Did the Vietnam Draft Increase Human Capital Dispersion? Draft-Avoidance Behavior by Race and Class *

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Abstract

Past research has documented draft-induced college enrollment during the Vietnam era, but the draft also incentivized men with no hope of attending college to disinvent in traditional forms of human capital (e.g., engage in criminal activity) so as to appear unfit for service. Using individual-level panel data, I find that receiving a "bad" draft lottery number increases college attendance the following year among whites, but it decreases college attendance while increasing self-reported delinquent activity among black and low-income men. Moreover, men with bad numbers are over-represented in state administrative criminal justice records from the early 1970s. These results suggest that the Vietnam draft may have been an important factor behind the rapid rise in crime rates among young men beginning in the mid-1960s.

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"It's better in jail, watching television, fed / Than in Vietnam somewhere. Dead."
- Muhammad Ali, 1967

1 Introduction

U.S. military drafts have rarely drawn evenly from the socio-economic status distribution. Although Congress banned the use of "commutation fees" (whereby men could pay $300, or about $5,200 in 2009 dollars, to avoid serving in the Union Army) in 1864, throughout the 20$^{\text{th}}$ century men from privileged backgrounds could often avoid combat duty through favorable assignments or avoid military service altogether through educational or occupational deferments. At the other end of the spectrum, less privileged men were often disqualified from service on the grounds of mental, moral or physical deficiencies.[1]

I develop a model that illustrates how imposing a military draft that excludes the tails of the human capital distribution can increase human capital dispersion. Specifically, the draft encourages men already in the right tail of the human capital distribution to "dodge up," or increase human capital investments so as to attain a student deferment. In contrast, it encourages men in the left tail to "dodge down," or disinvest in human capital so as to appear unfit for service.

I then test the model in the context of the Vietnam draft. The key empirical challenge is separating the effect of draft-avoidance behavior from the effect of actual military service, as any increase in the probability of the latter (e.g., a "bad" draft lottery number) directly increases incentives to engage in the former.[2] To address this identification problem, I exploit the draft lottery (following the influential work of Angrist 1990) but focus on outcomes in the months immediately following the lottery, before men would have started any tour of duty. I also make special use of the February 1972 lottery—originally meant to determine 1973 call-ups, but rendered moot in January 1973 when an all-volunteer force replaced the draft—which severs the connection between draft avoidance incentives and actual military service.[3]

[1] Levine (1981) discusses commutation fees during the Civil War. Angrist and Krueger (1994) argue that military service during World War II demonstrated more positive than negative selection with respect to human capital and show that blacks were under-represented among World War II veterans. Similarly, The President's Task Force on Manpower Conservation (1964) shows how military standards disqualified many poor and minority men during the first twenty years of the Cold War. See Section 2.1 for a much more detailed discussion of this type of selection during the Vietnam Draft.

[2] For convenience, I will often refer to "bad" or "good" draft lottery numbers by which I mean numbers associated with, respectively, a high or low probability of being drafted. Note that a number with a high draft probability is strictly "bad" in the classical economic sense of restricting choice, whereas a number with a low draft probability did not preclude a man from volunteering.

[3] Angrist (1991) shows that 1972 lottery numbers are still predictive of military service the following year. Some men with bad lottery numbers preferred to volunteer instead of waiting to be drafted because

I find support for the model from a variety of sources. Drawing on a little-used panel survey of men who were high school sophomores in 1966, I find that white and high-SES men who receive bad 1969 lottery numbers attend college at higher rates in 1970, but black and low-SES men with bad numbers if anything have lower rates of 1970 college attendance. The white "dodging-up" result is generally in line with past work such as Card and Lemieux (2001) and Malamud and Wozniak (2009), who find a positive correlation between draft risk and college enrollment, though they use variation in draft risk at the year and state-year level, respectively, and generally do not focus on differences by race or class.

While the differential "dodging-up" results add nuance to past findings on the Vietnam draft, the empirical work mainly focuses on investigating the "dodging-down" hypothesis. I first test the "dodging-down" hypothesis using the dataset described above, and find that black and low-SES men with bad 1969 lottery numbers report higher levels of delinquency during the Spring of 1970 relative to their counterparts with good numbers.

I then turn to administrative criminal justice records from two states that released data from the Vietnam era that include individuals' exact birthdays. Men with bad February 1972 lottery numbers are significantly over-represented in both arrest data from New York state and prison data from Georgia during the twelve months following the lottery. Back-of-the-envelope calculations suggest that dodging down could explain up to 30 percent of the sharp rise in crime rates among young men between 1965 and 1970.

My results may help to broaden our understanding of the impact of the Vietnam War on the roughly 27 million American men who came of age during it: not only the 2.2 million men sent to Vietnam and the 9 million others who performed non-combat duty elsewhere (often on U.S. soil), but the large majority who did not serve in the war at all.[4] Although a relatively small share of men served in Vietnam, survey data suggest that many men who did not serve took explicit steps to avoid doing so.[5] Thus, avoidance behavior—whether dodging up or down—may have significantly influenced social and economic outcomes for this generation. If, as my analysis suggests, the type of draft-avoidance behavior is a function

volunteering could sometimes lead to better assignment (though also required a three-year tour of duty instead of draftees' two-year tours). I discuss this paper in more detail in Section 2.2 and I argue in Section 6.1 that such draft-induced volunteering would bias estimates against finding my results.

[4] Statistics taken from Martin (1986).

[5] Baskir and Strauss (1978) report that over sixty percent of men who did not serve in combat admitted to taking explicit steps to decrease their likelihood of doing so. They base the claim on a 1975 survey of 1,586 men from Washington, D.C., South Bend, Indiana, and Ann Arbor, Michigan, known as the Notre Dame Survey of the Vietnam Generation. This estimate would appear to be a lower bound on the number of surveyed men who made decisions in part based on the draft. Some may have consciously changed their behavior in response to the draft but chose not to disclose doing so to the surveyors, while others may have subconsciously reacted to their draft number (e.g., taken risks because their bad number led them to believe they faced a shorter time horizon).

of race and class, then the draft would affect not only the social and economic outcomes of the Vietnam generation relative to other generations but the dispersion of such outcomes within the Vietnam generation itself.

The dodging-down effects I find might also contribute to a long-standing debate among social scientists. Social and economic indicators of under-privileged young men, and especially African-American young men, suddenly and unexpectedly deteriorated around 1965, after years of slow but steady improvement following World War II. Critics such as Charles Murray claim that Great Society welfare programs created large and immediate incentives against work, education and marriage, whereas others such as William Julius Wilson cite the disappearance of low-skill jobs and negative peer effects as middle-class blacks left the inner city for newly integrated suburbs.[6] My results suggest that for many under-privileged young men, the Vietnam Draft dramatically decreased the perceived return on traditional forms of human capital, creating fertile ground for the criminal activity, marginal labor-force attachment and elevated high school drop-out rates that began to characterize urban communities during this period.

The remainder of the paper proceeds as follows. Section 2 provides a short history of the Vietnam draft and its impact on black and low-SES men. Section 3 models how draft-avoidance behavior varies with initial human capital levels. Section 4 translates the results of the model into empirical predictions testable using standard variables from micro-data sets. Section 5 describes the 1966-1970 longitudinal survey of male high school students and presents evidence that bad 1969 lottery numbers predict higher 1970 college attendance rates for white and high- and middle-SES men, but higher 1970 rates of self-reported delinquency among blacks and, to a lesser extent, low-SES men. Section 6 presents evidence that men with bad numbers are over-represented in criminal justice data from both New York and Georgia. Section 7 discusses directions for future research and offers concluding remarks.

2 The Vietnam Draft and Avoidance Behavior

2.1 Background on the draft

The only time the United States relied on a sustained military draft during the 20$^{\text{th}}$ century was between 1940 and 1973. President Roosevelt instituted the draft just over a year prior to Pearl Harbor and policymakers maintained the draft after World War II in part to direct manpower to its most productive use during the Cold War, a process known as "channeling." General Lewis Hershey, director of the Selective Service from 1940 to 1970, described channeling as "developing more effective human beings in the national interest" by deciding

[6] See Murray (1984) and Wilson (1990).

"whether a young man is more valuable as a father or a student or a scientist or a doctor than as a soldier" (Baskir and Strauss, 1978, p. 22). Local boards were charged with carrying out this goal when classifying all 18- to 25-year-old men in their jurisdiction, the most common classifications being I-A (ready for duty), II-S (student deferment), III-A (hardship deferment), and IV-F (unfit for service). Though men were technically draft-eligible until their 26$^{\text{th}}$ birthday, the average age of induction was generally between 19 and 20, and very few men were inducted after their 23$^{\text{rd}}$ birthday.[7]

For much of this period, the draft was not a highly controversial institution: quotas were very low, deferments and exemptions were granted liberally, and being drafted rarely led to combat duty. Indeed, low quotas in the decade following the end of the Korean War in 1953 made it possible to adopt such high physical, mental and moral standards that the famous study "One-third of a Nation" revealed that one-third of 18-year-old men in 1964 were deemed unfit for service.[8]

As manpower needs increased during the Vietnam War, quotas shot up and draft boards became stingier with deferments. Moreover, service suddenly entailed serious risk of injury or death, drawing national attention to the conscription process. In 1969, Congress required draft boards to fill 1970 quotas based on an annual, televised lottery in which birthdates were randomly drawn from an urn. Military call-ups began with the lowest numbers and continued upward until the year's manpower needs were met. By the end of 1970, for example, call-ups had reached number 195 out of a total of 366.[9] The 1970 draft began the practice of limiting induction risk to the birth cohort turning 19 in the year of the lottery, ending the unpopular policy of men being technically eligible to be drafted until their 26$^{\text{th}}$ birthday. Importantly, while the lottery determined the order of call-ups among men classified as I-A, local boards retained discretion over classifications (e.g., I-A versus II-S).

