. Homegrown Player Rule

Non-homegrown	indigenous homegrown	non-indigenous homegrown
(maximum 17)	(at least 8)	
(maximum 25)		

Figure 3 depicts the homegrown player rule. The maximum number of footballers in the first team squad is 25, and clubs can hire non-homegrown players up to 17.

4. Data

This paper uses data from English Premier League player-level statistics ranging from the 2008 season to the 2018 season. The data includes each player' s individual opportunities given (total minutes played and the number of starting appearances in a given season) and personal characteristics such as height and age. Team-level data can be obtained as well.

4.1 Sample Definition

The original data set[5] consists of all the players who: (i) were registered in any football club in the EPL between 2009 and 2018, (ii) played at least one minute[6] even as a substitute member. To make the analysis more credible, more extensive samples would be desirable because data for the pre-policy period is not big enough to analyse. In other words, 2009 is the only year prior to the policy intervention in the original sample, so an extended sample including 2008 season data is used in the paper.

Compared to the original sample, the extended one includes less information. For example, the original sample (2009-2018)

5) WhoScored.com: Individual player' s summary statistics since 2009 on a yearly basis.

6) There is a possibility that there might be some players who were registered in the first team squads but not included in the data set. If any player has played for zero minutes in a given season, their statistics do not feature in the data set. To see this, I sought to obtain information about the players who were excluded from the data set. I have used the data from 2010 and 2012 to check if these missing players can affect the main results in the paper (See appendix).

contains the players' weight, and 6-category field position variables, which the extended sample (2008-2018) does not have. However, it can be assumed that weight and field position variables would not violate the purpose of research seriously. Instead, the extended sample does have information about each player's height and 4-category field position (goal-keeper, forward, defender, midfielder) which probably replaces the 6-category field position (goal-keeper, forward, defender, midfielder, defensive midfielder, attacking midfielder). Therefore, at least each player's field position and the physical characteristic can be controlled for.

Players who only played for a short period of time, such as a half season, are also included in the data set. In case of a player who moved to another team within the same league, he would be reported twice in the data set in a given season because each player is identified by the team with which he signed a contract. However, when analysing the individual fixed effects model, the longitudinal data format is needed. It needs, at most, one observation for each player in a given year. Therefore, any players who were involved in two teams within a season are dropped from the sample when analysing with longitudinal data. In other words, in the case of keeping track of the individual players' opportunities by year, double observations in a season would be an obstacle. There are 382 double team observations in the extended cross-sectional sample which consists of 6,040 observations.

It is likely that a football manager might not give an opportunity to all footballers. Even if a footballer was registered in a certain football club, he would not be identified in the data

set if no opportunity was given to him. In the data set, the number of observations was more than 500 for each year, which might suggest that most of the players were given at least one opportunity in each season.

4.2 Variable Definitions

In this part, the main variables used in the studies are listed with the explanations in the context. Before listing the variables used in the research, it is required to find out which variables would be needed to evaluate the player performance because better performing players would be given more opportunities. Numerous researchers have identified that a players' age, experience, playing position, nationality and international experience would be the determinants of the player performance and salary(Robinson and Simmons 2014; Bryson, Frick, and Simmons 2013).

a. Starting Appearances and the Minutes Played

To assess the overall quality of the players and the level of opportunities given to them, I count the number of appearances of the players as a starting line-up (best eleven) and the minutes played in a given season for all footballers. By assuming that football managers would pick up the best 11 players among the team squad, the managers are expected to assess every aspect of the players in detail during the training sessions prior to the match day. Therefore, these two variables are good to measure the level of opportunities given to the players depending on their overall quality. Robinson et al. (2014) use the number of appearances made in a season as a proxy for

quality because they suggested that a player would not be regularly chosen if the players were regularly underperforming. In addition, Travlos, Dimitropoulos, and Panagiotopoulos (2017) choose a more precise measure of athlete quality which is the actual minutes of on-field participation of each player in a given season. Likewise, both the total minutes played and the number of starting appearances in a given season are adopted to measure overall quality in the analysis below.

b. Policy Intervention

The Homegrown Player Rule is regarded as a policy intervention in the paper. In 2009, the EPL announced that they would implement the new rule from the following season. The extended data set includes from 2008 to 2018; the first two years did not have any regulations on the number of homegrown players each football club has to register. To denote the policy intervention, a dummy variable is created assigning 0 if a footballer played in 2008 and 2009, and coded as 1 otherwise.

c. English Player

In the main data set, it is not possible to identify which player is homegrown or not. In the paper, players' nationality information is used to guess who is possibly homegrown. In the English Premier League official website, it is easy to check. On that site, each player's nationality information is represented by their national flag image (see appendix). This paper assumes that those who are English would satisfy homegrown status simultaneously even if it does not always work in that way. Therefore, a dummy variable is created to denote English

players with 1, and 0 for the other nationalities.

d. Months Registered

Each season starts in August and finishes in May in the following year, which means that the full season lasts for 10 months. Most of the players generally stay in the club for 10 months, however, players have a right to pursue a better opportunity.

Figure 4. Football Calendar Year

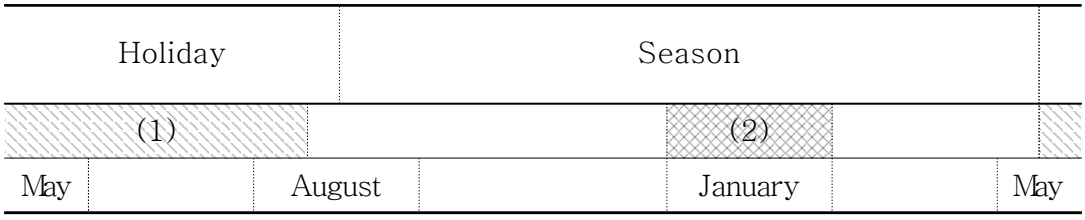


Figure 4 shows the football calendar of the EPL, where the summer and winter transfer windows are presented. Period (1) is the summer transfer window, and period (2) is the winter transfer window period. In general, the summer transfer window is the main one because teams can organise their squads before the league starts. In the 2019 season, the summer transfer window closes on 8 August, and the winter transfer window opens on 1 January 2020 and closes 31 January 2020.

