**PIPELINES ON THE GRIDIRON:
PLAYER BACKGROUNDS, OPPORTUNITY STRUCTURES AND RACIAL
STRATIFICATION IN AMERICAN COLLEGE FOOTBALL**

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ABSTRACT: Stacking – the tendency of playing positions to be racially segregated in sports – remains prominent in gridiron football. This raises questions of how stacking persists and how opportunities arise for athletes of different races to assume different roles. Demographic data on 41,484 NCAA football players reveal differences in opportunities and playing roles for student-athletes of different races. In concert with previous racial stacking studies, white players continue to be overrepresented in central, leadership positions. Racial minorities are overrepresented in peripheral ‘skill’ positions. Stacking at each playing position is affected differently by the demographics of player high schools and college teams. Players assuming non-stereotypical roles are much more likely to come from a racially homogenous high school or college team. Even though racially homogenous schools provide stereotype-defying opportunities, they also exhibit intense racial stacking. The few white (or black) players on such teams are overwhelmingly slotted into stereotypical positions. Since stereotype-defying opportunities tend to emerge in racially homogenous schools, blacks playing typically white positions come from relatively poor schools. In contrast, whites playing typically black positions are relatively affluent, since such opportunities tend to emerge in whiter, wealthier schools. Implications for student opportunities and talent inculcation beyond the football field are discussed.

Introduction

For better or worse, athletics assume a prominent role in campus life for athletes and non-athletes alike in most American colleges. American football is a violent, physically dangerous and extremely popular sport, especially on college campuses. In 2013, NCAA (National Collegiate Athletic Association) football generated \$3.4 billion in revenue (Gaines 2014). Football teams are often perceived as totems of school identity, as well as cultural and regional solidarity. Successful football teams have been linked to spikes in donations, exposure and student applications for school (Chung 2013). Colleges and universities in the United States have historically been sites of racial discrimination and exclusion, based on explicit and implicit admissions criteria (Karabel 2005). Sports have also been a site of discrimination and exclusion, even within integrated schools (Martin 2010). While most overt discriminatory policies and beliefs are from bygone eras in American history, race continues to affect the roles and experiences of college athletes in subtler manners.

This article examines two main research questions. First, it examines if and how stacking exists in college football? Studies of racial stratification in sports go back decades; this study provides a contemporary replication. Second the article examines the question of, how a football player's high school background and college team influence the position they play in college. More generally, the article analyzes how race and class attributes of schools – and the opportunity structures they offer student athletes – have varying effects on racial representation at different positions on the football field.

Sports are often a microcosm of society, revealing social phenomena that exist beyond the playing fields. Past work in social science (Chambliss, 1989; Ericsson et al. 1993) and the popular press (Gladwell 2008; Coyle 2009) examined factors that foster exceptional individual talent. Structural factors influence opportunities to play different roles on the football field, in addition to affecting talent development and investment. Only 6.3% of high school football players play in college, with 2.5% playing in Division I (ncaa.org 2015). Even at the non-scholarship Division III level, college football involves athletes who were generally at least in the top decile of high school players. Racial segregation on the playing field – or stacking – has long been observed by social scientists. This research adds to that literature by introducing high school backgrounds and college team composition as new mechanisms underpinning stacking. By analyzing the high school backgrounds of college athletes, this also reveals demographic conditions that tend to develop and select athletes with the exceptional skills and traits necessary to attain a valued role in society; in this case, playing college football. In short, income influences talent gestation, opportunities and experiences of student-athletes differently for white and black student-athletes.

Stacking Incentives and Cultural Preferences

Stacking. *Stacking* in sports refers to tendencies of various racial groups to be overrepresented in certain positions on teams, and underrepresented in others (Jones et al. 1987). Historically, racial minorities have been excluded from positions involving leadership and cognitive demands in sports (Frey and Eitzen 1991). Characterized by a militaristic culture and complex division of labor with numerous different tasks, football illustrates how complex organizations can beget different niches and opportunities for different racial groups. These differences arise via the preferences, skills and performances of both coaches and athletes.

Status Characteristics Theory. Status characteristics theory (Berger et al. 1972) posits that hierarchies emerge in task groups from performance expectations based on beliefs of one's own abilities and the competencies of others. Edwards (1969; 2000) argued that black athletes are perceived to lack judgment and decision-making aptitudes, while white players are perceived as cerebral and capable of leadership. Consequently, white athletes are more likely to assume spatially central positions on the playing field (in football: quarterback, center, inside linebacker), while blacks are assigned peripheral roles (wide receiver, running back, defensive back, outside linebacker) (Woodward 2004). Peripheral positions in sports tend to involve skills requiring less costly development, both prior to and during team membership (Frey and Eitzen 1991).

Status characteristics and racial ideologies influence player evaluation. Recent scouting reports of college football players disproportionately used words such as “intelligent”, “gritty” and “leader” to describe white athletes, while tending to label black prospects with words like “instincts”, “fast” and “natural” (Fischer-Baum et al. 2014). In general, white players were perceived as diligent, cerebral leaders, while black players were generally associated with innate – but often mercurial – raw talent. Edwards (2000: 9) bluntly argued that black athletes are hindered by cultural beliefs underpinned by a “long-standing, widely held, racist and ill-informed presumption of innate, race-linked black athletic superiority and intellectual deficiency[.]” Given the intensity and volume of stereotypical characteristics ascribed to black and white players by coaches, scouts and players alike, it makes sense that athletes will tend to be placed and/or self-select into various roles and positions according to racial backgrounds and stereotypes.

Stacking Incentives. Players not only respond to cultural messages sent by role models about which skills and outcomes are most attractive, but also to incentives influenced by the preferences of current and anticipated future coaches. In turn, players develop preferences and ambitions that

involve self-segregation into racially stacked roles and positions (McPherson 1975). Quarterback is generally the most important, highest-status – and for professionals, the most lucrative – position on the field (Massey and Thaler 2013). The quarterback position also usually entails team leadership, which is another factor which has historically militated against racial minorities (Martin 2010).

There a number of explicit and implicit reasons why black players would be less likely to persist playing quarterback. These include a dearth of role models in leadership positions on and off the field, potential for bias (unconscious or otherwise) from predominantly white coaches, harassment from fans and teammates, fewer professional quarterback jobs vis-à-vis other positions, as well as cultural messages that athletics are the most viable path to upward mobility for poor black athletes (Edwards 2000). Analogously, blacks assuming typically white leadership positions at work endure increased stresses and scrutiny (Harvey Wingfield 2012). In turn, white players are nudged out of historically black positions due to similar incentives and cultural beliefs, as well as crowding of black athletes at those positions.

