What Happens When Employers Are Free to Discriminate?

Alex Bryson (NIESR, CEP)
Arnaud Chevalier (RHUL, CEE, IZA)

Research Issues

- **How To Identify Racial Discrimination in Hiring Workers?**
- Field experiment techniques:
  - Assign race to otherwise identical pretend job applicants
  - Outcome is likelihood of call-back, rather than actual hire
- **How To Identify Market Discrimination in Value Attached to Workers?**
- Wage "gap" and regression adjusted "penalty"
  - Using regression and decomposition techniques
  - Individual labour productivity usually absent
  - Workers select themselves into non-discriminatory firms

Our Setting

- Barclays Premier League Fantasy Football
- Played by 2.8 million people
- They are employers
  - Hold budget
  - Hire and fire players
  - Purpose is to win the league by choosing the players who are the best in their position in the real Premier League each week
- Two outcomes
  - Picking team at beginning of season
  - Transfers of players over course of season

Rest of the Talk

- How our study can contribute to the literature?
- Existing Literature
- Our Setting – the Fantasy Football League
- Data
- Empirical Approach
- Results
- Conclusions

Our Contribution

- Able to recover more precise estimates of racial discrimination in hiring/firing than other settings
- Isolate taste-based discrimination

Our Contribution: isolate taste-based discrimination

- Free to discriminate
  - No legal impediment
    - "turning back the clock"
  - Firing costs are zero
- Altonji and Blank (1999): "studies…can not distinguish between consumer discrimination, employee discrimination or employer discrimination". We can.
  - No customer based discrimination because information on hires/fires is private
  - No co-worker discrimination because no team production (also means can ignore productivity spill-over)
  - Can discount statistical discrimination because employers have easy access to very comprehensive weekly data on productivity histories of all workers in the industry, together with their market value and race.

Our Contribution: comparing "like-with-like"

- Single occupation
- Single industry
- Time-varying weekly productivity data
- Firms are very similar
  - Identical size
  - Same job slots to fill
  - Same budget at outset
  - Can use same workers
    - Not in competition with one another for talent
- Employers are price-takers
  - No bargaining
  - Players' wages are set exogenously

Summary of Findings

- Employers pick players who have performed well in previous season but less likely to pick highest performing players if they are black
  - Consistent with racial discrimination
  - But apparent in 2010 but not 2011.
- Employers are more likely to hire players who perform better in the course of the season, but this propensity is lower in the case of black players
  - Consistent with racial discrimination
- However, there is no racial difference in the weight employers attach to performance in the most recent game except among the best performing players, when employers attach more weight to black player performance than white player performance
  - Not consistent with racial discrimination but potentially linked to undervaluation of highest performing black players by the market

Literature (1)

- Perception that racial discrimination in the labour market is commonplace (Pager and Shepherd 2008 for a review)
- Audit studies of hiring find racial discrimination persists
  - Altonji and Blank (1999) review
  - Bertrand and Mullainathan (2004): across industry, size, occupation
- Professional sports
  - Altonji and Blank (1999) salary discrimination persists esp. in basketball, some customer discrimination persists, and there is "some hiring discrimination although these results depend on the sport and position".
  - But others say diminution or disappearance of racial discrimination on wages
    - Rosen and Sanderson (2001) for review
    - Kahn (1999) for basketball although Hamilton (1997) on persistence of discrimination among elite players
  - No evidence of discrimination in hiring decisions among marginal players or coaches in basketball (Brown et al., 1991; Kahn, 2006).

Literature (2)

- Diminution of customer-based discrimination
  - Nardinelli and Simon (1990) find price differential in value of baseball cards traded by collectors
  - Bodvarsson and Brastow (1999) find no differential for memorabilia
- Productivity differentials between black and white players apparent under segregation disappear post-integration (Goff et al. 2002)
  - Racial integration akin to diffusion of productivity enhancing technology

- English professional football teams with higher share black players have higher performance conditioning on payroll expenditure (Szymanski, 2000)
  - Consistent with racial discrimination
  - Whereas Szymanski uses payroll expenditure to proxy talent we have match-by-match time varying data on individuals' on-field labour productivity

Fantasy Football Rules

- **Squad Size**
- To join select a fantasy football squad of 15 players, consisting of:
- 2 Goalkeepers; 5 Defenders; 5 Midfielders; 3 Forwards
- **Budget**
- The total value of your initial squad must not exceed £100 million.
- **Players per team**
- You can select up to 3 players from a single Barclays Premier League team.