Before calculating the months registered, it is necessary to understand the transfer market system. There are two transfer windows in the summer and the winter. In this paper, it does not matter if a player signs a contract with a football club (any club in the world) in the summer transfer window because the contract does not change the months registered. As described in Figure 4, the summer transfer window of the EPL closes before the league starts. On the other hand, those who join or leave during the winter transfer window cannot have the same chances compared to the players who spend the full season in the

league. It is rational to assume that players who stay for whole season are expected to have more starting appearances and total minutes played in a given season. By using the transfer market records about what month they move, it can be easily calculated.

e. Age and Height

Professional football demands highly intensive physical strength for a short time. A player's age and their physical characteristics seem to play a crucial role. 'WhoScored.com' provides the current age of the players who played in the EPL since the 2009 season. Their past age can be calculated by subtracting how many years have passed by. In terms of the 2008 season, the EPL official website reports personal information about their specific birth date, so the past age can be obtained in the same way as above.

A player's height may have an impact on their performance. However, please note that the players' height information does not change over time in the data set because the data websites only reveal each player's profile height as constant. For an adult player, there would not be a dramatic change.

f. On-Field Position

In football games, different positions require different types of skills. In general, strikers have to have quality shooting ability and dribble skills. Conversely, midfielders are supposed to maintain the ball possession and provide a decisive pass. Goalkeepers and defenders need to clear the balls and cope with several dangerous situations. To take it into account, a 4

position-category variable is used to denote which position the players mainly play in. Depending on the positions, there are 4 dummies to indicate their role.

g. Pass Completion Rate

There are several kinds of measure to evaluate players' performance. Normally, those who score a goal or provide a successful assist would be regarded as a key player because scoring a goal is essential to win the match. However, in many cases most of the players cannot experience a goal or an assist in a match. For example, in 2018, only 267 (262) players experienced a goal (assist) throughout the season. Out of 267 (262) players, 104 (107) players attained just one goal (assist) in 38 matches. Therefore, these measures might not represent the players' overall performance. Therefore, these outcome variables are not considered in the paper. Conversely, pass completion rate can be used to evaluate performance because it is the most basic but essential skillset that each and every one of the players should be equipped with. Pass completion rate is calculated from the number of successful passes divided by the number of total passes attempted.

4.3 Summary Statistics

Table 1 presents the summary statistics on the sample of players' opportunities, performance, and characteristics in the Premier League between 2008-2018. There are 6,040 observations that can be matched to team-level data. The mean number of starting appearances is 15.2 matches out of 38. Total minutes played during the season ranges from 1 minute to 3,420

minutes depending on the individual quality. As for the pass completion rate, there are 5,989 observations with some missing values. 43.4% of the players are classified as midfielder, 37.8% as defenders, 11.0% as strikers, and 7.5% as goalkeeper.

Table 1. English Premier League Extended Sample 2008-2018

	N	Mean	SD	Min	Max
A. Player Opportunity and Performance					
Starting appearances	6,040	15.23	11.97	0	38
Minutes played	6,040	1,368.02	1044.06	1	3,420
Pass completion rate(%)	5,989	76.05	11.92	16.7	100
B. Individual Characteristic					
Months registered	6,040	9.29	1.89	0	10
Height(cm)	6,040	182.50	6.82	161	203
Age	6,040	25.90	4.35	15	42
C. On-Field Position					
Midfielder	6,040	.43	.49	0	1
Defender	6,040	.37	.48	0	1
Forward	6,040	.11	.31	0	1
Goalkeeper	6,040	.07	.26	0	1

Notes: In Panel A, The number of starting appearances and total minutes played are reported to measure the opportunities given to each player, and pass completion rate is also reported in percentage. Individual characteristics are reported in Panel B. Panel C shows the proportion of the on-field positions.

Table 2 shows the means of the players' opportunities, performance, and their individual characteristics. These means are reported for the English and the Non-English players

respectively before and after the policy intervention. Each entry in columns 1, 2, 4, and 5 reports the mean value of the corresponding variable and the standard errors in brackets. Column 3 presents the difference between the Non-English players and the English players, and they provide a test that the entries in columns 1 and 2 are equal. Column 6 shows the same test of equality between columns 4 and 5. Column 7 again repeats the same test of equality between columns 3 and 6 to compare the difference-in-differences.

This comparison gives a chance to assess the validity of the research design, as measured by pre-existing characteristics between the English players and the others. It seems that the observable characteristics are balanced among English and Non-English players before the policy intervention. By comparing two different groups, it gives credibility to the studies.

Panel A reports a player's level of opportunity measured in 2008 and 2009 before affirmative action was introduced. In column 3, compared to the non-English players, the English players' level of opportunities is not different from their counterpart. These differences have soared sharply since 2010. In column 6, total minutes played and the number of appearances of the English players decrease, and the differences are statistically significant at the 1 percent level. In terms of pass completion rate, the English players' passing ability is similar to the non-English players' ability prior to the policy. It seems that the passing accuracy of the English players has dropped compared to the counterpart under affirmative action.

Panel B shows information about players' height, age,

months registered and field position in Panel C. On average, the non-English footballers are older and taller than the English footballers at all times (2008~2018). Before the policy, the differences of total months registered between the 2 groups are not statistically significant, but the English players tend to stay a little bit longer after the policy. There is no evidence that the share of each position is different between the 2 groups prior to the policy, but the share of the defenders and goalkeepers between the groups is different at the 1 percent significance level after the policy.