Coaches learn vicariously from other coaches (Strang and Patterson 2014), resulting in similar organizational decision-making and outcomes. This is important for racial stacking in sports, since emulation based on even mild individual preferences can result in stark segregation outcomes (Schelling 1971). Similar to other leadership realms in society, football coaches are overwhelmingly white (Tracy 2015). In professional football, white assistant coaches are promoted at higher rates than similarly-performing minorities, suggesting that racial stereotypes continue to be influential in football culture and leadership (Rider et al. 2016). Further, the lack of experience with central, leadership positions on the football field can inhibit upward mobility for racial minorities pursuing coaching careers (Braddock et al. 2012; Day 2015). The rarity of black coaches

is notable given the omnipresence of black athletes in football. Since leaders tend to prefer racial homogeneity in personnel decisions (Vallas 2003), this can disadvantage black players, given that most college football coaches are white. Lavoie (1989) argued that the uncertainty of best practices in coaching, coupled with the difficulty of parsing out individual contributions in team games compels coaches to rely on stereotypes as heuristics to inform personnel decisions.

Outcome Control Hypothesis. The *outcome control hypothesis* posits that black athletes tend to be excluded from positions that are likely to have a direct influence on the outcome of a game (Edwards 1969). Eitzen and Stanford (1975) argued that blacks are excluded from such positions due to beliefs that such athletes do not cope or think well under pressure. In football, blacks have been historically underrepresented in positions with direct influence over game outcomes, including quarterback and placekicker (Hawkins 2002).

Materials and Methods

To gauge player backgrounds, team demographics and the current stacking landscape in college football, data on college football players were culled from university athletics webpages for 253 Division I (professional-style teams with athletic scholarships) and 232 Division III (non-scholarship, largely avocational) programs. Most team webpages were organized in a similar format, listing the name, hometown, high school, height, weight and playing position of each player, as well as a picture and biographical information.

Player race was coded for players whose official webpages included a picture. In the event that there was not an obvious guess as to a player's racial background, they were coded as "Ambiguous." Roughly 1 in 200 players were labelled as Ambiguous. Race is a fluid social

construct (Healey and O'Brien 2014) and coding players into discrete racial categories often will not do justice to the true complexity of a player's racial background. However, coding results closely approximate similar work (Lapchick et al. 2015; Allison et al., forthcoming) over a similar time period. To further verify race coding decisions, ten Mechanical Turk users from the United States coded randomly ordered sample slices of 500 players. 95.3% of race codes matched exactly (for more detail, see Appendix 1).

Data on the academic and economic backgrounds of players were collected using 2011-12 data from the National Center for Education Statistics. The 2011-12 NCES Common Core of Data and Private School Survey provided data on the racial composition of high schools, as well as the zip code of the high school's address. Data on median household incomes for high school zip codes were taken from the 2011-12 American Community Survey.

Results

Positional Stacking in College Football. Of 20,495 Division I players with usable online roster data and pictures, 52.0% are black, 44.2% white, 2.1% Latino and 1.6% Pacific Islander. Division III demographics are substantially different; 70.8% of players are white, 24.1% black, 4.8 Latino and 0.3% Pacific Islanders. Blacks and Pacific Islanders are relatively overrepresented on Division I teams, while Whites and Latinos comprise a larger proportion of players on Division III teams. This reflects Edwards' (1969) thesis that college sports are more likely to be a casual avocation for white players, while the majority of opportunities for black players are in high-stakes amateur sports. Although athletic scholarships are often presented a road to a college education and upward mobility for athletes, Edwards (2000) expressed concern that African-Americans are often only

admitted to colleges to be athletes. Given that black football players are far more common in Division I than Division III, it appears that the athletic scholarship is strongly linked to the recruitment of the black athlete.

Racial Stacking: The Current Landscape

Racial stratification not only occurs at the types of schools and athletic programs where college athletes participate in football, but also with positions on the playing field. Figure 1 suggests that little has changed since initial studies of racial stacking in football in the 1970's and 1980's. White players are overrepresented at central, leadership positions, while racial minorities are overrepresented at peripheral 'skill' positions.

Positional Analyses of Stacking. Stacking is a widespread phenomenon that spans numerous sports and nations. Studies on football, (Eitzen and Sanford 1975; Lewis 1995; Woodward 2004) baseball (Grusky 1963; Smith and Leonard 1997), rugby (Hallinan 1991) and volleyball (Eitzen and Furst 1989) all found that white players tended to assume central roles with high interaction and leadership demands, while racial minorities tended to play peripheral roles involving less interdependence with teammates.

As Figures 1a and 1b show, stacking processes in college football are complex; each position and racial group has a different situation.

-- Insert Figures 1a and 1b here --

Norms and beliefs underpinning stacking appear to be strong and widely-held, as stacking occurs in similar patterns at both Division I and Division III levels of football. In line with previous studies of racial stacking in football, blacks are overrepresented at defensive back, wide receiver, running back and defensive line. In contrast, blacks are underrepresented at quarterback, fullback,

tight end and offensive line. Stacking is even more dramatic at the kicker/punter and long snapping positions, where blacks are nearly entirely absent. It is also notable that stacking processes in Division I and III are relatively similar, even though Division III is a less competitive context and has far more white athletes than Division I.

The underrepresentation of blacks at the quarterback position is particularly significant, given the importance and status of the position. The quarterback has ingrained cultural significance to the point that the Oxford English Dictionary defines the word as a synonym for “a person who leads or directs a group or activity.” Norwood (2000) observed, “[t]he white-dominated football hierarchy often labeled blacks as ‘athletes’ who should play cornerback, receiver or running back, sometimes suggesting that they lacked the passing and cognitive abilities to play quarterback.” This aligns with Edwards’ (2000) concerns that black athletes tend to be perceived as physically talented, but lack sufficient cognitive and leadership abilities to play positions such as quarterback.

As the most scrutinized and important player on most football teams, the quarterback position is a site of both between-position and within-position inequality. Thus far, this article has discussed the quarterback position as a site of intense racial stacking, where whites are far more likely to play the position than blacks. However, this is not the only way in which racial inequality exists within the position. When potential quarterbacks are recruited by college teams out of high school, scouts sort players into “pro-style” or “dual-threat” quarterbacks. Pro-style quarterbacks are known for their prowess throwing the ball, while the dual-threat moniker refers to the ability of the quarterback to both throw and run the ball. Some black quarterbacks have expressed concern that the dual-threat label is often based on stereotypes and serves to diminish their passing abilities and/or pigeonhole them into more limited roles on the field (Shanker, 2016). The distinction between pro-style and dual-threat quarterbacks creates significant racial stacking within the

position. Of the fifty top-ranked pro-style quarterbacks by rivals.com as of December 21, 2015, thirty-nine (78%) were white, eight (16%) were black and three (6%) were Latino. In contrast, thirty-one (62%) of the top fifty dual-threat quarterbacks were black, while eighteen (36%) were white, and one (2%) was Latino.