- **Fantasy League Rewards:**
- the Game is provided to you free of charge; 2.8million participants in 2011/12
- **Winner's Prize**: a VIP trip for two to a Barclays Premier League match featuring a team of the successful player's choice. The Winner's Prize includes travel, two nights' hotel accommodation, two match tickets, pre-match meal and £250 spending money.
- **Monthly Prizes** (one each month during the season): a digital camera, an mp3 player, and a Premier League club replica shirt of the Winner's choice.

- http://fantasy.premierleague.com

16:00.

You can select a maximum of 3 players from a single team.

UNLIMITED | £0.5

With a maximum price of

Unlimited

AUTO-COMPLETE | ? | RESET

MAKE TRANSFERS

POWERED BY EA SPORTS

Gameweek 32 Fixtures

BARCLAYS PREMIER LEAGUE

» Goalkeepers		£	TS
Vorm	SWA	5.3	136
Hart	MCI	6.8	133
Krul	NEW	5.0	125
Howard	EVE	5.4	124
Friedel	TOT	5.7	124
» Defenders		£	TS
Baines	EVE	7.9	133
Evra	MUN	7.4	127
Assou-Ekotto	TOT	6.3	127
» Midfielders		£	TS
Bale	TOT	9.5	169
Dempsey	FUL	9.3	166
Silva	MCI	9.7	153
Walcott	ARS	9.3	149
Sessegnon	SUN	7.2	141
Nani	MUN	9.9	133
Van der Vaart	TOT	9.5	133
Mata	CHE	9.6	133
Lampard	CHE	11.0	128
Sinclair	SWA	6.7	126
Valencia	MUN	8.2	118
Larsson	SUN	6.7	118
Walters	STO	6.3	114
Arteta	ARS	7.9	113
» Forwards		£	TS
Van Persie	ARS	13.6	226
Rooney	MUN	13.0	178
Adebayor	TOT	9.2	160

The Players market

- **Making Transfers**
- After selecting your squad you can buy and sell players in the transfer market. Unlimited transfers can be made at no cost until your first deadline.
- After your first deadline you will receive 1 free transfer each Gameweek. Each additional transfer you make in the same Gameweek will deduct 4 points from your total score (Classic scoring) and match score (Head-to-Head scoring) at the start of the next Gameweek.

- **Player Prices**
- Player prices (values) change during the season. Player prices do not change until the season starts.
- The price shown on your transfers page is a player's selling price. This selling price may be less than the player's current purchase price as a sell-on fee of 50% (rounded up to the nearest £0.1m) will be applied on any profits made on that player.
- For example, if you buy a player for £8.3m and when you transfer him his price is £9.0m, his selling price will be £8.6m.

Fantasy Premier League - The official fantasy football game of the Barclays Premier League - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Fantasy Premier League - The official fa...