Overall, Table 2 indicates that the research design balances most of the observable variables. Of course, it is not the end of the research because this comparison does not guarantee what is argued in this paper. In the subsequent sections, estimation results are reported by using the difference-in-differences approach,

Table 2. Player Statistics between English and Non-English

Before Intervention			After Intervention			D in D
Non-England	England	Col 2 – Col 1	Non-England	England	Col 5 – Col 4	Col 6 - Col 3
(1)	(2)	(3)	(4)	(5)	(6)	(7)
A. Player Opportunity and Performance						
Minutes played						
1,320.64	1,351.31	30.671	1,407.88	1,315.34	-92.543***	-123.21*
(37.01)	(56.99)	(65.528)	(18.07)	(26.10)	(31.392)	(72.35)
Starting appearances						
14.74	15.06	0.323	15.69	14.61	-1.080***	-1.40*
(0.43)	(0.65)	(0.753)	(0.21)	(0.30)	(0.360)	(0.83)
N						
734	394	1,128	3,243	1,669	4,912	
Pass completion rate						
73.26	73.51	0.247	76.94	76.16	-0.777**	-1.02
(0.45)	(0.65)	(0.782)	(0.2)	(0.31)	(0.355)	(0.83)
N						
731	389	1120	3228	1641	4869	
B. Individual Characteristic						
Age						
26.04	24.83	-1.208***	26.38	25.17	-1.208***	-0.00
(0.16)	(0.24)	(0.278)	(0.07)	(0.12)	(0.129)	(0.30)
Height(cm)						
183.37	181.44	-1.921***	182.96	181.5	-1.458***	0.46
(0.23)	(0.35)	(0.410)	(0.12)	(0.17)	(0.206)	(0.47)
Months registered						
9.27	9.36	0.092	9.23	9.39	0.157***	0.06
(0.07)	(0.09)	(0.115)	(0.03)	(0.04)	(0.057)	(0.13)
C. On-Field Position						
Midfielder						
0.37	0.41	0.042	0.45	0.44	-0.015	-0.06*
(0.02)	(0.02)	(0.030)	(0.01)	(0.01)	(0.015)	(0.03)
Defender						
0.37	0.38	0.013	0.37	0.41	0.038***	0.03
(0.02)	(0.02)	(0.030)	(0.01)	(0.01)	(0.015)	(0.03)
Forward						
0.19	0.15	-0.038	0.09	0.1	0.004	0.04*
(0.01)	(0.02)	(0.024)	(0.01)	(0.01)	(0.009)	(0.02)
Goalkeeper						
0.08	0.06	-0.017	0.08	0.06	-0.027***	-0.01
(0.01)	(0.01)	(0.016)	(0.00)	(0.01)	(0.008)	(0.02)
N						
734	394	1,128	3,243	1,669	4,912	

Notes: Standard errors in parentheses.
* 10% significance, ** 5% significance, *** 1% significance.

5. Identification Strategy and Results

This section attempts to estimate the effects of affirmative action on the level of opportunities given to the English players. The estimation method is based on the difference-in-differences approach by using variations across policy intervention and player nationality. The specification is as follows: The ultimate goal is to estimate the causal effect of the policy on the English players compared to the non-English players, so the parameter of interest is β_2. β_0 stands for the initial difference in opportunities between English players and other nationalities prior to the policy intervention. β_1 captures the time trend applied to all types of players between before and after the policy. In other words, it can be interpreted as how many opportunities are given to each player after the policy compared to the pre-intervention period. Finally, β_2 is the coefficient of the interaction term, and it implies the pure difference in opportunities between two groups caused by policy intervention. The regression equation for the level of opportunities given to players is given by:

$$(1)\quad Y_{ict} = \alpha + \beta_0 Eng_i + \beta_1 Policy_t + \beta_2 Eng_i \times Policy_t + \gamma height_i + X'_{ict}\Gamma + \pi_t + \mu_c + \eta_i + \epsilon_{ict}$$

where Y_{ict} is the outcome of interest that indicates either the number of starting appearances or total minutes played. Each subscript i, c, t stands for player, football club, and year respectively. Eng_i is an indicator variable to refer to whether a

player is an English player or not by assigning 1 for English and 0 otherwise. $Policy_t$ is also an indicator variable equal to one if the year t is greater or equal to 2010, so $Policy_t$ is coded 0 for 2008 and 2009. $height_i$ shows how tall a player(i) is in the profile, and it is constant over the seasons. X'_{ict} is a vector of time-varying control variables, each measured at the player level. The specification also includes three sets of fixed effects: year fixed effect(π_t), football club fixed effect(μ_c) and field position fixed effect(η_i). The time-varying control variables X'_{ict} include the player age in each year t, as well as the variable squared. In addition to age, the total months registered per year t is also included in the time-varying control variables. The estimation results of equation 1 are presented in Table 3 and 4. Table 3 reports the Ordinary Least Squares (OLS) regression of total minutes played. From column 1 to 9, the control variables and fixed effects that might affect total minutes played are controlled one by one gradually. As mentioned earlier, monitoring how the coefficient(β_2) of the interaction term($Eng_i \times Policy_t$) changes is as important as adding different control variables step by step in columns 4-9.

Column 1 of Table 3 suggests that there is a tendency of increasing total minutes played for any type of player after the policy intervention, but the result is not statistically significant. As a control for other variables, the policy itself does not seem to change the level of opportunities for all players. In column 2 and 3, nationality information of the player is added and the results suggest that English players generally would not take more opportunities in the absence of individual characteristics

controls. However, the sign of the English players(Eng_i) coefficient changes to positive right after putting the interaction term in column 3, and the coefficient of Eng_i is statistically significant in columns 4-9. It suggests that English players seem to have had more opportunities before the policy intervention ($Policy_t$=0). In columns 5−9, the interaction term($Eng_i \times Policy_t$) is statistically significant at the 10 percent level except column 5. Because months registered should affect total minutes played, the coefficient of the interaction term becomes statistically significant from column 6 after considering months registered. It seems that the magnitude of coefficient β_2 is stable in the last 3 specifications. After the policy, the total minutes played by English football players would decrease by 107 compared to the other players. As the average total minutes played in a season are 1,368 minutes, 107 minutes would explain approximately 7.8%. For the remainder of the analysis, specification from column 9 is used as the baseline measure.

As for the total number of starting appearances, only outcome variable Y_{ict} is changed. Repeating the same process above produces Table 4. Even though the coefficient of the interaction term is not statistically significant, it is very close and nearly significant at the 10 percent level because the p−values reported are just 0.1 in columns 8 and 9. This result might suggest that the number of starting appearances by English football players would decrease by 1.2 matches in a season compared to the other players.