Although black players are the numerical majority in Division I college football, they are disproportionately placed in positions with lower development costs, cognitive challenges and interpersonal responsibilities. Further, inequalities within the quarterback position also reveal a segmented labor market for black and white athletes. A running quarterback can be a potent weapon for a football team. However, the idealized quarterback is seen solely as a passer. QBRating – historically, the main statistic used to evaluate quarterbacks – only accounts for performance throwing the ball. Since black quarterbacks are more likely to run the ball, this statistic devalues the performance of such quarterbacks. This quantitative ‘meritocratic’ measure of an idealized player tends to be perceived as more congruent with whites than minorities.¹ Statistics and the quantification of qualitative performance involves implicit social valuations (Espeland and Stevens 1998). Popularized by *Moneyball* (Lewis 2003), advanced statistics and player-tracking technology are starting to inform player analysis and decision-making in football. In theory, fairer and more accurate metrics have the potential to mitigate biases, which could improve outcomes and experiences players and groups prone to disadvantageous stereotypes.

As expected, white players are overrepresented at quarterback, offensive line and tight end. In contrast, whites are underrepresented at peripheral, predominantly black positions, including defensive back and running back. Whites are also underrepresented at wide receiver and defensive

¹ See Castilla and Benard (2010) on how gains from idealized ‘meritocratic principles’ are often shared unequally within organizations.

line, although not quite to the degree of defensive back or running back. Put differently, white players are overrepresented at central positions and underrepresented at peripheral ‘skill’ positions. Whites are also overrepresented as placekickers and punters, especially at the Division III level. Further, long snappers are extremely likely to be white. Long snapper is a quirky, niche position – essentially a specialized offensive lineman – that only participates in kicking and punting situations. The position involves infrequent responsibilities, limited demands and little fanfare, but substantial pressure and potential infamy if a mistake is made (Waszak 2015). Long snapper is the epitome of a position that has high outcome control and little else. In turn, given the outcome control hypothesis, it is not surprising that long snappers are overwhelmingly white. Further, long snappers work closely in concert with holders (usually a role assumed by a punter or backup quarterback) and mostly white or Latino kickers and punters.

Overall, results suggest that long-observed trends with racial stacking in sports have changed little over time. White players tend to be overrepresented in central, leadership positions on the field that directly influence game outcomes, while racial minorities are more likely to play peripheral positions with less direct influence on outcomes. Linebacker appears to be the playing position that comes closest to racial equality. Likewise, Blackburn (2007) argued that linebacker is a position where white dominance has eroded over time. While racial stacking at other football positions persists in similar manners to studies of the past three decades, linebacker is an exception where stacking has declined.

Pacific Islanders are underrepresented at most stereotypically white positions, including quarterback, tight end, kicker/punter and long snapper. However, Pacific Islanders are also underrepresented at peripheral and predominantly black positions, including defensive back, wide receiver and running back. Instead, Pacific Islanders are significantly overrepresented at lineman

positions and fullback. Put differently, Pacific Islanders tend to play positions that involve size and brute force, but seldom speed, leadership, or outcome control. Another notable detail is that while Pacific Islanders tend to be linemen, they are more likely to play defensive line than offensive line; the latter being a much ‘whiter’ position.

Like other racial minorities, Latinos are underrepresented at quarterback. Latinos are strongly overrepresented as kickers and punters, in part due to the popularity of soccer – a sport which involves complementary skills to kicking and punting – among Latinos. Likewise, a recent influx of Australian punters with rugby and Australian Rules Football backgrounds (Mather 2015) further inflates white representation at the position. In contrast, relatively few black children in the United States play soccer (Pierre 2015). Curiously, while Latinos are also overrepresented at offensive line, they are still underrepresented as long snappers, despite their relative dominance with kicking and punting and overrepresentation on the offensive line. This is another case on the football field where minorities are underrepresented in a position with high outcome control.

Pipelines to Racial Stacking in College Football. The continued prevalence of racial stacking in football raises questions of what factors contribute to these stratified outcomes. Player backgrounds affect opportunities for talent development. Specially, the racial and social class backgrounds of a player and their educational institutions generate differing opportunities and incentives for players to assume different roles on the football field.

Figure 2 reports associations between the ratio of white to black students in a player’s high school or their college football team and the position that player plays in college. Log odds are reported for each common position in football. (For full tables and additional figures, see Appendix 2).

-- Insert Figure 2 about here --

As expected, the higher the proportion of white students in a player's origin high school or on their college football team, the more likely a given football position will be occupied by a white player. However, increasing the proportion of white students has varying impacts on racial stacking depending on the position. With some positions, high school origin has a stronger effect on racial stacking. In other cases, the racial composition of the college team is more influential. For example, the odds of a white collegiate running back are strongly influenced by the racial composition of a player's high school. In contrast, the odds of a white fullback are more influenced the racial composition of a college football team. This suggests that socialization (in high school) and selection (by college teams) can play varying roles in creating opportunity for the gestation and deployment of player talent.

Opportunities for black athletes to play stereotypically white positions (such as quarterback, kicker/punter, offensive line) sharply decline in whiter high schools and with whiter college teams. Likewise, when white athletes play stereotypically black positions (i.e., running back, defensive lineman, wide receiver, cornerback), they tend to come from whiter high schools and play on whiter college teams. Put simply, opportunities for whites and blacks to play uncommon positions tend to emerge when there are few or no other personnel options for coaches. Stereotypically black positions are relatively unaffected by changes in the racial composition of a high school or college team. Regardless of the racial composition of a college team or a player's origin high school, chances are a black player will occupy stereotypically black positions such as running back, safety, defensive back and wide receiver. Conversely, increasing white representation in the origin high school or college football team has a much stronger negative effect on the likelihood that a black player will play a stereotypically white position, such as quarterback, tight end, fullback, offensive line or kicker/punter. An implication of these trends is

that predominantly black high schools and colleges provide rare opportunities for black athletes to play stereotypically white positions, just as predominantly white schools are a source of opportunities for whites to play stereotypically black positions.

Stacking and School Racial Composition. Comparing ‘historically white’ and ‘historically black’ colleges reveals the paradox that while such schools provide rare opportunities for players to assume racially uncommon roles, they also exhibit intense racial stacking. Table 1 compares the “historically white” schools of the Ivy League, New England Small Conference Athletic Conference (NESCAC), University Athletic Association (UAA) and Centennial Conference with the historically black schools of the Mid-Eastern Athletic Conference (MEAC), Southwestern Athletic Conference (SWAC), Central Intercollegiate Athletic Association (CIAA) and Southern Intercollegiate Athletic Conference (SIAC).