fantasy.premierleague.com/transfers/

Most Visited phones and devices Getting Started Latest Headlines

PITCH VIEW | DATA VIEW » Help

RnosDream

GAMEWEEK 32 TRANSFERS | FREE TRANSFERS ? | BANK

Player filters

View

All players

Sorted by

Emmanuel Adebayor £9.2m

BARCLAYS PREMIER LEAGUE

SUMMARY | HISTORY | FIXTURES

+ ADD TO WATCHLIST

Player summary

Position:	Forward
Team:	Tottenham
Teams selected by:	10.9%
Total score:	160

News

Recent matches

GW	Opponent	Points
29	STO (H)	0
30	CHE (A)	2
31	SWA (H)	13

Upcoming fixtures

GW	Opponent	Date
32	SUN (A)	07 Apr
33	NOR (H)	09 Apr
34	-	-

Gameweek 31

Statistic	Value	Points
Bonus	3	3
Minutes played	90	2
Goals scored	2	8
Total		13

POWERED BY EA SPORTS

Data

- **Barclays Premier League Fantasy Football 2008/09-2010/11**
- Week-by-week data on all players in all squads for 3 seasons.
- 38 matches in the season so large N player-match observations
- Transfers estimation sample restricted to players playing at least once in the season with non-missing data.
- More than 1/3 players are black (only 8% in Szymanski's data in 1993)
  - Substantial variance across Premier League teams.
- Key advantages
  - Need marginal workers to identify racial discrimination in hiring/firing (Kahn, 1999)
  - This is what we have since all players are available for hire by any employer at any point in time, and can be dismissed with minimal dismissal costs
  - "Real" hires/fires
  - Individual time-varying labour productivity
- Shortcomings
  - No information on individual employers

First Picks

- Employers' choice of squad players at start of season
- Dependent variable is N times player picked by employer for at start of season (first picks)
- Model as function of player performance in previous season; valuation end previous season; demand for player in previous season; position in the field, age cohort, British player, British International, other International, club, race
- Examine racial differences with dummy for black player and interactions between black and performance metrics
- 1169 player obs for first picks in 2010 and 2011 including those new to Premier League (dummy identifies them)

Net Employer Demand

- Net transfers for each player after each game in the season ie number of hires minus number of fires aggregated across all employers
- Minimum -279,518; maximum +128,891. Mean 138
- Job slots fixed so increased propensity to hire black (white) players necessarily means increased propensity to fire white (black) players
- Employers free to buy and sell after each game subject to budget constraint and 3-player-per-team rule.
- Cost of hire: value of incoming player plus gap between value of outgoing player on open market and value the employer recovers on sale
- Employers permitted one transfer per week which does not affect employer's accumulated points total but additional transfers above this "free" one entail a 4 point deduction to be added to financial cost of making transfer
- In estimation we drop cases in top and bottom 1% of net transfers distribution