Table 3. OLS Regression Results of Total Minutes Played

	Dependent Variable: Total Minutes Played								
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Policy	45.09		44.43	87.25**	49.56	59.06	28.79	27.75	
	(34.47)		(34.46)	(42.65)	(40.24)	(37.69)	(37.49)	(39.55)	
England		-69.57**	-69.29**	30.67	167.17***	135.60**	120.38**	119.32**	118.24**
		(28.32)	(28.32)	(65.16)	(61.68)	(57.77)	(57.22)	(57.72)	(57.76)
Policy x England				-123.21*	-108.97	-121.10*	-108.00*	-108.23*	-107.28*
				(72.35)	(68.21)	(63.88)	(63.28)	(63.69)	(63.73)
Age					605.44***	573.91***	577.10***	576.10***	575.66***
					(27.09)	(25.39)	(25.39)	(25.65)	(25.67)
Age^2					-10.59***	-10.14***	-10.24***	-10.22***	-10.21***
					(0.51)	(0.48)	(0.48)	(0.49)	(0.49)
Height(cm)					10.62***	9.41***	7.40***	7.56***	7.59***
					(1.88)	(1.76)	(1.97)	(2.00)	(2.00)
Months registered						183.29***	173.68***	173.22***	173.11***
						(6.29)	(6.29)	(6.36)	(6.37)
Position FE							✓	✓	✓
Team FE								✓	✓
Year FE									✓
Constant	1,331.35***	1,391.78***	1,355.55***	1,320.64***	-9,016.99***	-9,980.97***	-9,361.82***	-9,332.05***	-9,264.16***
	(31.08)	(16.55)	(32.61)	(38.51)	(495.61)	(465.28)	(496.88)	(512.16)	(514.12)
Observations	6,040	6,040	6,040	6,040	6,040	6,040	6,040	6,040	6,040
R-squared	0.00	0.00	0.00	0.00	0.11	0.22	0.24	0.24	0.24

Notes: The table reports OLS estimates. The unit of observation is a player. Dependent variable is total minutes played in a given season. Below each coefficient standard errors are reported in parentheses. Column 9 is the baseline measure of the level of opportunities throughout the paper; it includes individual controls, position fixed effects, team fixed effects, and year fixed effects.
*** p<0.01, ** p<0.05, * p<0.1

Table 4. OLS Regression Results of Total Number of Starting Appearances

	Dependent Variable: Total Number of Starting Appearances								
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Policy	0.47		0.46	0.95*	0.51	0.62	0.23	0.22	
	(0.40)		(0.40)	(0.49)	(0.46)	(0.43)	(0.43)	(0.45)	
England		-0.82**	-0.82**	0.32	1.86***	1.51**	1.33**	1.31**	1.29*
		(0.32)	(0.32)	(0.75)	(0.71)	(0.66)	(0.66)	(0.66)	(0.66)
Policy x England				-1.40*	-1.23	-1.37*	-1.20*	-1.20	-1.19
				(0.83)	(0.78)	(0.74)	(0.73)	(0.73)	(0.73)
Age					6.93***	6.57***	6.60***	6.59***	6.58***
					(0.31)	(0.29)	(0.29)	(0.29)	(0.30)
Age^2					-0.12***	-0.12***	-0.12***	-0.12***	-0.12***
					(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Height(cm)					0.11***	0.09***	0.08***	0.08***	0.08***
					(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Months registered						2.06***	1.95***	1.94***	1.94***
						(0.07)	(0.07)	(0.07)	(0.07)
Position FE							✓	✓	✓
Team FE								✓	✓
Year FE									✓
Constant	14.85***	15.51***	15.13***	14.74***	-100.95***	-111.80***	-105.47***	-105.09***	-104.45***
	(0.36)	(0.19)	(0.37)	(0.44)	(5.69)	(5.36)	(5.71)	(5.89)	(5.91)
Observations	6,040	6,040	6,040	6,040	6,040	6,040	6,040	6,040	6,040
R-squared	0.00	0.00	0.00	0.00	0.11	0.22	0.24	0.24	0.24

Notes: The table reports OLS estimates. The unit of observation is a player. Dependent variable is total number of starting appearances in a given season. Below each coefficient standard errors are reported in parentheses. Column 9 is the baseline measure of the level of opportunities throughout the paper; it includes individual controls, position fixed effects, team fixed effects, and year fixed effects.
*** p<0.01, ** p<0.05, * p<0.1

On the league table, each team is ranked between 1st and 20th depending on the number of wins, loses, and draws. After the final 38 match round is over, the bottom 3 teams will be relegated to the second division league next season, so the bottom 3 teams come and go repeatedly season by season. In many cases, even if football clubs are promoted from the lower division to the EPL, they are likely to be demoted again swiftly or remain in the bottom ranks in the EPL because of tough competition. For the bottom teams, the Homegrown Player Rule might not be binding. They do not hire as many non-homegrown footballers from abroad, and affirmative action does not hold right after they are relegated to the second division. Table 5 compares the effects of affirmative action on the bottom 3 teams and the others, and it reports only the coefficients of the interaction term. Table 5 shows that the coefficients in columns 3 and 4 are not statistically significant and have a positive sign for the bottom 3 teams. This result supports what is assumed above.

Table 5. Bottom 3 Teams and the Other Teams

	1st - 17th		18th - 20th	
	Minutes Played (1)	Starting Appearances (2)	Minutes Played (3)	Starting Appearances (4)
Policy x England	-132.0*	-1.491*	11.72	0.296
	(70.18)	(0.807)	(156.1)	(1.791)
N	5,075	5,075	965	965
R^2	0.243	0.239	0.255	0.252
adj. R^2	0.235	0.232	0.223	0.221

Notes: The table reports OLS estimates. The estimates are classified depending on the team rank in the league table. The bottom 3 teams are ranked 18 to 20. The unit of observation is a player. Below each coefficient standard errors are reported in parentheses. The dependent variables are total minutes played and the number of starting appearances. The individual controls are for age, age squared, height, total months registered. Field position, team, year fixed effects are also controlled.
*** p<0.01, ** p<0.05, * p<0.1

This part figures out which type of player has been influenced by affirmative action. It is rational to assume that the English players who already played in the EPL in 2008 and 2009 would be as competent as the other nationalities because there was no affirmative action. When there was no constraint on the number of homegrown talents, football club managers would not consider who is homegrown. They only care about individual player performance and quality, not about their background.