-- Insert Table 1 about here --

When a black athlete plays football on a predominantly white team, they are extremely likely to play a stereotypically black position. For example, 30% of black football players at historically white schools play defensive back, even though defensive backs only comprise about 14% of Division I football rosters. At historically white schools, the proportional gap between white and black representation at stereotypically white positions, such as quarterback, tight end and offensive line is especially marked. Likewise, at historically black schools, white players are overwhelmingly concentrated at stereotypically white positions. In terms of absolute numbers, historically white and black schools offer the most opportunities for members of their focal racial group to play non-stereotypical positions.² However, with white players playing at HBCUs or

² Currently, the lone black punter in the National Football League is Marquette King of the Oakland Raiders, who played college football at HBCU Fort Valley State University. There have been fewer than ten black players who

black players playing at historically white universities, stacking is even more pronounced than in more racially-balanced contexts. Relatedly, the dearth of black Ivy League quarterbacks is a longstanding issue (Lartigue 1988). In turn, historically white and historically black schools and teams send mixed messages in regards to stacking and the division of labor on football teams. Increased opportunities for non-stereotypical roles exist alongside increased stacking.

Player Affluence and Stacking. A surprising corollary of racial stacking in football is that on the whole, black quarterbacks appear to come from relatively poor economic backgrounds, even relative to black athletes at other positions. Zip code data on player high schools offer a proxy for student affluence and a glimpse of the economic sorting associated with stacking in college football (see Appendix 3). Figures 3a and 3b illustrate the relationship between the affluence of a student-athlete's background and the degree to which a playing position is typically 'white' or 'black.'

-- Insert Figures 3a and 3b about here --

For white players, affluence is marginally affected by the racial composition of a playing position. The correlation between the black/white ratio of a position and the affluence of a white player's high school is 0.19. The relationship for black players is much more noticeable, with a correlation of 0.41. The influence of income on positional choice for black players is even stronger in Division III football, where players are predominantly white and blacks are numerical minorities at every position.

played either placekicker or punter full-time in the history of the National Football League (Whitley, 2012). Coincidentally, two of those players came from the same high school – Southwest DeKalb High (Marietta, GA) – which is 97% black. In such contexts, opportunities for black athletes to play typically white positions emerge.

As expected, white quarterbacks appear to come from relatively wealthy backgrounds. However, white athletes playing stereotypically black positions tend to come from even wealthier high schools than those playing stereotypically white positions. For example, white defensive linemen are wealthier than white offensive linemen. In Division III, white athletes playing some stereotypically black positions (defensive line, defensive back) are even wealthier than white quarterbacks. In contrast, black athletes playing stereotypically white positions tend to endure an economic penalty. Surprisingly, black quarterbacks appear to come from poor backgrounds, even relative to other black football players. A potential mechanism underpinning this is that black quarterbacks are more likely to come from blacker – and on the whole, less wealthy – high schools, where there are fewer white students to occupy stereotypically white positions. In contrast, whites playing non-stereotypical positions come from whiter – and usually wealthier – high schools and colleges.

Fixed effects regression models suggest that selection and school composition explain why both white and black athletes playing stereotypically ‘black’ positions come from relatively wealthy backgrounds. Consciously or not, coaches tend to assign athletes from relatively wealthier backgrounds to play quarterback; the football position with highest prestige, outcome control and leadership responsibilities. Table 2 reports fixed effects models using the ratio of white to black players in college and high school as panel-level variables.

-- Insert Table 2 about here --

Table 2 shows that after accounting for school composition, relative to the stereotypically white quarterback position, stereotypically black positions are filled by less-wealthy athletes. In turn, aggregate affluence for black quarterbacks is reduced since such opportunities tend to emerge in poorer – and usually blacker – high schools and colleges. Likewise, opportunities for whites to

play typically black positions tends to occur in wealthier – and usually whiter – schools. Also of note is that at the Division I level, college team-level fixed effects reveal significant income differences by position, while high school-level fixed effects are influential at the Division III level. This suggests that gestational opportunity structures for elite and avocational talent and athletics participation differ. The relationship between social class and athletic participation is important on both moral and performance-based grounds. For example, Kuper and Szymanski (2009) linked national soccer team performance to the inclusion and/or exclusion of players from different socio-economic backgrounds.

Discussion

It would be an oversimplification to state that racial stacking in personnel decisions on the football field is entirely due to stereotypes or discrimination. There appear to be racial differences in the distribution of physical skills. For example, the National Football League Combine tests elite college players for raw athletic skills including size, strength and speed. In 2014, among the one-hundred fastest athletes in the 40-yard dash, 93 players were black, 4 were white and 3 were of ambiguous race. Not surprisingly, the playing positions of these fastest players tended to be peripheral, skill positions that are overrepresented with black players. Of the one-hundred fastest players, 33 were wide receivers, 30 defensive backs, 20 running backs, 10 safeties, 4 linebackers, 2 defensive linemen and one tight end.

However, the greater likelihood of whites to play wide receiver instead of defensive back at whiter schools is one example that suggests that stacking processes are not wholly influenced by physical traits. The defensive back is the counterpart to the (offensive) wide receiver. As the combine results suggest, both wide receiver and defensive back positions rely heavily on speed. However, the wide receiver is often perceived as a peripheral position with some unique skills and

social responsibilities. For example, Groysberg et al. (2008) also used the wide receiver as an example of a position that entails interdependence with teammates. The racial differences between the offensive and defensive line positions also provide evidence for social processes underpinning stacking. Both offensive and defensive line positions emphasize strength and body mass. However, whites are substantially overrepresented as offensive linemen, while blacks are overrepresented on the defensive line. The underrepresentation of blacks at fullback is also notable. Fullbacks line up at a similar position on the field as running backs, although the fullback position emphasizes strength and blocking more than the running back position, nor are fullbacks expected to be particularly fast. In turn, the positional attributes of strength, size and blocking ability appear to favor white players. The fact that the fullback position de-emphasizes speed also likely plays a role in many coaches steering black players away from the role. Finally, the overwhelming exclusion of blacks from the long snapper position is notable, given that the position is highly-specialized, esoteric and involves no stereotypically racialized physical skills. The dearth of black long snappers may also be related to the similar lack of black punters, as long snappers and punters work in concert together.

In a hyper-competitive, results-oriented context like college football, it seems counterintuitive that positional segregation could persist, presuming some degree of bias underpins stacking. Becker (1957) theorized that discrimination should be costly, as rivals could exploit biased personnel decisions. Famously, the University of Alabama first fielded a black player in 1971 after an emphatic home loss to the University of Southern California in 1970 (Davis 2000). While football coaches – both amateur and professional – are often passionately committed to their teams and commonly engage in substantial overwork, they also appear to be prone to heuristic thinking and blind spots. For example, Romer (2006) calculated that college and professional

football coaches squander significant competitive edges by being excessively risk-averse with game strategy. For a game and profession characterized by masculine hubris and micromanagement, this is an ironic phenomenon. High-pressure militaristic cultures, as well as leaders under intense public scrutiny, such as is the case with football, may not be conducive to fast Bayesian updating of incorrect or anachronistic ideas.