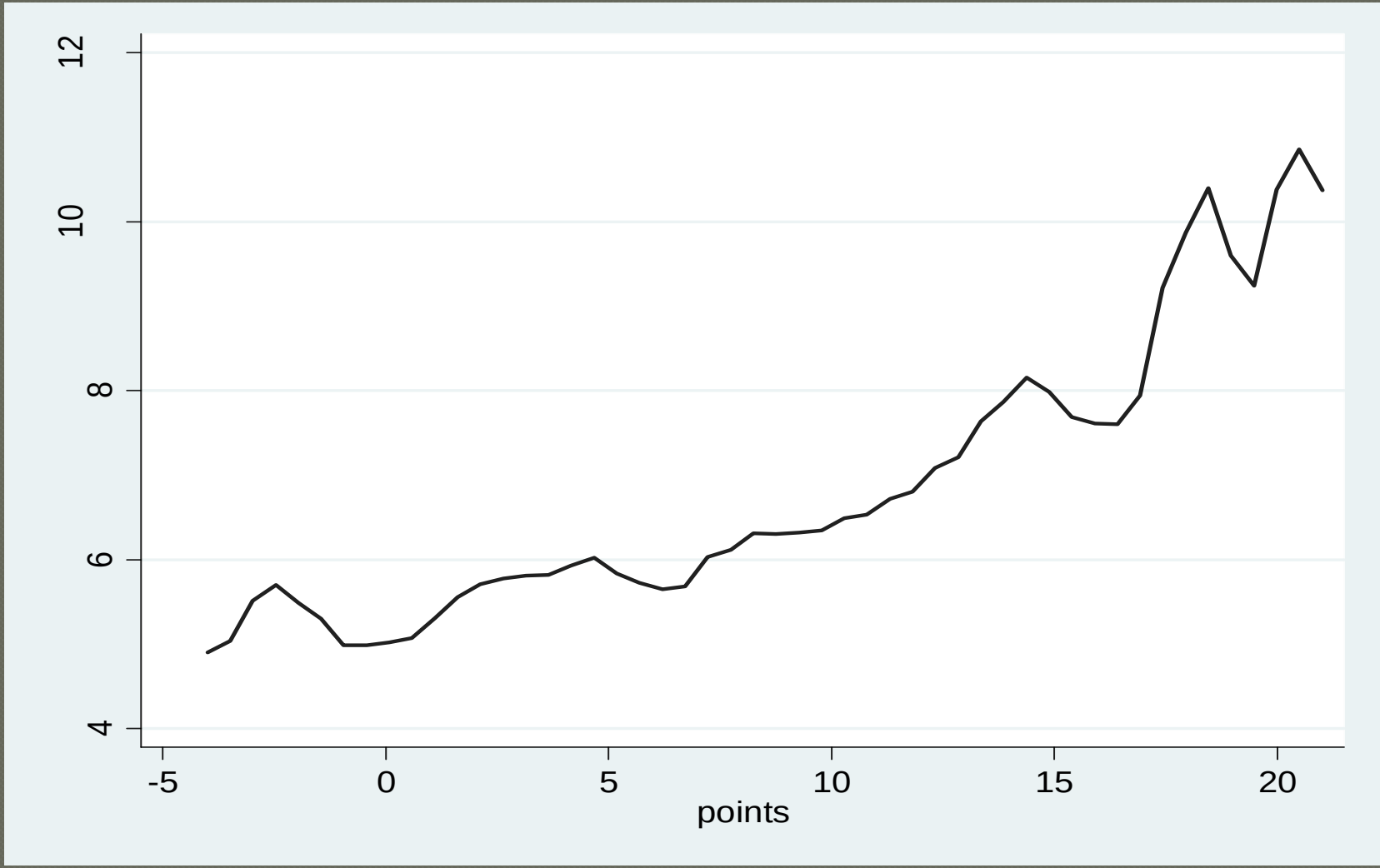
Players' performance measures

- For playing up to 60 minutes 1
- For playing 60 minutes or more 2
- For each goal scored by a goalkeeper or defender 6
- For each goal scored by a midfielder 5
- For each goal scored by a forward 4
- For each goal assist 3
- For a clean sheet by a goalkeeper or defender 4
- For a clean sheet by a midfielder 1
- For every 3 shot saves by a goalkeeper 1
- For each penalty save 5
- For each penalty miss -2
- Bonus points for the best players in a match 1-3
- For every 2 goals conceded by a goalkeeper or defender -1
- For each yellow card -1
- For each red card -3
- For each own goal -2