Analysing the individual fixed effects model (FE) helps to find out the relationship between the policy change and the level of opportunities 'within' a player. Before using individual fixed effects regression, identifying assumption is required. The assumption is that unobservable characteristics 'within' a player are time-invariant. For each player has got his own time-invariant characteristics which might influence their performance, using fixed effects helps to remove the effects of the time-invariant individual characteristics within a player. Because individual fixed effects regression does not consider the across-player variation, it solely focuses on the within player variation as time goes on.

As explained in section 4.1, longitudinal data should be constructed for individual fixed effect analysis. It enables the tracking of the same players' different points in time. To make data longitudinal format, players who registered in double teams in a given year must be dropped out.

With individual fixed effects model, it can be tested if the downturn of English players is driven by the players who joined the league prior to 2010. Table 6 reports the coefficient

estimates of the individual fixed effects and the OLS estimates together. Here, I do not consider the whole period (2008~2018) because the number of players who played in 2008 and 2009 would be very small if the analysis period is too long. Columns 2 and 4 show that the interaction term is not statistically significant, which implies affirmative action would not influence the players who were already qualified in 2008 and 2009. The number of starting appearances and the total minutes played by English players who had played in 2008 and 2009 did not change after the policy intervention. In other words, the negative impact of affirmative action is driven mostly by the players who came after the policy intervention.

Table 6. Individual Fixed Effects Model and Ordinary Least Squares Estimates

	Minutes Played(2008~2012)		Starting Appearances(2008~2012)	
	OLS	FE	OLS	FE
	(1)	(2)	(3)	(4)
Policy x England	-154.8**	-24.74	-1.743**	-0.216
	(74.36)	(80.69)	(0.855)	(0.931)
N	2,789	1,937	2,789	1,937
R^2	0.244	0.275	0.241	0.273
Number of Panelid	-	717	-	717

Notes: The table reports OLS and FE estimates. The sample limits the time period between 2008 and 2012. The unit of observation is a player. Below each coefficient standard errors are reported in parentheses in columns 1 and 3, and robust standard errors are reported in columns 2 and 4. The dependent variables are total minutes played and total number of starting appearances. The individual controls are for age, age squared, height, total months registered. Field position, team, year fixed effects are also controlled.
*** p<0.01, ** p<0.05, * p<0.1

However, the main findings might have resulted from the plausible situation that English players might share the level of opportunities among them. Put differently, if the sum of total minutes played by English players remains constant, the

increased English players must have had to share the sum of total minutes played. Therefore, each English player has fewer minutes played in a given season. If this is true, the main results about the decreased level of opportunities given to English players are not directly related to the performance and quality issues. To check if this is the case, I have calculated the sum of total minutes played and the sum of starting appearances by English players within each football club. The following equation can help to understand whether the sum of total opportunities remains constant after the policy intervention.

$$(2)\quad Y_{ct} = \alpha + \beta_0 Policy_t + \pi_t + \mu_c + \epsilon_{ct}$$

Table 7. Sum of Total Minutes Played and Starting Appearances by English Players

	Sum of Total Minutes Played	Sum of Total Starting Appearances
Policy	-3,913.25***	-43.73***
	(1,152.44)	(12.91)
N	220	220
R^2	0.60	0.60

Notes: The table reports simple OLS estimates. The sample limits the football clubs that were in the EPL between 2008 and 2009. The unit of observation is a football club. Below each coefficient standard errors are reported in parentheses. The dependent variables are the sum of total minutes played and the sum of total number of starting appearances by English players. Team and year fixed effects are controlled.
*** p<0.01, ** p<0.05, * p<0.1

Table 7 shows that the sum of total minutes played and the sum of total starting appearances by English players decrease after the policy intervention[7]. This result can rule out the

7) The mean value of the sum of total minutes played by English players is 12,398 minutes; the mean value of the sum of total starting appearances by English players is 137 within a team.

possibility of constant sum of total opportunities given to English players.

Here, the pass completion rate variable is used to check if the performance of beneficiaries deteriorates even though it can be a rough measure. To see this, I adopt a model that Ozmen (2012) uses to evaluate sports athlete performance. It looks similar to the equation 1 above, but it is slightly different. The regression equation for the player performance is given by:

$$(3)\quad Y_{ict} = \alpha + \beta_0 Eng_i + \beta_1 Policy_t + \beta_2 Eng_i \times Policy_t + \gamma height_i + X'_{ict}\Gamma$$
$$+ (\delta_2 SD\_2_t + \ldots + \delta_S SD\_S_t) + (\theta_2 CD\_2_c + \ldots + \theta_C CD\_C_c)$$
$$+ (\lambda_2 SCD\_2_{ct} + \ldots + \lambda_{S*D} SCD\_S \times C_{ct}) + \eta_i + \epsilon_{ict}$$

For seasons $i=1$, ..., S; S−1 dummy variables, $SD\_2_t + SD\_3_t + \ldots + SD\_S_t$, are created, where $SD\_2_t = \begin{cases} 1 & t=2 \\ 0 & t \neq 2 \end{cases}$, etc.

For football clubs $i=1$, ..., C; C−1 dummy variables, $CD\_2_c + CD\_3_c + \ldots + CD\_C_c$, are created, where $CD\_2_c = \begin{cases} 1 & c=2 \\ 0 & c \neq 2 \end{cases}$, etc.

Even though team fixed effects and year fixed effects are already controlled with dummy variables(SD_S_t, CD_C_c) each team might have different strengths depending on which season they play. For example, Manchester United used to win the league quite often, but they hardly finish in top 4 recently. To take it into account, interaction terms between football clubs (C) and seasons (S) are generated to capture the effect, which results in (SxC) -1 dummies. In equation 3, Y_{ict} denotes pass completion rate(%) to represent player performance. The other notations are the same as equation 1. The estimation results for the extended sample (2008~2018) are presented in Table 8. The

coefficient of interest β_2 becomes statistically significant from column 9 right after controlling for on-field position. The magnitude of the coefficient is stable in column 9 and 10. This result might suggest that pass completion rate by English players would decrease by 1 percentage point (%p) compared to the other players.