The need for a draft in the first place and policy-makers' later concern that it appear fair suggests limited enthusiasm for the war among draft-age men, an underlying premise of the model presented in Section 3. However, some scholars have argued that many black

[7]See U.S. Selective Service System, (various years). In June of 1967, the last time detail beyond the mean of the age distribution was reported, all but 4.6 percent of men awaiting pre-induction examinations were between 18 and 23 years old.

[8]See Davis and Dolbeare (1968, p. 14) for a discussion of the inverse relationship between manpower needs and military standards.

[9]In 1971, those with 1970 numbers below 125 were called up; in 1972, those with 1971 numbers below 95 were called up; in 1973 no call-ups were made as the all-volunteer force replaced the draft, rendering the 1972 numbers essentially moot. The December 1969 draft applied not only to the 1950 birth cohort but to anyone born between 1944 and 1950 without military service—thus, 366 lottery numbers were needed to cover the cohorts born in the leap years 1944 and 1948. These cut-offs were obviously determined ex-post, based on the needs of the military in the year following a given lottery. As such, men did not know ex-ante which lottery numbers would turn out to be "safe." Men subject to the 1969 lottery likely faced the most uncertainty, as no previous cut-offs existed and the direction of the war at that point remained unclear.

and low-SES men wanted to serve in Vietnam, which would cut against the dodging-down thesis. In the next two subsections I review and critique some of this work and then provide evidence that many blacks and low-SES men opposed service in the war.

2.2 Potential benefits of military service for blacks and low-SES men

Some previous research suggests that black and low-SES men may not have objected to military service in Vietnam. First, Angrist (1990) finds that receiving a bad lottery number was not associated with diminished labor-market outcomes for blacks and may have in fact led to later educational gains through the GI bill (Angrist, Chen, and McCrary, 2008). Second, popular press accounts of the resistance movement often stressed its elite, well-educated leadership and its occasional conflicts with working-class supporters of the War (Foley, 2007).

In the most direct work on this question, Angrist (1991) argues that blacks more willingly joined the military than did whites during Vietnam. Using a compelling empirical strategy, he focuses on draft-induced enlistment—"voluntary" enlistment of men who otherwise would have been drafted. *Enlisted* men (who entered voluntarily) often had more control over their assignments than did *inducted* men (who entered via the draft) and thus many men with bad numbers chose to enlist instead of waiting to be inducted (though enlisted men served three years instead of the two required for inducted men). He shows that enlistment rates of both whites and blacks fall with their 1970 lottery number. However, the gradient for whites is steeper and whites' enlistment appears more sensitive to whether their number is above or below the previous year's cut-off, consistent with whites volunteering only if they knew they would be drafted and blacks "truly" volunteering.

2.3 Opposition to the war among blacks and low-SES men

Certainly some blacks (and, of course, some whites) eagerly volunteered. However, it is possible that the trends identified by Angrist (1991) reflect differences between blacks' and whites' awareness of, or confidence in their ability to exploit, any enlistment advantage. Moreover, as I present in this subsection, much evidence suggests that many blacks and low-SES men may have felt serious opposition to military service in Vietnam.

2.3.1 Black casualty rates

In a March 1966 publication that sparked anger among African-Americans, the Pentagon reported that blacks made up over 18 percent of deaths in Vietnam, even though they comprised only 13 percent of combat forces (Raymond 1966 and Raymont 1966). Only because of a concerted effort later in the War to address the appearance of discrimination did the white casualty rate start to approach that of blacks.[10] Figure 1 shows the black share of combat deaths each year of the conflict, using data from the National Archives' Combat-Area Casualty Current File (CACCF). Black over-representation appears to peak in 1966, consistent with explicit efforts to reduce disparities triggered by the negative reaction to the report.

While the Pentagon report showed that blacks faced higher death rates conditional on combat duty, the racial disparity conditional on military service in general was far worse, as non-combat military assignments were not usually accessible to blacks. For example, throughout the conflict blacks never made up more than 1.3 percent of the Army and Air National Guard (Long, 1993). Figure 1 shows that it was not until 1973 that the black share of deaths fell below that of the black share of military personnel. I calculate that in 1966, blacks faced a death rate conditional on military service that was two-and-a-half times that of whites.[11]

The CACCF data do not include measures of class, but to the extent that black casualty rates were high not because of outright racism but because blacks' education and background relegated them to dangerous assignments, the death rates of working-class men would be high as well.

2.3.2 Attitudes toward the war among blacks and the working class

Evidence from a number of sources suggests the war quickly lost the support of blacks and the working class. I already noted the anger over the Pentagon report, and "Black Power" groups made resistance to the draft a centerpiece of the movement.[12] Less anecdotal evidence comes from a February 1966 National Opinion Research Center (NORC) survey on attitudes toward the War.[13] Table 1 presents results from simple regressions that relate attitudes toward different policy options to demographic and socio-economic characteristics.

Blacks are 20 percentage points (or 44 percent, given a 45 percent baseline level for whites) less likely to agree that "we should continue the fighting even if several hundred U.S.

[10] See discussions in Baskir and Strauss (1978) and Graham (2003).

[11] CACCF data indicate that blacks make up 16.33 percent of 1966 deaths and whites 81.77; 1970 census data indicate that blacks (whites) account for 7.43 (91.66) percent of all 24-year-old Vietnam-era veterans, which I use as a proxy for having served in the military in 1966. Therefore, blacks faced a death rate conditional on military service that was $(16.33/7.43)/(81.77/91.66) = 2.46$ times that of whites. Military data on race are only available for enlistees and not inductees during the 1960s, so the Census appears to offer the best estimates.

[12] For example, the Black Panther Party called for the abolition of black military service in its original ten-point manifesto (Alkebulan, 2007).

[13] The last day NORC surveyed any subjects was March 7, 1966, and the Pentagon released its report on black combat deaths on March 9, so subjects were not privy to the results of the report.

troops are lost each week," 25 percentage points (68 percent) more likely to favor "gradually withdrawing to let the Vietnamese work out something on their own" and 16 percentage points (64 percent) more likely to favor "withdrawing even if the communists take over South Vietnam." In contrast, higher education and social class predict more hawkish attitudes.[14] Indeed, as early as 1966 (two years before the significant U.S. casualties incurred during the Tet Offensive and four years before the shootings of anti-war protesters at Kent State) less than 38 percent of whites without a high school degree approved continuing the war despite high casualties and over 43 percent favored a gradual withdrawal, compared to 51 and 37 percent, respectively, for those with at least a high school degree. In short, many black and working class men and their families did not support the war and thus were unlikely to be enthusiastic about military service.

2.4 Avoidance behavior

As mentioned at the end of Section 2.1, even after the introduction of the lottery system, local draft boards retained the power to determine classifications. Thus, a young man with a bad lottery number could still avoid service if the board granted him, say, a student deferment.[15] Similarly, a man with a bad lottery number could still be rejected due to a mental, physical or moral defect.

The criteria for gaining II-S status ("dodging up" and gaining student deferment) were generally very clear. Essentially, anyone enrolled as a full-time undergraduate student at a college or university was granted II-S status as GPA requirements were abolished in 1967.[16] Importantly, men attending college part-time and men attending junior college or vocational school could not qualify, which prevented many black and poor students from obtaining deferments.

The criteria for gaining IV-F ("dodging down" and being declared unfit for service) were unclear both *de facto* and *de jure*. Physical fitness was the subjective call of a doctor. And while mental criteria were objective, they fell in 1966 as manpower needs grew.[17]

[14] I only display multivariate regression results because they provide a more stringent test of the relationship between race, SES and opinion of the war; however, the same relationships are readily apparent in simple cross-tabulations.

[15] Nixon abolished student deferments at the end of 1971, but for the 1969 lottery, upon which my "dodging up" analysis relies, men could still gain student deferments.

[16] Leslie Rothenberg, the Coordinator for Selective Service Affairs for the University of California system during the Vietnam War, wrote in 1968: "The undergraduate college or university student...no longer need worry about the required class standings or the dreaded Selective Service College Qualification Tests, for a II-S student deferment is available to any student at a college, university or similar institution of higher education, who is satisfactorily pursuing a full-time course of instruction toward a baccalaureate degree" (Rothenberg, 1968, p. 128).