Racially segregated high schools and college teams create opportunities for students to break stacking conventions on the playing field. However, as suggested by results for historically white and historically black institutions reported in Table 2, such teams also engage in intense stacking with the few black or white students they have. When opportunities for whites to play stereotypically black positions emerge – usually in “historically white” institutions – black players are highly concentrated in peripheral, stereotypical positions, such as defensive line or defensive back. Likewise, historically black institutions provide increased opportunities for blacks to play stereotypically white positions. However, the few white players at such schools are overwhelmingly likely to play the most stereotypically white positions – quarterback and kicker/punter. Further, particularly for black athletes, social class background appears to be related to the propensity of assuming various roles on football teams. Upward mobility can be a double-edged sword for some racial minorities, as black players attending wealthier schools appear to have fewer opportunities to play typically white positions and are likely to be slotted into stereotypical roles. More general, attending elite or predominantly white schools often entail challenging experiences for racial minorities (Ohikuaire 2013). For example, at the high school level, racial achievement gaps are higher in economically prosperous, highly-educated locales (Reardon et al. 2016).

Findings in this article suggest benefits of attending less-white schools for racial minorities. Opportunities to play more positions on the football field (most notably, those typically occupied by white players) are enabled via the relative absence of whites in a high school or college team. Likewise, predominantly white high schools and college teams provide more opportunities for white players to play stereotypically black positions. Segregated schooling appears to have some advantages for disadvantaged groups. For example, Mykerezi and Mills (2008) found that black men from HBCUs experience relatively faster wage growth over the course of their careers. Analogously, same-sex schooling can be positively influential on female academic performance in sex-typed areas, such as in STEM fields (Mael 1998). Status characteristics are less salient in socially homogenous environments, which should be beneficial for members of disadvantaged groups. This is especially important since when triggered, status characteristics can influence individual performance on relevant tasks (Steele and Aronson 1995). This *stereotype threat* can negatively affect performance for already disadvantaged groups.

Opportunities to play non-stereotypical roles in football – or any activity – is a potential benefit for students attending racially homogenous schools. For white students, this usually entails additional privilege. In contrast, for black students, such opportunities are generally a mitigating factor against disadvantages associated with most predominantly black schools. Predominantly black high schools tend to be underfunded and exhibit significant academic achievement gaps relative to those that serve mostly white populations. In a country where school funding is often linked to neighborhood property taxes, economic inequalities in public high schools are inevitable (Belfield and Levin 2007). In some cases, school districts are gerrymandered to racially segregate schools. Whether triggered voluntarily, or through intervention from the U.S. Department of Justice, redistricting schools and redrawing boundaries to improve racial diversity in high schools

generates controversy and anger, both in liberal Northern college towns (Raygor 2005) and the conservative rural South (Straw 2011) alike. Further, white students are more likely to opt out of the public system and attend private high schools. At the college level, HBCUs have long suffered from underfunding (Meraji and Demby 2013). Athletes at HBCUs commonly endure lengthy bare-bones road trips involving numerous losing games against stronger opponents to raise money, tight budgets, substandard training conditions and disproportionate punitive sanctions levied by the NCAA over academic performance (Khurshudyan 2015). As former UNLV men's basketball coach Jerry Tarkanian once quipped, "The NCAA is so mad at Kentucky it will probably slap another two years probation on Cleveland State." Analogous to society as a whole, legal sanctions in college sports for wrongdoing tend to be harsher and more frequent for those with less money and status.

College football may only be a game – a mere extracurricular activity in theory – but the stakes are high for players and college stakeholders alike. Overt exclusion of racial minorities from sports and campus life is from a bygone era, yet racial inequalities remain stark on the football field. Much like with education in general, black and white students have different opportunities, incentives and outcomes in college football. Kohn (1989) posited that one's work can influence and change one's personality and cognition. With an intense avocation such as college football, this is another reason why stacking is important. Inequality on the football field matters both as part of the educational experience of the student-athletes, as symbols conferring status characteristics, and as a microcosm of racial inequalities throughout society. Stacking in football also raises broader questions of how other extracurricular activities and parts of campus life are influenced by race. Depending on the racial composition of a school, are students of typically underrepresented groups more or less likely to assume prominent campus roles, such as with

student government, social clubs, theater, campus newspaper editorships, social/political activism and Greek leadership? More generally in society, if and how does the racial composition of an institution or group influence opportunities, outcomes and roles for various members?

Decades after initial studies of racial stacking in football and other sports, this research shows that race still influences the positions and roles athletes are assigned on the football field beyond possible physical differences. Results show that high school and college team demographics are mechanisms that underpin stacking, as well as the opportunity structures of athletes of different races and backgrounds. Currently, it appears the best way to diminish stacking is to deny players and coaches racially heterogeneous rosters and the opportunity to make racially stacked personnel decisions. In the absence of cultural and ideological changes about status characteristics and personnel deployment, it appears that structural factors – racial compositions of high schools and college teams – are the most likely means to provide opportunities for student-athletes to assume non-stereotypical roles.

Figure 1a - Racial Distribution of Division I Football Players by Position (Division I)

Figure 1b - Racial Distribution of Division I Football Players by Position (Division III) *(Since there were only 56 Pacific Islanders playing Division III football, they were excised from Figure 1b.)*

Fig. 2 – Log Odds of Division I Football Positions by High School and College Team Racial Composition

Fig. 2 – Log Odds of Division I Football Positions by High School and College Team Racial Composition

Fig. 3a – Player High School Income by Positional Racial Stacking (Division I)

Figure 3b – Player High School Income by Positional Stacking (Division III)

Note: Long Snappers and Kicker/Punters were excised from the graph for black players due to a lack of players at those positions in Division III football.