Table 8. OLS Regression Results of Pass Completion Rate

	Dependent Variable: Pass Completion Rate(%)									
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Policy	3.32***		3.32***	3.67***	3.48***	3.69***				
	(0.39)		(0.39)	(0.49)	(0.45)	(0.44)				
England		-0.61*	-0.58*	0.25	-1.26*	-0.47	-0.49	-0.34	-0.03	-0.04
		(0.33)	(0.32)	(0.74)	(0.69)	(0.65)	(0.65)	(0.66)	(0.51)	(0.51)
Policy x England				-1.02	-0.67	-0.64	-0.60	-0.60	-1.01*	-1.01*
				(0.83)	(0.76)	(0.72)	(0.71)	(0.73)	(0.56)	(0.56)
Age					0.62**	1.17***	1.17***	1.29***	-0.62***	-0.63***
					(0.30)	(0.29)	(0.29)	(0.29)	(0.22)	(0.23)
Age^2					-0.02***	-0.03***	-0.03***	-0.03***	0.01***	0.01***
					(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)
Height(cm)					-0.61***	-0.60***	-0.60***	-0.59***	-0.18***	-0.18***
					(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Team FE						✓	✓	✓	✓	✓
Year FE							✓	✓	✓	✓
Interaction(Team x Year)								✓	✓	✓
Position FE									✓	✓
Minutes played										✓
Constant	73.35***	76.26***	73.55***	73.26***	182.75***	167.42***	171.20***	171.84***	94.24***	94.38***
	(0.35)	(0.19)	(0.37)	(0.44)	(5.56)	(5.38)	(5.38)	(5.75)	(4.72)	(4.79)
Observations	5,989	5,989	5,989	5,989	5,989	5,989	5,989	5,989	5,989	5,989
R-squared	0.01	0.00	0.01	0.01	0.16	0.27	0.28	0.31	0.59	0.59

Notes: The table reports OLS estimates. The unit of observation is a player. Dependent variable is pass completion rate in a given season. Below each coefficient standard errors are reported in parentheses. Column 10 is the baseline measure of player performance for the rest of the paper; it includes individual controls, position fixed effects, team fixed effects, year fixed effects, and team x year dummies.

*** p<0.01, ** p<0.05, * p<0.1

Table 9. Pass Completion Rate Results

	Pass Completion Rate		
	1st - 17th	18th - 20th	FE(2008-2012)
	(1)	(2)	(3)
Policy x England	-1.290**	0.499	-0.526
	(0.617)	(1.292)	(0.666)
N	4424	961	1,925
R^2	0.619	0.643	0.314
Number of Panelid	-	-	711

Notes: The table reports OLS estimates. The estimates are classified depending on the team rank in the league table. Bottom 3 teams are ranked in 18 to 20. The unit of observation is a player. Below each coefficient standard errors are reported in parentheses in column 1 and 2, and robust standard error is reported in columns 3. The dependent variable is pass completion rate. The individual controls are for age, age squared, height, total months registered. On-field position, team, year fixed effects, and team x year dummies are also controlled.
*** p<0.01, ** p<0.05, * p<0.1

The results in Table 9 are obtained from repeating the same procedure used in Table 5 and 6. Table 9 seems to give the similar implications. In the bottom 3 teams, there is no evidence of different performance levels between the two groups. Rather, the effect of affirmative action is mainly found in the upper level teams. In addition, English players who had played in 2008 and 2009 showed a similar level of performance in pass accuracy.

6. Concluding Remarks

Affirmative action in the English Premier League (EPL) aims to provide more opportunities for homegrown players and enhance their competence under the threat of a huge influx of ‘finished’, non-homegrown players. To evaluate the impact of affirmative action, I collected unique and rich data sets.

Throughout the paper, I use English nationality to proxy homegrown status.

In this paper, I argue that affirmative action policy might cause adverse effects. Even though the football pitch only represents a tiny part of the world, this paper can give a new insight in understanding affirmative action. Generally, affirmative action can guarantee the places for the beneficiaries. However, the preferential treatment itself does not seem to guarantee their quality and performance.

Assuming quality players get more opportunities, this paper analyses the level of opportunities given to each player. The total number of starting appearances and total minutes played given to English players decrease under affirmative action. However, English players who entered the EPL prior to affirmative action did not show the adverse effect. Player performance, represented by pass completion rate, also did not respond as intended.

However, when evaluating such policy, it is necessary to consider the things taking place behind the scenes. This paper does not attempt to give evidence about youth development systems and performance in England after the policy intervention. Under affirmative action, more and more young homegrown players might be highly motivated and work hard to be professional footballers. If so, the policy plays a positive role in the long run. For example, the English U-20 international team won the 2017 FIFA U-20 World Cup hosted by South Korea. Before 2017, they only achieved a top-three ranking once in the competition. Therefore, understanding the overall impact of affirmative action on the youth development system in

the long run may be a promising area for future research.