[17] Before 1966, only men who were above the 30th nationally-normed percentile of Armed-Forces Qualifying

Perhaps the most relevant criteria, given the criminal outcome variables I later examine, are those related to "moral standards" and they too were not well-defined. First, these criteria varied by military branch and, in some branches, were open to interpretation.[18] Second, local draft boards could decide to seek "waivers" for men who did not meet such standards. Men on probation, parole, in prison or awaiting trial were officially banned from the service, but occasionally men on parole or probation received waivers (Rothenberg, 1968, p. 268).

Anecdotal evidence suggests that some men did view a criminal record as a potential ticket out of military service. Baskir and Strauss (1978, pp. 58-9) describe anti-war protesters advising men to commit crimes to avoid the draft. The Coordinator for Selective Service Affairs for the University of California system advised students not to pursue this strategy, suggesting at least some had tried (Rothenberg, 1968, p. 269).

2.5 Discussion

While only about a third of the 26 million men who were of draft age during the Vietnam War served in the military, the draft likely affected the decisions of many others. For those who did not wish to serve and who had the option of full-time attendance in a four-year college, student deferments offered relatively reliable protection from military service. But those without the possibility of attending college had a more limited set of options. Some may have engaged in criminal or other anti-social behavior either as an explicit attempt to avoid the draft, because combat duty shortened their time horizons and thus decreased the future cost of a criminal record, or simply because the prospect of forced military service angered or upset them. I examine these hypotheses more rigorously in the rest of the paper, first theoretically and then empirically.

3 Modeling Draft Avoidance Behavior

3.1 Overview

Given the "channeling prcoess" described in the previous section, whereby men with high levels of human capital were given student deferments and men with low levels were assigned

Test (AFQT) score (in Groups I, II or III, in military parlance) were eligible to serve. In 1966, Secretary of Defense Robert McNamara launched "Project 100,000," which made Group IV men (between the 10th and 30th percentile) eligible for military service. Since the adoption of the AFQT in 1950, Group V men (9th percentile or lower) have been prohibited from service.

[18]The Army disqualified men with "frequent difficulties with the law, criminal tendencies, antisocial behavior, alcoholism, drug addiction, sexual misconduct, questionable moral character;" the Navy, men convicted of a felony or any offense involving sex; the Air Force, men with "frequent difficulties with the law" and who have committed certain offenses involving traffic accidents; the marines, men convicted of a felony or any crime involving "moral turpitude" or a maximum sentence of more than a year."

to IV-F (unfit for duty) status, I model the draft as a tax on men with average human capital levels. Similar to Mirrlees (1971) and other classic treatments of income taxation, individuals in my model react to this tax by deciding whether to modify their level of human capital so as to avoid it.[19] Those who already have relatively high levels of human capital find that investing more and "dodging up" represents the cheapest way to avoid the tax; those with relatively low levels find it optimal to disinvest and "dodge down."

3.2 Assumptions

3.2.1 Preferences and constraints

Individuals have identical, strictly convex preferences over current and future consumption. Each starts with a fixed stock of resources, to be divided between current consumption c^p and human capital investment e. For example, individuals might divide their time between studying and going out with friends, or their money between paying college tuition and buying a new car.

While human capital investment mechanically decreases present consumption, it increases future consumption c^f. Intuitively, human capital investment first gets transformed into human capital h, which is then transformed into income, or, equivalently, future consumption c^f, as individuals in the model cannot save. I assume that human capital investment e is not observable, whereas the realized human capital level h is.

Specifically, $h = h(w, e)$, where w is an exogenous parameter which encompasses individuals' socio-economic background, innate ability or anything that decreases the level of e required to reach any given h. I also assume that e and w are complements in the production of h, and thus $h_w, h_e,$ and h_{we} are all strictly positive.

Future consumption is a function of human capital: $c^f = c^f(h)$, with $c^f_h > 0$ and $c^f_{hh} < 0$. Intuitively, h can be thought of as a sufficient statistic for an individual's apparent worth to a prospective employer. For example, low values of h would correlate with observable markers such as a criminal record and high values with a college education. c^f_h can also be thought of as the labor market return to human capital, as all income is consumed.[20] The shape of $c^f(h)$ thus determines individuals' budget constraint in c^f-h space.

[19] In showing how individuals self-select to locate on different parts of the draft-induced budget constraint, I make use of the general framework derived from Mirrlees' work on optimal income taxation (Mirrlees, 1971). Whereas Mirrlees extended his analysis to optimal tax policy, I do not address the normative question of the optimal draft, but merely the positive question of how individuals react to the incentives created by the draft as it operated during the Vietnam War. Much of the work on individuals' optimization *without* the draft is a generalization of the Mirrlees model as described by Myles (1995).

[20] I assume that c^f_{hh} is negative despite the fact that labor economists generally specify (pre-tax) income as a linear function of years of schooling. Given the progressive income tax during this period, I assume that consumption is a concave function of pre-tax income and thus a concave function of human capital h.

Before adding more notation, two aspects of the model so far deserve further discussion. First, as suggested above, I take a very broad view of e (and thus current consumption). It encompasses such factors as the psychic cost of effort, the pecuniary cost of tuition, or the opportunity cost of leisure. I denote investment as e in part to suggest "effort." For example, studying for a high school exam would increase e and thus decrease current consumption c^p. But e also includes the up-front psychic cost of, say, abstaining from alcohol or drug use, criminal activity, or other activities that might, all else equal, constitute a form of consumption for a teenage male.

Second, the only source of heterogeneity in the model is w, which determines the cost, in terms of e, of attaining a certain level of human capital h. As such, socio-economic status and race are likely to relate to w. For example, the pecuniary cost of college tuition would be higher for the low-w type who has to pay his own way than the high-w type whose parents finance his education. Moreover, for some groups, *de jure* or *de facto* racial discrimination might make the cost of certain educational opportunities infinite—an important consideration given the historical setting.[21] As a low w decreases the return on investment e, it also lowers the opportunity cost of "disinvesting" and choosing a low e.

3.2.2 Further assumptions and notation

Recall that utility is a strictly convex, positive function of present consumption c^p and future consumption c^f and that human capital investment e directly trades off with c^p. For notational simplicity, I specify utility as a (positive) function of future consumption and a (negative) function of investment, so $U = U(c, e)$, dropping the superscript for future consumption (so $c^f \equiv c$). Given the above assumptions regarding preferences over current and future consumption, in (c, e)-space indifference curves are positively sloped and strictly convex and utility increases to the "northwest," as investment implies forgone consumption and is thus a "bad." See Figure 2 for an illustration. Given identical preferences, this mapping applies to all individuals.

Utility can also be written in terms of future consumption c and human capital h.

Definition. *Consider the utility function $U(c, e)$ for an individual with a given w.*

(i) Let $V(c, h; w) \equiv V(c, h(w, e)) = U(c, e)$ for any given w.

(ii) Let $\hat{e}(w, h)$ solve $h(w, \hat{e}(w, h')) = h'$ for all h'.

[21] By making h a function of w and c independent of w, I am implicitly assuming that any discrimination is fully realized during human capital formation and non-existant in the job market. Results do not change if w also enters in c so long as $c_w > 0$ and $c_{ww} < 0$.

These definitions merely translate preferences over c and e to preferences over c and h, pinning down the e needed to attain a given h, holding w constant. While e more intuitively relates to utility, only h is observable and thus only predictions regarding h are testable. Holding w constant, indifference curves in (c, h)-space, like those in (c, e)-space, are positively sloped, strictly convex, and increasing in utility to the "northwest" (the proof is straight-forward and available upon request).

Even though preferences over future consumption c and human capital investment e are identical for all individuals, as in Figure 2, preferences over consumption and human capital itself are not. Given Definition (ii) and that $h_{we} > 0$, it is easy to show that for low-w types, producing a given level of h requires greater levels of e and thus greater disutility. Thus, individuals with low w "dislike" human capital more. Below I define a restriction on how indifference curves in (c, h) space vary by w.

Definition. *(Monotonicity Condition) Given the utility function $V(c, h; w)$ as defined above, $\frac{V_h}{V_c}$ is an increasing function of w.*

The monotonicity condition requires that the amount of consumption needed to compensate someone for an increase in human capital acquisition falls with w. Given that, by definition, w decreases the investment costs of attaining any given human capital level h, the monotonicity condition follows relatively naturally. Similar conditions are common in the optimal income tax and adverse selection literature.

In the Appendix, I show that monotonicity implies that the indifference curves of two individuals with different values of w will cross only once, and at the point where they cross, the indifference curve corresponding to the greater value of w will have a steeper slope. I illustrate this result in Figure 3.

3.2.3 Modeling the draft

I model the draft as affecting an individual's budget constraint. Recall that without the draft, individuals are constrained by their fixed set of resources in the initial period and the technology that transforms investment e into, first, realized human capital h and, then, future consumption $c(h)$. This budget constraint appears in Figure 3 as well as in Figure 4 (the solid gray line).

I model the draft as affecting the final step: the level of future consumption c an individual can attain with a given level of realized human capital h. Specifically, I assume the draft extracts a lump-sum tax V from consumption c. Given the channeling policy described in Section 2.1, I assume that this tax applies only to those with observed human capital levels h between some $(\underline{h}, \bar{h})$. One can think of draft boards as classifying those with $h < \underline{h}$ as unfit for service and granting educational deferments to those with $h \geq \bar{h}$. Those with h in $(\underline{h}, \bar{h})$ face required military service, which I assume diminishes future consumption by some fixed amount.[22] I illustrate this draft-induced budget constraint as the black dashed line in Figure 4.