	Historically White		Historically Black	
	White	Black	White	Black
Defensive Back	11.55	30.04	0.76	19.34
Defensive Line	15.32	16.59	7.58	13.66
Fullback	1.17	0.67	2.27	2.21
Kicker/Punter	4.08	0.22	30.30	0.70
Linebacker	16.10	13.00	5.30	14.82
Offensive Line	19.18	4.26	21.21	13.58
Quarterback	6.73	1.35	8.33	4.91
Running Back	6.55	13.45	2.27	9.09
Safety	1.87	2.24	0.76	1.74
Long Snapper	0.26	0.00	11.36	0.23
Tight End	5.30	1.12	3.79	3.75
Wide Receiver	11.89	17.04	6.06	15.98
TOTAL	2304	349	132	2585

Table 1 – Percentage Distribution of Players by Position at Historically White and Historically Black Colleges

	High School Panel		College Panel	
	Division I	Division III	Division I	Division III
Defensive Back	-69.90	-652.05	-5461.53***	-856.48
	(-347.23)	(-466.69)	(-935.12)	(-850.76)
Defensive Line	-128.34	-573.15	-5210.46***	350.38
	(-345.83)	(-465.46)	(-926.19)	(-851.28)
Fullback	611.80	-261.02	681.71	802.44
	(-656.02)	(-860.69)	(-1728.59)	(-1581.10)
Kicker/Punter	677.24	606.38	1374.87	1245.27
	(-452.63)	(-675.27)	(-1196.21)	(-1229.03)
Linebacker	-77.81	-576.09	-3293.85***	-211.26
	(-348.08)	(-462.48)	(-937.72)	(-848.39)
Offensive Line	-126.29	-743.61	-1508.64	-102.65
	(-339.81)	(-458.37)	(-912.67)	(-838.66)
Running Back	-256.37	-1070.56*	-5303.62***	-968.86
	(-390.84)	(-509.62)	(-1043.64)	(-934.40)
Safety	-421.43	-1875.34*	-4474.17***	-798.38
	(-453.68)	(-779.95)	(-1231.22)	(-1432.31)
Long Snapper	-879.44	-1326.17	1870.53	1636.34
	(-608.59)	(-1684.42)	(-1614.5)	(-3114.50)
Tight End	-210.22	-899.64	-725.19	-218.75
	(-422.07)	(-608.56)	(-1122.44)	(-1121.29)
Wide Receiver	-136.13	-1353.71**	-4435.38***	-1356.24
	(-344.99)	(-468.98)	(-1016.67)	(-861.28)
Constant	60968.92***	63879.89***	66817.52***	68037.60***
	(-450.3)	(-514.29)	(-1016.67)	(-1097.08)

Table 2 – Fixed Effects Regressions for Player High School Wealth, Relative to Quarterback Position

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APPENDIX 1 – MTurk Coding Results

Table A1 - Levels of Coding Agreement

Race	Agree	Disagree	Total Percentage
Black	1753	46	97.4
Latino	85	62	57.8
Pacific Islander	31	13	70.5
White	2494	88	96.6

Consensus is strong for white and black players. Due to relatively lower consensus levels, caution should be taken in interpreting results for Pacific Islander and especially Latino players. Table A2 reports sources of coding disagreements.

Table A2 - Sources of Coding Discrepancies

	Asian	Black	Latino	East Indian	Middle Eastern	Native American	Pacific Islander	Amgiguous	White
Black	0	-	14	1	1	1	14	11	4
Latino	3	14	-	1	3	2	7	2	30
Pacific Islander	1	7	4	0	0	0	-	0	1
White	2	5	63	0	2	0	2	11	-

The vertical column reports the author's initial codes, while the horizontal column reports coding discrepancies with Mechanical Turk coders. Notably, white-black or black-white disagreements were extremely rare. Further, Latino players were potentially coded by others as black, Pacific Islander or (especially) white. Pacific Islanders were most likely to be coded as black, although also occasionally as Latino.

Note: While Mechanical Turk coders received 500 different randomly chosen players to code, most coded about 450 players each due to college athletics website links being severed in the period between initial and secondary coding. Players graduated or left teams for a variety of reasons.

SUPPORTING TEXT 2 (SI2): Log Odds and Predicted Probabilities for Various Football Positions by Race

MODEL 1

	WhiteQB	BlackQB	WhiteRB	BlackRB	WhiteFB	BlackFB	WhiteOL	BlackOL	WhiteTE	BlackTE	WhiteWR	BlackWR
High School White/Black Ratio	4.512*** (.363)	-5.233*** (.372)	9.323*** (.842)	-3.938*** (.339)	7.634*** (1.162)	-6.911*** (.983)	4.857*** (.207)	-4.662*** (.186)	5.843*** (.464)	-5.860*** (.437)	7.512*** (.400)	-4.395*** (.181)
Constant	-2.931 (.302)	2.664*** (.288)	-9.322*** (.769)	3.854*** (.287)	-5.973*** (1.203)	4.719*** (.832)	-3.222*** (.170)	2.256*** (.141)	-4.127*** (.397)	3.420*** (.354)	-6.970*** (.355)	3.538*** (.174)
Pseudo R²	.190	.291	.236	.126	.267	.304	.216	.254	.212	.264	.260	.181

MODEL 2

	WhiteQB	BlackQB	WhiteRB	BlackRB	WhiteFB	BlackFB	WhiteOL	BlackOL	WhiteTE	BlackTE	WhiteWR	BlackWR
College White/Black Ratio	4.982*** (.419)	-5.744*** (.475)	5.451*** (.429)	-3.974*** (.345)	6.662*** (.862)	-7.220*** (.918)	5.428*** (.245)	-5.814*** (.266)	4.830*** (.419)	-5.428*** (.465)	4.901*** (.266)	-4.003*** (.233)
Constant	-1.531*** (.189)	1.128*** (.197)	-4.220*** (.246)	2.750*** (.183)	-2.592*** (.407)	2.215*** (.401)	-1.936*** (.113)	1.373*** (.113)	-1.619*** (.197)	1.228*** (.204)	-3.279*** (.142)	2.227*** (.117)
Pseudo R²	.121	.153	.129	.080	.217	.253	.135	.152	.109	.133	.115	.085

MODEL 3

	WhiteQB	BlackQB	WhiteRB	BlackRB	WhiteFB	BlackFB	WhiteOL	BlackOL	WhiteTE	BlackTE	WhiteWR	BlackWR
High School White/Black Ratio	3.713*** (.372)	-4.552*** (.386)	7.794*** (.823)	-3.616*** (.366)	5.499*** (1.134)	-5.820*** (1.076)	4.045*** (.210)	-4.038*** (.195)	5.052*** (.475)	-4.942*** (.445)	6.620*** (.398)	-4.023*** (.227)
College White/Black Ratio	3.585*** (.507)	-3.665*** (.586)	3.820*** (.504)	-2.786*** (.397)	5.869*** (1.149)	-5.710*** (1.169)	3.766*** (.296)	-3.952*** (.327)	2.849*** (.515)	-3.363*** (.583)	3.162*** (.321)	-2.561*** (.279)
Constant	-3.870*** (.347)	3.710*** (.351)	-9.975*** (.758)	5.014*** (.334)	-6.795*** (1.033)	6.336*** (.968)	-4.266*** (.197)	3.494*** (.183)	-4.783*** (.421)	4.192*** (.389)	-7.783*** (.367)	4.571*** (.208)
Pseudo R²	.236	.334	.283	.171	.370	.418	.261	.306	.242	.296	.292	.219

TABLE S1 - Effects of High School and College Team Background on Black/White Representation at Various Football Positions (Division I)