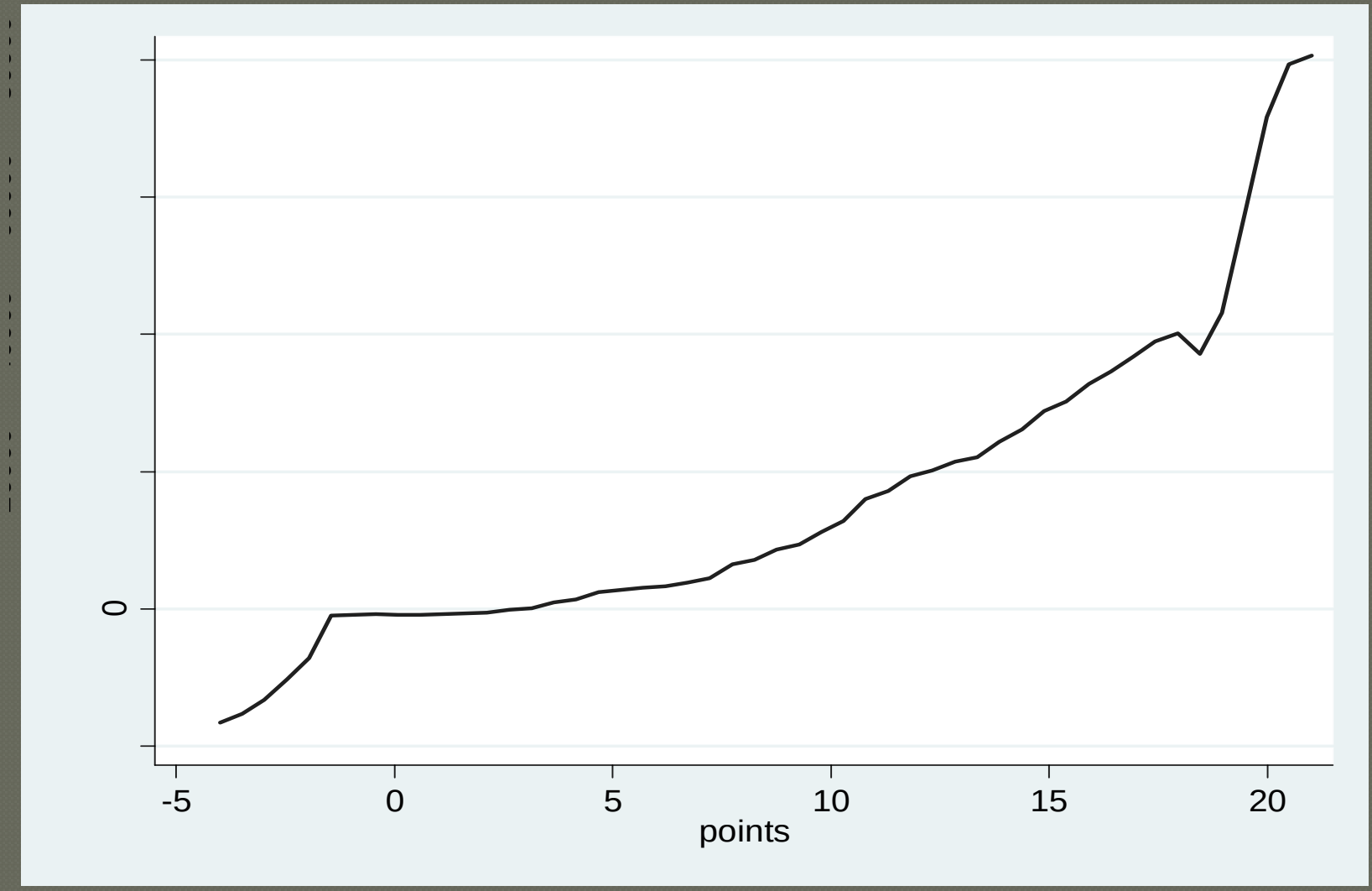
Estimation

- First picks
  - OLS
  - QREG
  - Person FE
- Transfers over season
  - OLS and random effects models
  - Player-match panel data
- Standard errors clustered by player

Does FF operate like a labour market? Value and Performance



Does FF operate like a labour market? Net transfers and points



First squad pick of the season

	(1)pooled	(2)2010	(3)2011
black	-6,291.523	-3,620.565	-10,486.897
	(1.28)	(0.60)	(1.21)
_Ipointcat_2	-4,185.132	-4,277.304	-2,300.092
	(0.60)	(0.48)	(0.20)
_Ipointcat_3	12,692.996	14,054.279	8,575.134
	(1.04)	(0.77)	(0.61)
_Ipointcat_4	85,380.757	63,252.306	99,542.079
	(5.24)**	(2.67)**	(4.86)**
_Ipointcat_5	182,811.922	219,546.144	163,991.598
	(7.01)**	(5.51)**	(5.23)**
_blackXpoi_1_2	-2,126.633	-6,317.314	-7,330.003
	(0.28)	(0.60)	(0.52)
_blackXpoi_1_3	1,307.911	1,503.814	5,102.539
	(0.10)	(0.07)	(0.30)
_blackXpoi_1_4	-5,679.729	16,563.403	-20,978.270
	(0.25)	(0.55)	(0.66)
_blackXpoi_1_5	-57,101.108	-117,063.525	-5,789.485
	(1.80)	(2.89)**	(0.13)
Constant	1312129.475	-61,046.484	1,828.065
	(0.12)	(1.29)	(0.05)
Observations	1158	588	570
R-squared	0.46	0.46	0.50