3.3 Results

I now examine the level of human capital h that individuals acquire with and without a draft and how these levels depend on w. Proofs of each proposition appear in the Appendix.

Without a draft, realized human capital h increases with w—not surprising, given that individuals with higher w have a greater return in terms of future consumption.[23] I illustrate this result in Figure 3 and state it more precisely below.

Proposition 1. *Assuming preferences meet the monotonicity condition, for any budget constraint $c(h)$ strictly positive and concave in h, the optimal h^* is a strictly positive, continuous function of w.*

I will be interested in the thresholds with respect to w above or below which all individuals acquire $h \geq \bar{h}$ or $h \leq \underline{h}$ in the absence of a draft.

Proposition 2. *Assume there is no draft. Then, there exists a unique $\bar{w}^{nd}$ such that an individual with $w = w'$ acquires $h \geq \bar{h}$ iff $w' \geq \bar{w}^{nd}$. Similarly, there exists a unique $\underline{w}^{nd}$ such that an individual with $w = w'$ acquires $h \leq \underline{h}$ iff $w' \leq \underline{w}^{nd}$.*

I next compare these thresholds to those under a draft. Figure 4 provides the main intuition. Under a draft, men with w just below the $\bar{w}^{nd}$ cut-off incur a discontinuously high loss if they choose the h they would have naturally chosen on their original budget constraint; they may wish to choose some $h \geq \bar{h}$ that allows them to avoid this loss. A similar logic applies to men with w just above the $\underline{w}^{nd}$ threshold. The following result makes this intuition more precise.

Proposition 3. *Given the draft, there exists a unique $\bar{w}^{d} \leq \bar{w}^{nd}$ such that all individuals acquire $h \geq \bar{h}$ (dodge up) iff $w \geq \bar{w}^{d}$. Similarly, there exists a unique $\underline{w}^{d} \geq \underline{w}^{nd}$ such that all individuals acquire $h \leq \underline{h}$ (dodge down) iff $w \leq \underline{w}^{d}$.*

[22] In reality, those who are considered fit for service are not inducted with probability one, and thus I am abstracting from the inherent uncertainty individuals actually faced.

[23] This result does *not* imply that unobserved investment e increases with w. For example, the result implies that a young man with affluent parents is more likely to go to college than one with poorer parents, but does not imply that the former *invested* more in human capital, given the definition of human capital investment in Section 3.2.2.

I summarize the result in Figure 5. Men with sufficiently high ($w \geq \bar{w}^{nd}$) or low ($w \leq \underline{w}^{nd}$) w acquire values of h that make them ineligible for service with or without a draft; however, the draft induces men just below $\bar{w}^{nd}$ to invest more in human capital than they otherwise would have ("dodge up"), and those just above $\underline{w}^{nd}$ to invest less ("dodge down").

3.4 An alternative hypothesis

An alternative story generates roughly equivalent results. Suppose that while there is an explicit threshold for dodging up, there is no such bright line for dodging down. This assumption accords with the historical evidence in Section 2.4 that college attendance automatically gained an individual a deferment, whereas judges and military officials exercised considerable discretion regarding who was "morally fit" for service. Furthermore, while privileged men were acutely aware of educational deferments, less privileged individuals might not have realized that a criminal record could diminish the prospects of military service (Baskir and Strauss, 1978). These considerations call into question whether men would actually commit a crime or otherwise "dodge down" as an explicit, conscious strategy to avoid military service.

But even without a strategic motive, individuals who do not wish to serve but have a value for w that precludes a college deferment may behave in a manner observationally equivalent to dodging down. First, these men face heightened probability of combat and thus injury or death, which—all else equal—shortens the time horizon over which returns to human capital pay out.[24] Second, even if individuals did not explicitly consider casualty rates and time horizons, they may simply have felt anger upon receipt of a low lottery number. As described in Section 2.3, evidence suggests considerable black and working-class opposition to the war.

Whether the true model is the strategic one I specified earlier in this section or the more "behavioral" one I described in this subsection, the draft decreases the perceived return to human capital for men without the background to attend college.

[24] See Jayachandran and Lleras-Muney (2009) for evidence that longer life expectancy encourages human capital investment. Of course, receipt of a low number did not automatically lead to service given the large rejection rates and, furthermore, ex-post casualty rates from Vietnam may not seem large enough to affect expected time horizons in a significant manner. However, as discussed in Section 2.4, the military significantly lowered mental aptitude standards in 1966, and while the overall casualty rate for the War may not have been high enough to significantly affect expected time horizons, those casualty rates were not constant across time or across race and likely not constant across SES measures (although it is more difficult to say, given that casualty data contain no explicit class measures). Furthermore, individuals obviously respond to the perceived shortening of time horizons ex ante, not the objective casualty rates calculated ex post, and the latter might have been significantly higher than the former.

4 Empirical implications of the model

4.1 Deriving an estimating equation from the theoretical model

The main result from Section 3 is that when the military imposes a draft, men with relatively high levels of human capital increase human capital investment in order to qualify for a student deferment, while their counterparts with relatively low levels of human capital decrease investment so as to appear unfit for service. Specifically, the model showed that all individuals with w (ability, parental wealth, or any other factor that decreases the cost of attaining a certain level of human capital h) above some threshold $\bar{w}^d$ "dodge up" (acquire $h \geq \bar{h}$) when subject to a military draft and that this $\bar{w}^d$ is lower than the threshold $\bar{w}^{nd}$ above which individuals acquire $h \geq \bar{h}$ without a draft. Similarly, all those with w below some threshold $\underline{w}^d$ "dodge down" (acquire $h < \underline{h}^d$) and this threshold is greater than the threshold $\underline{w}^{nd}$ below which individuals acquire $h < \underline{h}$ without the draft.

The model only shows the existence of such a threshold and does not specify its level, so I cannot directly test this prediction. On a more practical level, as w reflects any factor that decreases the cost of acquiring human capital, I cannot simply translate w thresholds into handy definitions based on standard variables in micro-datasets.

Instead, I show in this section that the main result from the model has certain implications regarding the likelihood that individuals above or below *any arbitrary threshold* $\hat{w}$ dodge up or down. Therefore, I can implement empirical tests of the theory by separating people into categories along standard dimensions such as race or other SES measures, so long as, all else equal, certain groups have greater expected values of w.

Specifically, recall from Section 3 that in order to avoid the draft an individual must acquire observed human capital h either above some $\bar{h}$ or below some $\underline{h}$. Here I focus on "dodging up" though parallel analysis applies to "dodging down." Let UP_i be an indicator variable for whether i's observed level of human capital h_i is greater than or equal to $\bar{h}$. Let $\hat{W}_i$ be an indicator variable for whether $w_i \geq \hat{w}$, the arbitrary theshold, and D_i an indicator for whether i would be drafted conditional on not obtaining a deferment or being declared unfit for service (e.g., he receives a lottery number that indicates he will be among the first considered by the draft board). Then,

$$
\begin{aligned}
E(UP_i) = &\Big[E(UP_i \mid \hat{W}_i = 1, D_i = 1)\Big]\hat{W}_i D_i + \Big[E(UP_i \mid \hat{W}_i = 1, D_i = 0)\Big]\hat{W}_i(1 - D_i) \\
&+ \Big[E(UP_i \mid \hat{W}_i = 0, D_i = 1)\Big](1 - \hat{W}_i)D_i + \Big[E(UP_i \mid \hat{W}_i = 0, D_i = 0)\Big](1 - \hat{W}_i)(1 - D_i) \\
&= \big[P(w > \bar{w}^d \mid w > \hat{w})\big]\hat{W}_i D_i + \big[P(w > \bar{w}^{nd} \mid w > \hat{w})\big]\hat{W}_i(1 - D_i) \\
&+ \big[P(w > \bar{w}^d \mid w < \hat{w})\big](1 - \hat{W}_i)D_i + \big[P(w > \bar{w}^{nd} \mid w < \hat{w})\big](1 - \hat{W}_i)(1 - D_i) \\
&= \left[\frac{P(w > \bar{w}^d \;\cap\; w > \hat{w})}{P(w > \hat{w})}\right]\hat{W}_i D_i + \left[\frac{P(w > \bar{w}^{nd} \;\cap\; w > \hat{w})}{P(w > \hat{w})}\right]\hat{W}_i(1 - D_i) \\
&+ \left[\frac{P(w > \bar{w}^d \;\cap\; w > \hat{w})}{P(w < \hat{w})}\right](1 - \hat{W}_i)D_i + \left[\frac{P(w > \bar{w}^{nd} \;\cap\; w > \hat{w})}{P(w < \hat{w})}\right](1 - \hat{W}_i)(1 - D_i) \\
&= \alpha_1 \hat{W}_i D_i + \alpha_2 \hat{W}_i(1 - D_i) + \alpha_3 (1 - \hat{W}_i)D_i + \alpha_4 (1 - \hat{W}_i)(1 - D_i) \\
&= (\alpha_1 + \alpha_2 + \alpha_4 - \alpha_3)\hat{W}_i D_i + (\alpha_2 - \alpha_4)\hat{W}_i + (\alpha_3 - \alpha_4)D_i + \alpha_4
\end{aligned}
$$

Given that $\bar{w}^d < \bar{w}^{nd}$ and that the probability of w being above either threshold is obviously larger if $w > \hat{w}$, the following inequalities hold: $\alpha_1 > \alpha_2, \quad \alpha_1 > \alpha_3, \quad \alpha_3 > \alpha_4$. Therefore:

$$
E(UP_i) = \beta_1 \hat{W}_i D_i + \beta_2 \hat{W}_i + \beta_3 D_i + \beta_4 \tag{1}
$$

where each β is greater than or equal to zero and their sum is less than or equal to one.