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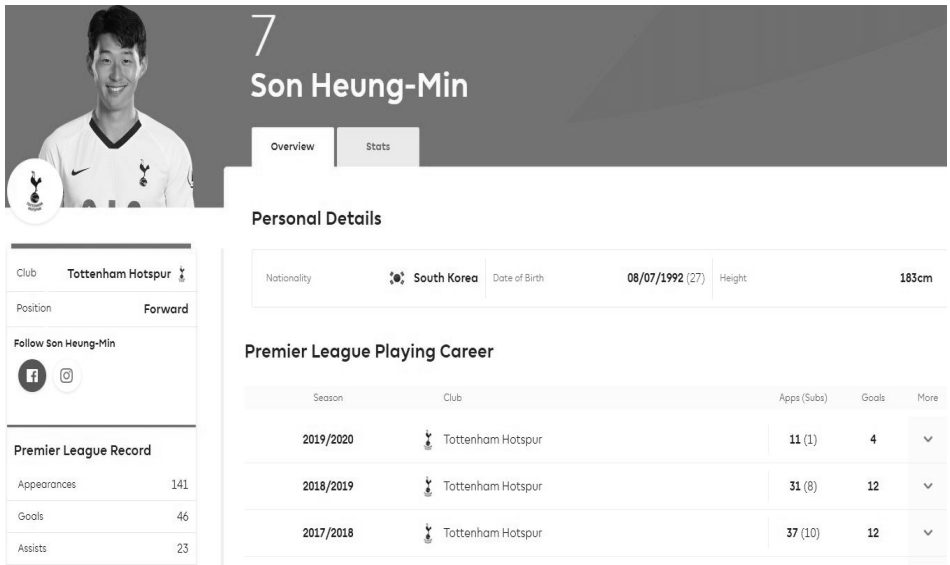
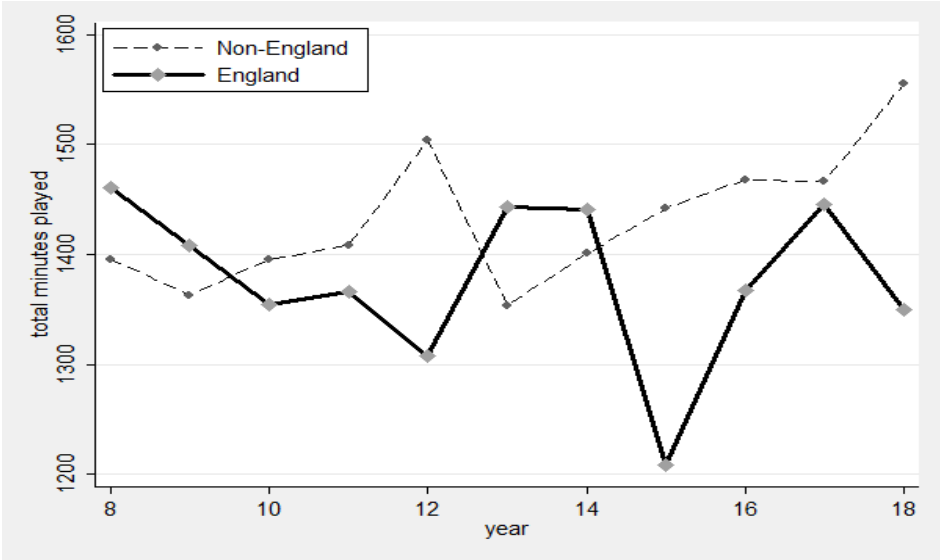
Appendix

Figure A1. Player Information Card

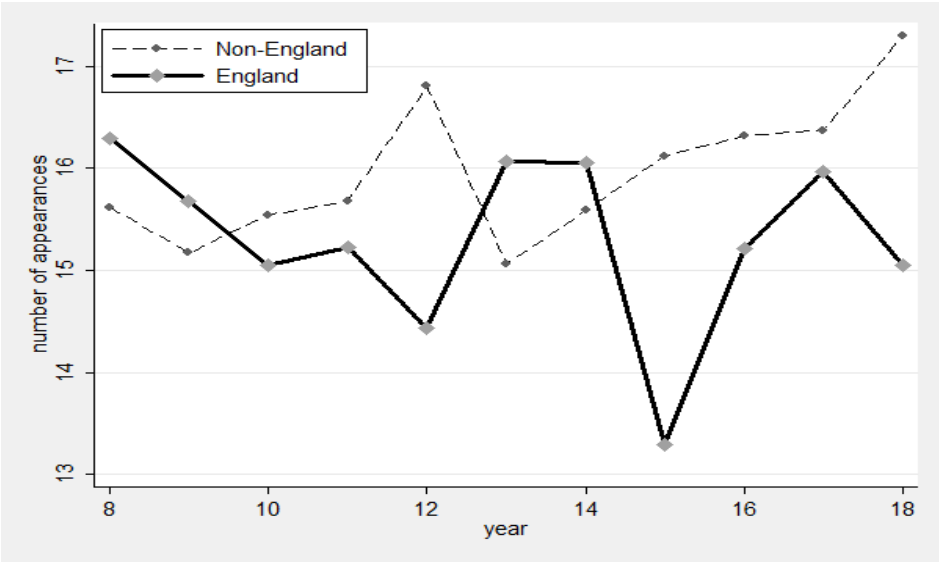


Source: English premier league official website

Figure A2. (a) Total Minutes Played



(b) The Number of Starting Appearances



Sources: 'WhoScored.com' and EPL official website

Figure A2 visualise the time trend of the level of opportunity between the English and the non-English players. Each figure demonstrates how many matches the footballers are in the starting lineup and the total minutes played during the season respectively.

Table A1. Missing Players List from the Sample in 2010 and 2012

Year	Player	Position	Height(cm)	England
2010	Vito Mannone	goalkeeper	188	0
2010	Daniel De Ridder	forward	180	0
2010	Malaury Martin	midfielder	178	0
2010	Maik Taylor	goalkeeper	193	0
2010	Jan Mucha	goalkeeper	189	0
2010	Robert Weir	midfielder	175	0
2010	Miguel Madera	midfielder	183	0
2010	Shay Given	goalkeeper	185	0
2010	Stipe Pletikosa	goalkeeper	193	0
2010	David Elm	forward	191	0
2010	George McCartney	defender	183	0