Net employer demand for players, random effects

Panel A: excluding points in last game							
Black	-203.227	-199.720	172.688	-219.604	149.570	-225.836	143.841
	(2.07)*	(2.11)*	(1.19)	(2.12)*	(1.01)	(2.26)*	(0.99)
Points in season exc. last game		6.520	11.337	2.522	7.278	2.807	7.640
		(2.47)*	(3.26)**	(0.77)	(1.85)	(0.78)	(1.80)
Black*points in season exc. last game			-13.517		-14.026		-14.079
			(2.69)**		(2.80)**		(2.80)**
Value at start of season						-33.832	-39.016
						(0.32)	(0.39)
Controls	N	N	Y	Y	Y	Y	Y
Constant	200.135	17.187	-116.755	-449.674	-578.261	-258.572	-358.702
	(2.81)**	(0.22)	(1.30)	(1.61)	(2.12)*	(0.41)	(0.59)
Observations	17202	17202	17202	17202	17202	17202	17202
Number of id	508	508	508	508	508	508	508

Net employer demand for players, random effects, with points in last game

Panel B: including points in last game							
Black	-203.227	-128.749	46.804	-154.919	31.900	-209.513	-14.422
	(2.07)*	(1.34)	(0.29)	(1.61)	(0.20)	(2.23)*	(0.09)
Points last game		688.456	652.494	710.375	675.512	719.286	684.879
		(20.17)**	(15.91)**	(20.26)**	(16.10)**	(20.37)**	(16.28)**
Points in season exc. last game		-1.360	2.695	-8.774	-4.700	-4.609	-0.437
		(0.54)	(0.81)	(2.75)**	(1.23)	(1.32)	(0.11)
Black*points in season exc. last game			-11.461		-12.109		-12.351
			(2.42)*		(2.57)*		(2.63)**
Black*points last game			87.967		86.465		85.387
			(1.22)		(1.19)		(1.17)
Value at start of season						-340.227	-338.722
						(3.19)**	(3.25)**
Controls	N	N	N	Y	Y	Y	Y
Constant	200.135	-908.356	-961.878	-1,677.88	-1,741.55	210.620	135.818
	(2.81)**	(10.74)**	(9.37)**	(5.61)**	(5.97)**	(0.33)	(0.21)
Observations	17202	17202	17202	17202	17202	17202	17202
Number of id	508	508	508	508	508	508	508

Net employer demand for players, non-linear points in last game

	(1)	(2)	(3)	(4)	(5)	(6)
Black	-130.583	38.063	-17.465	-320.035	-140.488	-428.361
	(0.99)	(0.29)	(0.12)	(1.21)	(1.05)	(1.67)
Points (ref: low)						
Medium		379.247	543.574	631.246	738.617	814.948
		(2.53)*	(3.44)**	(3.27)**	(4.39)**	(4.06)**
High		3,123.060	3,468.700	3,174.266	3,766.518	3,487.306
		(11.87)**	(11.70)**	(9.32)**	(11.51)**	(9.67)**
Very high		12,052.095	12,477.359	10,630.445	13,079.901	11,270.761
		(11.66)**	(11.66)**	(10.13)**	(11.55)**	(10.24)**
Black*medium				-177.272		-163.582
				(0.58)		(0.55)
Black*high				768.582		706.742
				(1.32)		(1.21)
Black* very high				5,224.971		5,074.005
				(2.14)*		(2.06)*
Value at start of season					-706.373	-687.805
					(4.07)**	(3.88)**
Controls	N	N	Y	Y	Y	Y
Constant	188.967	-1,130.703	-2,036.693	-1,888.134	1,793.584	1,837.633
	(1.92)	(8.21)**	(4.12)**	(3.69)**	(1.87)	(1.82)
Observations	17554	17554	17554	17554	17554	17554
R-squared	0.00	0.10	0.11	0.11	0.11	0.12

Findings

- Employers pick players who have performed well in previous season but less likely to pick highest performing players if they are black
  - Consistent with racial discrimination
  - But apparent in 2010 but not 2011.
- Employers are more likely to hire players who perform better in the course of the season, but this propensity is lower in the case of black players
  - Consistent with racial discrimination
- However, there is no racial difference in the weight employers attach to performance in the most recent game except among the best performing players, when employers attach more weight to black player performance than white player performance
  - Not consistent with racial discrimination but potentially linked to undervaluation of highest performing black players by the market

What Next?

- More exploration of first picks
- Linking first picks to transfers
- Changes in racial transfer differentials over the course of the season
- One day….employer identifier