Given the above analysis, the specifications in the rest of the paper generally take the following form:

$$
Y_i = \beta_1\, Lottery_i * Group_i + \beta_2\, Group_i + \beta_3\, Lottery_i + \beta_4 + \epsilon_i \tag{2}
$$

where Y_i is an outcome variable for person i such as college attendance or criminal activity, $Lottery_i$ is i's draft lottery number and $Group_i$ is an indicator variable for whether i belongs to a given group based on likely values of w (in practice, blacks versus whites, or those from low- versus high-SES quantiles). As suggested above, *Lottery* in equation (2) proxies D in equation (1) as an individual's lottery number indicates the likelihood he is drafted conditional on not obtaining a student deferment or being declared unfit for service. The coefficient on the interaction term indicates whether draft risk has different effects on groups with more or less human capital and is thus the key variable of interest in testing the model in Section 3.

4.2 Possible complications

There are at least two potential complications. First, the above analysis assumes a binary specification and that the thresholds $\bar{h}$ and $\underline{h}$ for dodging up and down are well-defined.

Given the discussion in Section 2.4 regarding the automatic nature of college deferments, this specification is likely appropriate for the dodging-up analysis using college enrollment as the dependent variable. In contrast, $\underline{h}$ was not as well defined and local boards had considerable discretion in deciding who was unfit for service. Moreover, if Section 3.4 best describes young men's behavior, then a bad number increases delinquency not because men want to get below some $\underline{h}$ but instead because they are upset or believe their time horizon has shortened. For those reasons, I often use more continuous measures as dependent variables when examining dodging down behavior.

Second, note that equation (1) has predictions not only for the sign of the coefficient on the interaction term, but for the main effects as well. For example, the model predicts that upon the introduction of a draft, all men, regardless of their level of w, are more likely to dodge up *and* more likely to dodge down. These seemingly contradictory results can hold because of the binary specification—individuals "run from the middle" and the distribution of h shifts to $h \geq \bar{h}$ or $h \leq \underline{h}$. Using, say, the absolute level of human capital as the dependent variable weakens this prediction as the mean of the distribution obviously cannot both increase and decrease simultaneously, and I thus focus on the more robust predictions regarding the interaction terms in equation (2).

5 Evidence from 1966-1970 panel data

5.1 Data

The first part of the empirical work relies on data from the "Youth in Transition Project" (hereafter "Transitions data"), a little-used four-year longitudinal study of young men who were high school sophomores in 1966. The data was collected by the University of Michigan's Survey Research Center and funded by the United States Office of Education, a division of the then cabinet-level Department of Health, Education and Welfare and a pre-cursor to the Department of Education. The survey sampled 2,213 subjects clustered at 87 schools, and subjects and schools were selected via multi-stage probability sampling meant to create a representative sample of 10$^{\text{th}}$ grade males in public school throughout the United States.[25]

The original aim of the project was to investigate "the causes and effects of dropping out of high school among youths in their late teens." As such, it provides detailed data on educational outcomes as well as self-reported anti-social and delinquent behaviors. Furthermore, the survey asks questions regarding the Vietnam War, and in particular the lottery number of individuals subject to the 1969 draft.

Summary statistics are given in Table 2, with col. (1) corresponding to the entire sample.

[25] The data and further documentation can be accessed via ICPSR (study number 3505).

Blacks compose just under twelve percent of the sample, and about two-thirds of the sample have mothers with a high school degree.[26] The average IQ is 108.6 and nearly sixty percent of the subjects say they plan to attend college when asked in the initial wave. The original researchers on the project also generated an SES measure, and while its cardinal values have no natural meaning, I later group individuals in the sample by percentile values of this variable.[27] Col. (2) shows that with respect to race, mother's education, and IQ, the Transitions oversamples relatively privileged young men relative to the general population, represented by the National Longitudinal Survey of 1966.[28]

5.2 Potential biases

5.2.1 Selection bias

While the Transitions data include information on over 2,000 young men, my estimation strategy requires me to exclude many of them. First, 18.8 percent of the original 2,213 subjects in 1966 have atritted by 1970 (the year on which I focus). Second, I can only use subjects for whom December 1969 lottery numbers are recorded, which excludes more than half the sample as these individuals were born in 1951 and thus subject instead to the July 1970 lottery.

This selection on non-missing 1969 lottery number presents the greatest potential for bias because of the particular skip pattern followed in the Transitions dataset. Interviewers did not record 1969 lottery numbers of anyone already in military service by Spring of 1970 (when the fourth wave was collected). Thus, I am likely missing some individuals with bad December 1969 draft lottery numbers who had already reported for duty, the consequences of which I discuss in the next subsection.

These restrictions leave me with fewer than 500 observations, described in col. (3), and even fewer black and low-SES subjects (cols. 4 and 5). Comparing cols. (1) and (3) suggests that there is little if any selection bias into the regression sample with respect to race education, IQ, SES, mother's education, college plans, and future college attendance. Tests of equality of means across the two samples yields p-values greater than 0.20 for each of these variables.

[26] I use mother's education because this variable has fewer missing observations.

[27] The measure depends on the Duncan index of the householders occupation, fathers education level, mothers education level, number of books in the household, number of rooms per person, and a certain possessions in the home (e.g., television, major appliances).

[28] Positive selection induced by limiting the sample to young men enrolled in high school in 1966 likely accounts for some of these differences, though the sample does seem surprisingly privileged given the study's original intent of investigating those at risk of dropping out of high school.

5.2.2 Effect of selection bias on estimated coefficients

Recall the estimating equation derived in Section 4.1:

$$Y_i = \beta_1\, Lottery_i * Group_i + \beta_2\, Group_i + \beta_3\, Lottery_i + \beta_4 + \epsilon_i \tag{2}$$

If *Lottery* is distributed randomly across subjects in the regression sample, then OLS estimates of the coefficients in equation (2) are consistent even in the presence of omitted variables. While 1969 lottery numbers are distributed in an essentially random manner among the entire population subject to the lottery, I do not observe this entire population or even a plausibly random sample of it.[29] Due to the particular skip pattern used by the Transitions data, my regression sample excludes men with December 1969 lottery numbers who, as of the fourth wave of the survey in Spring 1970, are already in the armed forces.

I show more rigorously in the last page of the Appendix that such a skip pattern can cause correlations between *Lottery* and variables potentially related to my outcomes of interest, thus compromising the estimation of equation (2), but here provide only an intuitive argument. Assume that the outcome variable is college attendance and consider someone in my regression sample with a bad lottery number. Given that his number predicts military service but that he is still in my sample, some (perhaps unobserved) factor may have allowed him to avoid or delay service. In the "best and the brightest" scenario, he may have excellent grades or wealthy parents and thus would have always attended college, regardless of his lottery number. In the "bottom of the barrel" scenario, he could have failed the AFQT exam. In regressions with college attendance as the dependent variable, the "best and the brigtest" scenario leads to a positively biased coefficient on bad lottery numbers and the "bottom of the barrel" scenario, a negatively biased coefficient.

5.2.3 Is selection a major worry in practice?

Several pieces of evidence suggest that the selection issues described above are limited. First, the distribution of lottery numbers in my sample appears to be roughly uniform with mean $365/2 = 182.5$, suggesting that few subjects with bad 1969 lottery numbers had joined the military by June of 1970 (and thus dropped out of my regression sample). Appendix Figure 1 shows the distributions of lottery numbers for whites and blacks separately. Although the mean for blacks is slightly above the halfway point, one cannot reject the hypothesis that

[29] There exists a small body of work from the 1970s demonstrating possible correlations between month of birth and 1969 lottery number (see Fienberg 1971 and Rosenblatt and Filliben 1971). However, all my regressions include month-of-birth fixed effects and, to the best of my knowledge, no evidence exists of a systematic relationship of birthdays and 1969 lottery numbers, conditional on month of birth.

both have a mean of 182.5.[30]

Second, the right-hand-side variables in equation (2) do not predict earlier measures of delinquency, on the one hand, or aptitude and ability, on the other. I review these placebo tests in more detail in later sections, but note here that the lack of significance of both the main effects and the interaction terms suggests that not only do the "bottom of the barrel" and "best and the brightest" scenarios not hold in general, they do not hold for any of the particular subgroups I investigate.