MODEL 1

	WhiteDL	BlackDL	WhiteLB	BlackLB	WhiteDB	BlackDB	WhiteS	BlackS	WhiteSnap	BlackSnap	WhiteKP	BlackKP
High School White/Black Ratio	7.956*** (.387)	-4.366*** (.195)	6.147*** (.308)	-4.772*** (.214)	7.024*** (.521)	-1.708*** (.136)	6.723*** (.710)	-3.143*** (.333)	1.840** (.704)	-7.218** (2.361)	1.610*** (.376)	-4.751*** (.708)
Constant	-7.171*** (.344)	3.416*** (.158)	-5.316*** (.267)	3.466*** (.174)	-7.447*** (.462)	1.533*** (.099)	-6.341*** (.616)	2.696*** (.260)	.302 (.584)	-.319 (.993)	.054 (.315)	-.476 (.418)
Pseudo R²	.305	.206	.247	.232	.213	.049	.251	.127	.024	.383	.022	.247

MODEL 2

	WhiteDL	BlackDL	WhiteLB	BlackLB	WhiteDB	BlackDB	WhiteS	BlackS	WhiteSnap	BlackSnap	WhiteKP	BlackKP
College White/Black Ratio	6.040*** (.279)	-5.165*** (.248)	5.956*** (.282)	-5.624*** (.270)	5.834*** (.347)	-2.398*** (.203)	5.383*** (.586)	-4.951*** (.538)	3.593*** (.954)	-23.826* (10.699)	2.559*** (.469)	-9.282*** (1.416)
Constant	-3.812*** (.150)	2.665*** (.125)	-3.363*** (.147)	2.536*** (.131)	-4.917*** (.209)	1.159*** (.103)	-3.691*** (.310)	2.843*** (.270)	.265 (.397)	.154 (.793)	.221 (.212)	-.798* (.363)
Pseudo R²	.156	.125	.156	.146	.145	.037	.107	.093	.048	.585	.032	.266

MODEL 3

	WhiteDL	BlackDL	WhiteLB	BlackLB	WhiteDB	BlackDB	WhiteS	BlackS	WhiteSnap	BlackSnap	WhiteKP	BlackKP
High School White/Black Ratio	6.765*** (.385)	-3.949*** (.211)	5.049*** (.306)	-4.140*** (.224)	5.692*** (.509)	-1.407*** (.145)	5.755*** (.704)	-2.798*** (.359)	.977 (.829)	-4.030 (2.949)	.828 (.433)	-2.378** (.858)
College White/Black Ratio	3.907*** (.339)	-3.456*** (.301)	4.361*** (.337)	-3.861*** (.320)	4.381*** (.408)	-1.703*** (.233)	3.275*** (.707)	-3.543*** (.628)	2.507* (1.202)	-14.100 (8.250)	2.293*** (.575)	-7.611*** (1.824)
Constant	-8.135*** (.359)	4.797*** (.202)	-6.568*** (.292)	4.816*** (.215)	-8.686*** (.474)	2.146*** (.130)	-7.187*** (.644)	4.187*** (.365)	.037 (.620)	.847 (1.244)	-.294 (.332)	.289 (.468)
Pseudo R²	.345	.262	.303	.288	.278	.067	.276	.179	.042	.556	.045	.362

TABLE S1 - Effects of High School and College Team Background on Black/White Representation at Various Football Positions (Division I, Continued)

MODEL 1

	WhiteQB	BlackQB	WhiteRB	BlackRB	WhiteFB	BlackFB	WhiteOL	BlackOL	WhiteTE	BlackTE	WhiteWR	BlackWR
High School White/Black Ratio	4.732*** (.402)	-6.092*** (.470)	7.910*** (.515)	-4.998*** (.303)	7.667*** (1.159)	-5.987*** (.828)	4.698*** (.206)	-5.180*** (.214)	4.307*** (.416)	-4.668*** (.422)	5.864*** (.277)	-5.418*** (.232)
Constant	-2.618*** (.343)	2.608*** (.362)	-6.956*** (.473)	3.636*** (.264)	-5.914*** (1.047)	3.535*** (.702)	-2.690*** (.174)	1.832*** (.158)	-2.324*** (.357)	1.590*** (.328)	-4.465*** (.244)	3.341*** (.193)
Pseudo R ²	.165	.319	.231	.194	.263	.295	.188	.295	.161	.241	.224	.264

MODEL 2

	WhiteQB	BlackQB	WhiteRB	BlackRB	WhiteFB	BlackFB	WhiteOL	BlackOL	WhiteTE	BlackTE	WhiteWR	BlackWR
College White/Black Ratio	5.028*** (.375)	-6.870*** (.484)	5.676*** (.347)	-4.888*** (.290)	4.124*** (.582)	-4.769*** (.613)	4.688*** (.196)	-4.735*** (.202)	4.399*** (.383)	-4.554*** (.401)	5.208*** (.238)	-5.005*** (.221)
Constant	-1.982*** (.262)	2.299*** (.301)	-4.293*** (.273)	3.121*** (.220)	-2.088*** (.428)	1.878*** (.421)	-2.049*** (.140)	1.121*** (.129)	-1.672*** (.272)	1.005*** (.360)	-3.331*** (.180)	2.609*** (.160)
Pseudo R ²	.212	.381	.175	.171	.168	.241	.187	.227	.182	.220	.181	.199

MODEL 3

	WhiteQB	BlackQB	WhiteRB	BlackRB	WhiteFB	BlackFB	WhiteOL	BlackOL	WhiteTE	BlackTE	WhiteWR	BlackWR
High School White/Black Ratio	3.943*** (.462)	-4.687*** (.527)	6.677*** (.531)	-3.974*** (.325)	6.533*** (1.237)	-5.718*** (.990)	4.014*** (.229)	-4.237*** (.238)	3.455*** (.486)	-3.935*** (.505)	4.851*** (.284)	-4.479*** (.244)
College White/Black Ratio	3.402*** (.449)	-5.191*** (.570)	4.107*** (.395)	-3.723*** (.338)	2.370** (.767)	-3.049*** (.787)	3.106*** (.242)	-2.952*** (.266)	3.315*** (.464)	-2.895*** (.498)	3.604*** (.277)	-3.616*** (.269)
Constant	-4.146*** (.436)	4.909*** (.513)	-8.869*** (.538)	5.534*** (.339)	-6.471*** (1.089)	5.424*** (.886)	-4.168*** (.226)	3.116*** (.209)	-3.718*** (.463)	2.993*** (.431)	-6.137*** (.294)	5.166*** (.253)
Pseudo R ²	.263	.455	.303	.264	.311	.392	.268	.351	.257	.321	.295	.333

TABLE S2 - Effects of High School and College Team Background on Black/White Representation at Various Football Positions (Division III)