2010	David Healy	forward	173	0
2010	Hilario	goalkeeper	189	0
2010	Brad Guzan	goalkeeper	193	0
2010	Frederick Stoor	defender	183	0
2010	Brad Jones	goalkeeper	193	0
2010	Iain Turner	goalkeeper	193	0
2010	Trevor Carson	goalkeeper	183	0
2010	Ritchie De Laet	defender	186	0
2010	Joseph O'Brien	defender	180	0
2010	James O'shea	forward	183	0
2010	Moustapha Salifou	midfielder	180	0
2010	Tom Soares	midfielder	183	1
2010	Michael Johnson	midfielder	183	1
2010	Isaiah Osbourne	midfielder	188	1
2010	Kyle Naughton	defender	180	1
2010	Carlo Nash	goalkeeper	196	1
2010	Carl Ikeme	goalkeeper	188	1
2010	Jason Brown	goalkeeper	180	1
2010	Daniel Coid	defender	180	1
2010	Fraser Forster	goalkeeper	201	1
2010	Stuart Taylor	goalkeeper	198	1
2010	Dean Kiely	goalkeeper	183	1
2010	Stephen Darby	defender	178	1
2010	Jlloyd Samuel	defender	180	1
2010	Ross Turnbull	goalkeeper	193	1
2010	Sean Davis	midfielder	178	1
2010	Shaleum Logan	defender	173	1
2010	Francis Fielding	goalkeeper	185	1
2012	Leroy Lita	forward	176	0
2012	Mikkel Andersen	goalkeeper	196	0
2012	Alan Hutton	defender	185	0
2012	Albert Crusat	forward	164	0
2012	Tadanari Lee	forward	182	0
2012	Simon Davies	forward	178	0
2012	Thomas Sorensen	goalkeeper	195	0
2012	Simon Lappin	defender	180	0
2012	Doni	goalkeeper	194	0
2012	Heurelho Gomes	goalkeeper	191	0
2012	Xisco	forward	187	0

2012	Florent Malouda	forward	177	0
2012	Hilario	goalkeeper	189	0
2012	Brynjar Gunnarsson	midfielder	185	0
2012	Csaba Somogyi	goalkeeper	190	0
2012	Sebastien Squillaci	defender	183	0
2012	Romain Amalfitano	midfielder	174	0
2012	Bebe	midfielder	190	0
2012	Yassine El Ghanassy	forward	173	0
2012	Peter Gulacsi	goalkeeper	191	0
2012	Carlo Cudicini	goalkeeper	185	0
2012	Costel Pantilimon	goalkeeper	203	0
2012	Richard Dunne	defender	188	0
2012	Brian Murphy	goalkeeper	183	0
2012	Stiliyan Petrov	midfielder	180	0
2012	Johan Djourou	defender	192	0
2012	Stephen Henderson	goalkeeper	188	0
2012	Keiren Westwood	goalkeeper	187	1
2012	Jonathan Forte	forward	183	1
2012	Andrew Marshall	goalkeeper	188	1
2012	Craig Eastmond	midfielder	183	1
2012	Daniel Seaborne	defender	183	1
2012	David Bentley	forward	178	1
2012	Neil Etheridge	goalkeeper	188	1
2012	Jacob Butterfield	midfielder	180	1
2012	Simon Church	forward	183	1
2012	Curtis Obeng	defender	173	1
2012	Stephen Warnock	defender	170	1
2012	Daniel Butterfield	defender	180	1
2012	Michael Pollitt	goalkeeper	193	1
2012	Hogan Ephraim	forward	175	1
2012	Carlo Nash	goalkeeper	196	1
2012	Ryan Dickson	midfielder	177	1
2012	Luke Daniels	goalkeeper	185	1
2012	Richard Wright	goalkeeper	188	1
2012	Wesley Brown	defender	185	1

Notes: These players are not included in the data set even though they were registered in the 25 man squads. Because they could not make any appearances at all during the season(total minutes played are also zero), their statistics could not be found.

Table A2. Composition of Missing Players in 2010 and 2012

Position \ Homegrown	Non-England	England	Total
Goalkeeper	21	15	36 (42.35%)
Defender	9	10	19 (22.35%)
Forward	11	4	15 (17.65%)
Midfielder	8	7	15 (17.65%)
Total	49 (57.65%)	36 (42.35%)	85 (100%)

Notes: To check the composition and characteristics of missing players from the sample, the proportions of on-field position and nationality information are presented.

According to the Table A2, it is not surprising that over 40 percent of the missing players are goalkeepers because, in many cases, main goal keepers are hardly replaced with substitutes.

Considering that the share of English players registered in the EPL is about 40 percent after the policy intervention demonstrated in Figure 2, it seems that the number of missing players who could not play even one minute are balanced between the English and the non-English groups. Therefore, missing players from the main sample might not bias the main analysis of this paper.

국 문 초 록

영국 프로축구 1부리그 프리미어리그 출범 이후 기량이 검증된 외국인 축구선수들의 유입이 꾸준히 증가하였다. 이는 영국에서 태어난 선수들이 자국 리그에서 자리를 잡는데 장애 요인으로 작용하였으며 국제무대에서 영국 국가대표팀의 경쟁력을 저하하는 결과로 이어질 수 있다는 우려를 낳았다. 이에 대응하기 위해 프리미어리그는 2010시즌부터 적극적 우대 정책의 일환으로 홈그로운 선수 규정이 시행될 것임을 발표하였다. 이 규정으로 인해 프리미어리그 구단들은 선수단에 최대 25인을 등록할 수 있게 되었으며, 비 홈그로운 선수를 최대 17인까지 제한하는 상한제에 직면하게 되었다. 본 논문에서는 정책 시행으로 정책의 목적이 실제로 달성되었는지에 초점을 맞춘다. 특히 선수들의 성과를 객관적으로 측정할 수 있으며 정량적 분석이 가능한 시즌별 선발 출장 횟수와 총 출전 시간을 중심으로 분석하였다. 선수 포지션, 팀, 연도 고정효과를 통제하고 이중차분법으로 추정한 결과, 정책 시행 이후 영국 선수들의 선발 출장 횟수와 총 출전 시간은 타국 선수들에 비해 유의미하게 감소하는 것으로 나타났다. 개인 고정효과를 고려하여 분석한 결과 정책 시행 이전에 이미 리그에 진입한 영국 선수들의 선발 출장 횟수와 출전 시간은 감소하지 않았음을 알 수 있다. 이는 정책 시행 이후에 신규로 리그에 진입하는 선수들로부터 원인을 찾을 수 있음을 나타낸다. 끝으로 개별 선수의 성과를 측정하기 위해 패스성공률 지표를 이용했으며, 영국 선수들의 패스성공률이 상대적으로 낮아지는 현상을 확인할 수 있었다. 이는 결국 적극적 우대 정책이 정책 의도와는 다르게 오히려 부정적인 결과를 불러올 수 있음을 시사한다.

주요어 : 적극적 우대 정책, 선수 성과, 축구, 프리미어리그
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