Third, Selective Service reports indicate that the transition to a lottery-based draft system led to a decreased number of inductions during the first half of 1970 (U.S. Selective Service System, 1970 [p. 3]). The fact that the Selective Service system had to contend with inevitable complications arising during a transition period may account for the surprisingly small amount of selection.

In short, the extent to which people with bad lottery numbers fall out of my regression sample appears limited—there are essentially no "missing" whites and a small number of missing blacks. More importantly, there appears to be little evidence that, conditional on being included in my regression sample, a bad 1969 lottery number predicts earlier measures of aptitude, ambition or delinquent behavior.

5.3 Results

5.3.1 "Dodging up" results

Before turning to the regression results, I present graphical evidence of the raw relationship between 1969 lottery numbers and 1970 college enrollment, my main indicator of "dodging up." I define college enrollment as an indicator variable for whether the subject answered "yes" when asked in June 1970 if he was currently enrolled in college. Figure 6 plots lottery numbers on the x-axis and college enrollment on the y-axis, separately for blacks and whites.[31] For whites, as numbers go from the "worst" (highest probability of being drafted) to the "best" (lowest probability), college enrollment rates fall, consistent with "dodging up" behavior. Black enrollment rates exhibit the reverse relationship with lottery numbers.

I present the regression analogs of Figure 6 in Table 3. I normalize *Lottery* so that its mean is zero and its coefficient represents the effect of going from the "best" to the "worst" number.

[30] The mean and standard deviation of the distribution of lottery numbers from the entire sample essentially hits the expected values of U(1, 365) exactly. For blacks, the performance is not as impressive, but the mean (variance) is still in the 90-percent (95-percent) confidence interval in monte-carlo simulations. Results available upon request.

[31] As college enrollment is a binary variable, I actually plot the average college-enrollment rates for individuals in 15-unit bins of lottery numbers, as otherwise the y-axis has only zeroes and ones and is difficult to read.

Col. (1), which does not include any controls besides month fixed effects, shows that moving from the best to the worst lottery number increases the probability a white subject enrolls in college by 18.4 percentage points (or 34 percent, given a baseline enrollment of 54 percent for this group). But the coefficient on the interaction term suggests that no such effect holds for blacks, and in fact a bad lottery number may result in lower levels of college enrollment (though one cannot reject that the sum of the coefficients on $Lottery$ and $Black * Lottery$ is zero). Col. (2) adds a dummy variable for each SES decile, IQ quartile, and geographic region and the results are unaffected—the magnitude of the main effect slightly increases while that of the interaction slightly decreases, but both remain statistically significant, helping to mitigate concerns about selection.

The third and fourth columns report the analogous results when low-SES men serve as the under-privileged group. Here, the effects are roughly similar—while some low-SES men appear to dodge up, there is weak evidence (p-values of 0.249 and 0.375) that they are less likely to dodge up than their higher-SES counterparts, supporting the model.

As discussed in the previous section, selection into the regression sample is likely to be non-random with respect to lottery number. The "bottom of the barrel" bias story suggests that only low-ability men with bad numbers remain in my sample because they are likely to be rejected by the military whereas the "best and the brightest" story suggests that only the most able or privileged men with bad numbers remain in my sample because they secure student deferments. In Appendix Table 1, I report the results from estimating cols. (2) and (4) when an indicator variables for whether a subject plans to attend college and the subject's IQ (both reported in 1966) serve as the dependent variables. Neither lottery number nor its interaction is close to significant in any of the four regressions. While one would prefer precisely estimated zeroes for the coefficients on the interaction terms, the coefficients are quite small relative to the standard errors of the dependent variables, especially for the regressions where blacks serve as the treatment group. For reasons of transparency, I show results when no additional controls except month fixed effects are included, but the coefficients on the interaction terms are, if anything, smaller when the standard set of additional controls used in Table 3 are added.

5.3.2 "Dodging down" results

The Transitions data provides several measures that I use as proxies for dodging-down behavior, all based on subjects' self-reporting of a variety of delinquent, anti-social and criminal behaviors. Respondents' answers to these questions are aggregated into several indices, which serve as my dependent variables. The indices I use are "frequency of delinquent behavior" "violent offenses" and "property offenses," and each ranges from 100 to 500. Table 2 provides summary statistics and the notes to Table 4 list the items in each index.

I use the same simple econometric model employed in the previous subsection and merely replace the college-enrollment indicator with the delinquency measures as the dependent variable. The coefficient estimates reported in col. (1) of Table 4 indicate that whites' frequency of delinquent behavior has no measurable correlation with draft number. In contrast, going from the best to worst number increases blacks' frequency of delinquent behavior by 66 points (about 1.3 standard deviations). Col. (2) adds additional covariates, causing a small increase in the magnitude of the coefficient on the interaction term. Cols. (3)-(6) show the same pattern for the violent and property offense indices.

Table 5 reports analogous results, but this time men below the 10^{th} SES percentile serve as the treatment group. The point estimates have the same sign pattern as those from the black-white comparison, but are less precise. Nonetheless, the positive coefficient on the interaction term is statistically significant for the violent index and close to significance for the frequency index. Overall, the evidence in Tables 5 and 6 suggests a strong, positive relationship between bad lottery numbers and self-reports of delinquent and criminal behavior among blacks, a positive but smaller and less precisely-estimated relationship among low-SES subjects regardless of race, and no discernible relationship among higher-SES white subjects.

A useful feature of the Transitions survey is that it asks subjects for these self-reports in each wave. I re-estimate the regressions in Tables 4 and 5 but use the Spring 1969 self-reports as the dependent variable. Obviously, the subjects answering these questions were not reacting to their December 1969 lottery numbers, so any relationship between behavior and draft number would be driven by the sample selection described earlier in this section.

As Table 6 indicates, for blacks, none of the coefficients on either the lottery number or its interaction term is significant and the coefficient for the property regression has the "wrong" sign. As with Table 1, while the small sample size makes finding precisely estimated zeroes unlikely, the coefficients are small relative to the standard error of the dependent variable. The results for low-SES men are not as clear, as the coefficient for the violent regression is positive and weakly significant.

To test for selection more formally, I include all four waves and test whether the difference between the coefficient on the interaction term for wave four and the coefficient on the interaction term for waves one to three combined is statistically significant, and report these differences at the bottom of the table.[32] For blacks, the evidence suggests that there is indeed

[32] The cross-wave test is based on the regression of wave-person observations $Y_{iw} = \beta_1 Group_i * Lottery_i * Fourth_w + \beta_2 Group_i * Lottery_i + \beta_3 Lottery_i * Fourth_w + \beta_4 Group_i * Fourth_w + \beta_5 Group_i + \beta_6 Lottery_i + \beta_7 Fourth_w + \gamma X_i$, where i indexes persons, w indexes waves ($w \in \{1,2,3,4\}$), $Fourth$ is an indicator variable for the fourth wave, and X is the vector of control variables including the "additional controls" described in Table 3. See notes to Table 6. The coefficient and standard error reported at the bottom of the table are

a statistically significant and positive effect on delinquent behavior of being black, receiving a bad lottery number and being observed *after* the lottery. The evidence suggests the same for low SES men (at least for the frequency and violent regressions), though the results in Table 5 suggesting some selection bias seem to warrant some caution in interpreting the SES results in Table 6.

5.4 Discussion

In this section I have presented evidence that, in response to a bad draft number, whites and higher-SES men increase their college attendance rates while, if anything, blacks reduce their rates. Moreover, blacks (and to a lesser extent low-SES men) with bad numbers engage in increased levels of delinquency. The dodging-up results are consistent with past work on the incentives created by student deferments, though my results suggest that men may have needed a certain level of privilege before being able to act on these incentives.[33]

From now on I focus on dodging down, a phenomenon not addressed in past work. While the dodging down results in this section are promising, several concerns remain. First, as mentioned previously, these results rely on a very small sample of black and underprivileged men. Second, the Transitions delinquency measures rely entirely on self-reports. For these reasons, I turn to administrative criminal justice records, which offer larger sample sizes and official measures of criminal behavior.[34]

6 Testing for "dodging down" behavior using criminal justice data

The basic approach in this section is to determine whether individuals with bad lottery numbers are over-represented in the criminal justice system in the year following a draft lottery, which will require a modification of the empirical strategy used in the previous sections. Unlike the Transitions data, the data used in this section do not comprise a roughly representative sample of the entire draft population. Moreover, I no longer model individual-level variation in draft-avoidance behavior, as by definition to appear in these datasets an individual must have either been arrested or admitted to prison. In some sense, all of these men are "down" and I am trying to determine whether some of them appear to have "dodged."

those corresponding to $Group_i * Lottery_i * Fourth_w$.

[33]Card and Lemieux (2001) and Malamud and Wozniak (2009) demonstrate a positive relationship between college enrollment and Vietnam draft risk in aggregate data (using variation in draft risk at the year and state-year level, respectively). In this paper I have used variation in military risk at the individual level (from a much smaller dataset, however).

[34]Of course, criminal justice records are only a proxy for true criminal behavior, as certain groups may be more likely to be caught. However, such official markers may well play a larger role in determining future outcomes, such as income and well-being, than does actual criminal behavior.