MODEL 1

	WhiteDL	BlackDL	WhiteLB	BlackLB	WhiteDB	BlackDB	WhiteS	BlackS	WhiteSnap	BlackSnap	WhiteKP	BlackKP
High School White/Black Ratio	6.154*** (.276)	-4.840*** (.206)	6.194*** (.278)	-5.795*** (.237)	7.267*** (.342)	-5.107*** (.215)	6.427*** (.754)	-4.705*** (.549)	1.698 (1.352)	-4.050 (2.314)	1.629*** (.017)	-5.108*** (1.002)
Constant	-4.650*** (.245)	2.654*** (.169)	-4.500*** (.245)	3.255*** (.195)	-6.169*** (.310)	3.462*** (.183)	-4.662 (.658)	2.537*** (.447)	.065 (1.150)	-.456 (1.559)	.292 (.437)	-.432 (.626)
Pseudo R²	.226	.227	.235	.298	.243	.231	.270	.232	.024	.156	.017	.234

MODEL 2

	WhiteDL	BlackDL	WhiteLB	BlackLB	WhiteDB	BlackDB	WhiteS	BlackS	WhiteSnap	BlackSnap	WhiteKP	BlackKP
College White/Black Ratio	5.019*** (.225)	-4.536*** (.204)	5.416*** (.227)	-5.120*** (.213)	6.146*** (.268)	-5.130*** (.220)	5.511*** (.626)	-5.840*** (.627)	.833 (1.253)	-6.071 (3.123)	2.075*** (.438)	-5.198*** (1.026)
Constant	-3.073*** (.170)	2.040*** (.146)	-3.112*** (.169)	2.221*** (.149)	-4.522*** (.211)	3.127*** (.165)	-3.375*** (.475)	3.055*** (.451)	1.002 (.877)	-.609 (1.173)	.415 (.313)	-1.225** (.463)
Pseudo R²	.166	.170	.204	.223	.200	.193	.206	.255	.007	.286	.040	.248

MODEL 3

	WhiteDL	BlackDL	WhiteLB	BlackLB	WhiteDB	BlackDB	WhiteS	BlackS	WhiteSnap	BlackSnap	WhiteKP	BlackKP
High School White/Black Ratio	5.391*** (.291)	-4.436*** (.235)	5.198*** (.291)	-4.872*** (.254)	6.098*** (.356)	-4.270*** (.241)	5.130*** (.787)	-4.527*** (.705)	1.544 (1.395)	-5.371 (3.325)	1.404* (.591)	-3.967*** (1.252)
College White/Black Ratio	3.507*** (.267)	-3.278*** (.256)	3.868*** (.268)	-3.735*** (.269)	4.353*** (.309)	-3.556*** (.259)	3.519*** (.758)	-3.850*** (.762)	.652 (1.388)	-8.840 (4.855)	1.358* (.532)	-3.618** (1.186)
Constant	-6.466*** (.300)	4.694*** (.239)	-6.327*** (.297)	5.133*** (.255)	-8.346*** (.373)	5.420*** (.248)	-6.133*** (.795)	5.208*** (.705)	-.242 (1.326)	4.248 (3.209)	-.282 (.508)	.884 (.792)
Pseudo R²	.293	.304	.321	.375	.322	.302	.305	.344	.027	.487	.038	.339

TABLE S2 - Effects of High School and College Team Background on Black/White Representation at Various Football Positions (Division III, Continued)

Figures S2, S3, S4 and S5 report predicted probabilities of a black or white player playing certain positions given the racial composition of their high school or college team. These graphs are based on logit models using college team or high school background as the independent variable and the likelihood of a white or black player at a given position as the dependent variable.

Since the racial compositions of high schools and college teams are measured by the ratio of white to black students, slopes in graphs for white players are upward-sloping and slopes for black players are downward-sloping. The variation in slopes reveal different opportunity structures for black and white athletes. When football players break racial stereotypes in the positions they play, they are relatively likely to come from a racially homogeneous high school. The convex curves in Figures S2 and S4 for white running backs, wide receivers, defensive backs, safeties and defensive linemen suggest that white players at those stereotypically black positions tended to play on high schools with low proportions of black students. Likewise, the graphs for black players (S3 and S5) show that black representation at stereotypical positions is not terribly affected by increasing the ratio of white to black students. Even as the slope moves downward more rapidly as schools become overwhelmingly white, the few black students at those schools are very likely to be slotted in a stereotypical position. The concave curve for white quarterbacks on college teams (Figure S4) contrasts with the convex curve for black quarterbacks (Figure S5). Likewise, white running backs show a convex curve and black running backs show a concave curve. In turn, even as the racial makeup of high schools and college teams change, the racial makeup of positions on football teams are often slow to respond.

Figure S4 - Predicted Probabilities of White College Football Playing Positions by High School Racial Makeup, Division I

Figure S5 – Predicted Probabilities of Black College Football Playing Positions by High School Racial Makeup, Division I

Figure S6 - Predicted Probabilities of White College Football Playing Positions by College Team Racial Makeup, Division I

Figure S7 - Predicted Probabilities of Black College Football Playing Positions by College Team Racial Makeup, Division I

APPENDIX 3 – Player High School Affluence and Football Position Outcomes

	White Income	White N	Black Income	Black N
Athlete	41487.33	9	48460.80	20
Defensive Back	71367.64	390	58867.39	2,022
Defensive Line	71262.75	917	55854.89	1,618
Fullback	73094.49	167	62167.17	82
Kicker/Punter	70006.53	637	49315.50	18
Linebacker	71600.41	1,010	57305.97	1,279
Offensive Line	69036.12	2,033	56841.96	812
Quarterback	72569.24	644	53652.83	235
Running Back	70053.51	273	58440.15	980
Safety	72850.91	190	58411.45	468
Long Snapper	68998.65	276	52998.67	3
Tight End	70430.67	672	56629.61	241
Wide Receiver	71237.66	794	57058.17	1,611
TOTAL	70601.48	8,012	57381.13	9,389

Table S3 – Average Division I High School Zip Code Incomes by Position

	White Income	White N	Black Income	Black N
Athlete	56118.50	4	48295.33	6
Defensive Back	70023.71	1,663	61058.72	1,153
Defensive Line	70036.04	2,036	60804.13	775
Fullback	69096.38	211	60419.57	68
Kicker/Punter	69229.35	531	67853.00	10
Linebacker	69363.18	2,216	58884.48	708
Offensive Line	69222.68	2,734	57629.52	435
Quarterback	69009.24	902	57219.99	125
Running Back	68410.76	875	62174.07	698
Safety	66121.65	272	60769.07	106
Long Snapper	67943.07	56	56847.00	2
Tight End	69416.32	661	57632.40	101
Wide Receiver	69118.35	1,770	57594.89	842
TOTAL	69319.53	13,931	59809.26	5,029

Table S4 – Average Division III High School Zip Code Incomes by Position