6.1 Connecting the model to administrative count data

Let C_{ib} be an indicator variable for whether person i with scaled lottery number b (for birthday) has been sanctioned by the criminal justice system, and otherwise follow equation (2) used in the previous section:

$$P(C_{ib} = 1) = \beta_1 \, Lottery_b * Group_i + \beta_2 \, Lottery_b + \beta_3 \, Group_i + \beta_4 + \varepsilon_{ib}.$$

Let *Group* be an indicator for being in the disadvantaged (low-w, in the parlance of the model) group; *Lottery* the normalized lottery number defined in the previous section (which increases with draft probability); N_b the number of men with birthday b; and $\bar{G}$ the share of individuals for whom $Group = 1$, which I assume is constant across lottery numbers.

As the dependent variable represents dodging-down behavior and $Group = 1$ indicates belonging to the disadvantaged group, the theory in Section 3 and the results in Section 5 suggest that β_1 is positive. For simplicity, assume that only those with $Group = 1$ are on the margin of dodging down in response to a bad number, so that $\beta_2 = 0$.[35] Then, I can write the expected value of C_b, the total number of sanctioned individuals with a given birthday (lottery number), as

$$\begin{aligned} E[C_b] = E\left[\sum_{i=1}^{N_b} C_{ib}\right] &= \beta_1 Lottery_b \sum_{i=1}^{N_b} Group_i + \beta_3 \sum_{i=1}^{N_b} Group_i + \beta_4 N_b \\ &= \beta_1 \bar{G} N_b Lottery_b + \beta_3 \bar{G} N_b + \beta_4 N_b. \end{aligned}$$

As $\bar{G} > 0$, if N_b is constant across birthdays, then the same arguments in Section 4.1 showing that the model predicts $\beta_1 > 0$ imply that the coefficient on *Lottery* in the above equation must be positive. Or, put differently, that a regression of the count of sanctioned individuals by birthday on normalized lottery number would yield a positive coefficient on lottery number.

However, N_b is unlikely to be constant and in fact $Cov(N_b, Lottery_b)$ is likely negative because men with bad lottery numbers are more likely to be removed from the civilian population via the draft and thus no longer at risk of appearing in my criminal justice data. As I do not know the exact size of the civilian (non-military) population by birthday in any of my samples, this variable is necessarily omitted from any regression. As the absolute size of the civilian non-military sub-population with a given birthday is, all else equal, positively related to the absolute number of sanctioned individuals from the sub-population, regressing the count of sanctioned individuals on lottery number will yield a negatively biased coefficient

[35] The result from this section, that the count of sanctioned people with birthday b is a positive function of $Lottery_b$, is unchanged by this simplifying assumption because, from Section 4.1, β_2 is weakly positive.

on *Lottery* and thus mask any dodging-down effect.[36]

This bias leads me to focus on those subject to the February 1972 lottery, which was intended to be used to determine 1973 call-ups but was rendered moot when President Nixon replaced the draft with an all-volunteer system in January 1973. As the negative covariance between lottery number and the corresponding sub-population at risk of criminal sanction would be most limited for this cohort, it provides the best opportunity to find a dodging-down effect, though when the data permit, I also look at earlier lotteries. The results in Angrist (1991), showing that even men with bad 1972 numbers were more likely to enlist, suggest any effect I find would understate the prevalence of dodging-down behavior.[37]

6.2 Analysis using New York arrest data

6.2.1 Data description

I make use of the ICSPR study "Adult Criminal Careers in New York, 1972-1983" originally gathered by researchers at Carnegie Mellon. From the Computerized Criminal History file maintained by the New York State Division of Criminal Justice Services, researchers sampled every 1972–1976 arrest of an individual aged 16 or older for murder, rape, robbery, aggravated assault, or burglary (though they include only a 50 percent sample from New York City) and recorded future involvement with the state criminal justice system until 1983.

I focus on men born in 1953 and thus subject to the February 1972 lottery, and examine their arrest records starting in 1972. I have limited background information on arrestees, but note that 41.4 percent are black. Given the general demographic and socio-economic background of individuals who interact with the criminal justice system, few people on the dodging-up margin of would likely be found in this sample. Note that the crimes included in the survey do not include draft violations—a federal offense—so the results are not driven by, say, men with bad numbers burning their draft card or trying to escape to Canada.

Following the analysis in Section 6.1, I generate the total number of 1972 arrests, by birthday of the alleged offender. The unit of analysis is thus a birthday and there are a total of 365 observations. The average number of 1972 arrests of men with a given birthday from the 1953 birth cohort is 6.64.

[36] A more formal proof is available upon request, but the result is most easily seen by demeaning the independent variables, taking a log transformation of the equation, and then applying the standard OLS formula to determine the sign of the bias term.

[37] Recall that men with bad lottery numbers often enlisted instead of waiting to be drafted, as they could often guarantee more favorable assignments. See the discussion in Section 2.2.

6.2.2 Results

Figure 7 plots the number of 1972 arrests for each birthday of 1953 against the birthday's corresponding lottery number.[38] As the fitted line demonstrates, there is a clear negative relationship between arrests and lottery number, consistent with an over-representation of "bad" birthdays among 1972 arrests. The vertical line at the 95$^{\text{th}}$ lottery number corresponds to the cut-off for the 1971 lottery, above which men of the 1952 birth cohort were not inducted and which thus might serve as a benchmark for the men in my regression sample. There appears to be a more pronounced increase in arrests to the left of this line. I test this claim more rigorously below.

Table 7 displays the regression analogs to Figure 7. As I am working with count data, I use a Poisson model, although OLS gives similar results. Coefficients should be interpreted as multiplying a baseline "incidence rate" at which people with a given birthday are arrested (or, equivalently, the count over a fixed period). Col. (1) suggests that men with the very worst number are arrested at a rate 13 percent greater than men with the very best number. Men with numbers below the previous year's cut-off (95) are arrested 8.4 percent more than men with higher numbers. Interestingly, the results appear driven in large part by men with numbers below fifty. Given that the cut-off fell from 195 (1969 lottery) to 125 (1970) to 95 (1971), 50 would be a logical guess for the 1972 cut-off.

Of the seven "index crimes" the FBI uses to calculate the overall crime rate, burglary and robbery appear the most sensitive to lottery number for this sample of men, though the other crime categories also generally go in the "correct" direction. I do not have any strong prediction as to which crime categories should be the most sensitive, though the strong effects of lottery number on self-reported violent behavior for both black and low-SES men from the Transitions sample in the previous section would have suggested a larger effect for, say, aggravated assault.

The next column examines arrests in 1973. Recall that in January of that year, President Nixon abolished the draft, rendering the 1972 lottery numbers moot. As expected , the effect essentially goes to zero, and is in fact slightly negative.[39] One might imagine that receiving a bad lottery number is a young man's first step down "the wrong path" and that there might be long-run effects on criminal records. Thus, the final column regresses total arrests from 1975–1978 and finds a small, positive but imprecisely estimated (p-value of 0.301) effect.

[38] Each point in the scatter plot corresponds to the average number of arrests per birthday for a 15-lottery-number bin (as with Figure 6, I average within 15-number bins to reduce noise).

[39] Coefficients in a Poisson regression are compared to a baseline of one, not zero.

6.3 Georgia prison admissions

6.3.1 Data

The Georgia Department of Corrections provides data on every inmate who has served time in a state prison since 1970. I aggregate the data in the same manner as the New York data, except that I adjust the window slightly because, while arrests generally occur within days of an offense, prison admissions do not. Therefore, I exclude February and March 1972, as in the Georgia data the date of the alleged crime is roughly two months prior to a prison admission.[40] I include admissions up to March of 1973—even though Nixon ended the draft that January—for the same reason.

Figure 8 plots the number of 1972 admissions of men from the 1953 birth cohort, by birthday, against each birthday's 1972 lottery number. Despite some outliers, a strong, negative relationship emerges.

Table 8 presents the related regression results. Col. (1) suggests that men with the worst lottery number are admitted at a rate 55 percent greater than men with the best number. This large effect suggests using a model less sensitive to outliers, and as the mean of the dependent variable is around one (1.08) and over a third of birthdays have zero admissions, I generally use a probit model in the rest of the table. Col. (2) indicates that the probability of having at least one admission with the worst lottery number is 24 percentage points (or 38 percent, given a baseline probability of 0.64) greater than the probability of having at least one admission with the best number. Indeed, even after eliminating the effect of outliers, a strong relationship remains. Cols. (3) and (4) show that, unlike in the New York data, this effect does not load on lottery numbers below 95 or 50.

Unlike the New York data, which begin in 1972, the Georgia data contain admissions from earlier years and thus allow me to perform the placebo test of checking whether men's 1972 lottery numbers correlate with prison admissions from the years *before* they actually received their number. Col. (5) reports an insignificant (and negative) effect of 1972 lottery numbers on prison admissions in 1970 and 1971. I also examine whether 1972 lottery numbers affect prison admissions even after the abolition of the draft. Indeed, col. (6) shows a small, positive effect (p-value of 0.175) of bad 1972 lottery numbers on prison admissions between 1975 and 1978, in line with a "starting down a bad path" model, and similar to the results from the New York data. However, this long-run result is not statistically significant in either dataset; a larger dataset would likely be needed to detect any effect, given that the size of the effect is likely smaller than in the period immediately following the lottery.

[40] The crime commission date is missing for almost all 1972 admissions but is missing less often for later dates in the 1970s. For all admissions between 1970 and 1980 with non-missing values for the required variables, the median duration between the date of the crime and the prison admission is two months.

The Georgia data also allow me to look at the effect of earlier lotteries. Parallel analysis for the 1969–1971 lotteries yield small, negative, statistically insignificant estimates. With each successive year the negative effect diminishes, although the estimates are imprecise. This finding lends support to the idea that any dodging-down effect is masked by the fact that men with bad numbers are removed from the civilian population by the draft and thus not at risk of arrest or imprisonment.

Finally, I separate admissions into the "major" offense categories used by the GDC. Unlike in the New York data, one or two categories do not seem to drive the results. Admissions for "violent," "personal, non-violent," "property" and "alcohol-related" crimes all increase, whereas those for "drug-related" and "sexual" offenses decline slightly (though neither result is anywhere near statistical significance).[41]

6.4 Can "dodging down" explain the rise in crime among young men in the 1960s?

Crime rates for young adult men rose rapidly in the second half of the 1960s. Using FBI Uniform Crime Reports arrest data, Figure 9 plots the arrest rates from 1960 to 1979 for men aged 18 to 23, who, as discussed in Section 2, accounted for over 95 percent of inductees during the central years of the Vietnam War.[42] Arrest rates for this group grow rapidly after 1965, and seem to plateau during the later years of the conflict. Although not plotted on the figure, arrest rates for other groups also grew during the War, but at a slower pace.[43] For example, between 1965 and 1970, the arrest rate for 18-to-23-year-old men increased 55 percent, while that of 25-to-29-year-old men, who might serve as a reasonable control group as they are of similar age but faced little if any draft risk, increased only 19 percent.[44]

How much of the growth of arrests rates shown in Figure 9 can dodging down explain? The estimate from the third column of Table 7 indicates that men who faced a real chance of being drafted in 1972 saw a 16 percent increase in their arrest rate relative to other men in their birth cohort. Recall, however, that in the lottery system, this effect would only have applied to those who thought their number would have fallen below the year's cut-off (which I estimated earlier to be around 50 in 1972). Moreover, beginning with the 1970 lottery, only men of a single birth cohort were at risk of induction—in the case of the 1972 lottery, only

[41] Results for previous lotteries and for crime types available upon request.

[42] See footnote 7.

[43] Given that only after a crime is cleared by arrest can an actual age be assigned to it, age-specific arrest rates generally serve as a proxy for age-specific crime rates.

[44] I exclude 24-year-old men as there appears to be an error in the data compilation, with a large, positive spike in their crime rate in 1973 that does not appear in other data sources. Also, while men were technically eligible for the draft until their 26th birthday, the UCR data aggregates crime statistics for men between ages 25 and 29. Though, as discussed above, draft risk for 25-year-olds was generally negligible.

those men born in 1953. Thus, in 1972, the treatment effect would have applied to a very small share of 18-to-23-year males—roughly 14 percent ($50/365 = 0.137$) of the 1953 birth cohort, which in turn would only account for about one-sixth of 18-to-23-year-old males—and thus could explain only a small share of total criminal activity for the group.

However, as discussed in Section 2, the relevant treatment group between 1965 and 1970 would have been all men between 18 and 23. Moreover, because of the vastly greater manpower needs earlier in the war, the probability of a randomly drawn 18-to-23-year-old man being drafted in 1968 was roughly the same as the expected probability of a man with a lottery number under 50 in the 1972 lottery.[45] Assuming that the same treatment effect reported in Table 7 applied during this earlier period of the war, dodging down could explain about 30 (16/55) percent of the increase in arrest rates for this group between 1965 and 1970.

There are arguments in support of this figure being either an under- or overestimate of the actual effect. On the one hand, the treatment effect could be far greater between 1965 and 1970, as over 16,000 men died in Vietnam in 1968, compared with 641 in 1972. On the other hand, it is possible that actually receiving a bad draft lottery number made the idea of military service more salient than it was for 18-to-23-year-old men in the pre-lottery system, and thus the treatment effect in Table 7 is an overestimate of that in the late 1960s. Of course, one could argue that the high death tolls in the earlier period provided a salience of their own.

Due to a change in the data collection regime after 1972, it is difficult to determine with this data source whether the crime rates of draft-age men decrease when the draft is abolished, as the dodging-down hypothesis would predict. While the growth of draft-age arrest rates slows as both draft risk and death rates fall between 1970 and 1972, it does not reverse, as a strictly rational-agent interpretation of the dodging-down model might suggest. Future work might be able to better address this question by identifying other data sources on age-specific measures of aggregate criminal behavior.

6.5 Discussion

I have presented support for the dodging-down hypothesis from several sources. First, the results from the previous section using the Transitions dataset suggest that for blacks and (to a lesser extent) low-SES men, a bad December 1969 lottery number is positively associated

[45]In 1968, there were 343,300 calls for inductions, drawn from the six cohorts between ages 18 and 23. The risk the men faced would be the same as if 7831 men were drawn from 50 birthdays of a single cohort ($343000 * (\frac{1}{6}) * (\frac{50}{365}) = 7831$). In 1972, the Selective Service issued 25,000 calls for induction, an 80 percent fall from the previous year. Thus, a rough estimate for 1973 call-ups (for which the 1972 lottery assigned the order) would likely have been close to 7831.

with self-reported delinquency in the fourth wave of the dataset (Spring 1970), but not in the previous waves (which all took place before the lottery). The results in this section, using separate data sources from two states, indicate that men with bad lottery numbers are more likely to be arrested (New York) and to serve time in prison (Georgia). Whether the young men in these three datasets had explicitly determined that acquiring a criminal record was the optimal strategy in the face of the Vietnam draft or were merely reacting to the anxiety, confusion, and perceived shortening of time horizons associated with a bad draft number, they appear to have taken steps that diminished traditional forms of human capital and future socio-economic status.

7 Conclusion

During the Vietnam War, the Selective Service's "channeling" policy granted educational and occupational deferments to men with high levels of human capital, and classified men with low levels of human capital as unfit for service. I develop a model that illustrates how imposing a draft of this type incentivizes men with initially high levels of human capital to invest even more in human capital so as to attain a deferment ("dodge up"), and men with initially low levels to disinvest so as to appear unfit for service ("dodge down"). Moreover, men with no chance of a student deferment might disinvest because the likelihood of combat service shortens their perceived time horizon or simply because the prospect of forced military service upsets them. In any case, the Vietnam draft likely increased the return to education for relatively privileged young men and decreased the opportunity cost of delinquent behavior for less privileged men.

I present a variety of empirical support for the model's predictions. First, in a panel dataset of men who were high school sophomores in 1966, I find that receiving a bad lottery number increases the probability that a white student would enroll in college the following year, whereas it has no obvious effect on low-SES men's college matriculation and may have a negative effect for blacks. Second, a bad lottery number increases self-reported delinquent behavior for blacks and, to a lesser extent, low-SES young men, but not for others. Third, men with bad numbers in the 1972 lottery are overrepresented in the criminal justice system in New York and Georgia—the only states for which I have the appropriate data—during the following year.

My results might interest policy-makers designing conscription policies. Although dodging up may constitute a social benefit to conscription, dodging down almost certainly represents an unintended social cost. Increasing the perceived return of military service for under-privileged men may decrease their incentive to dodge down. While the United States has not relied on a draft since 1972, many other countries still do; future work might compare the incentive structures of military drafts across countries with dodging-down behavior in mind.

My results might also contribute to research on why many social and economic outcomes of young, under-privileged Americans—especially African-American men—began to deteriorate in the 1960s. As noted in the introduction, 1965—the first year of significant combat deaths in Vietnam—appears to mark the start of this deterioration, and perhaps the riots of the late 1960s marks its crescendo.[46] As the empirical strategy used in this paper relies on the draft lotteries introduced in December 1969, I cannot speak directly to the social consequences of the Vietnam draft during this earlier period. However, as discussed in the previous section, the effects may have been larger during the 1960s when casualty rates were higher, and back-of-the-envelope calculations suggest that dodging down can explain a significant portion of the rapid rise in crime rates among young, draft-age men during this period.

The effect of the draft on African-American men in particular was likely strongest in these earlier years of the conflict. Beyond the generally higher casualty rates, recall from Figure 1 that racial bias with respect to casualties peaked in 1966, only a year before the 1967 peak of the urban riots. Of course, this period was also characterized by a large expansion of Aid to Families with Dependent Children, the flight of white and professional blacks to the suburbs, and the deindustrialization of Northern cities—all factors scholars have linked to the relative decline of socioeconomic outcomes for African-Americans. Nonetheless, the Vietnam Draft appears to have significantly lowered the perceived opportunity cost of certain behaviors—criminal activity, participation in riots and civil unrest, and disinvestment in education—that would come to characterize poor, minority communities.

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[46] Murray (1984) specifically singles out 1965 as the start of the decline.

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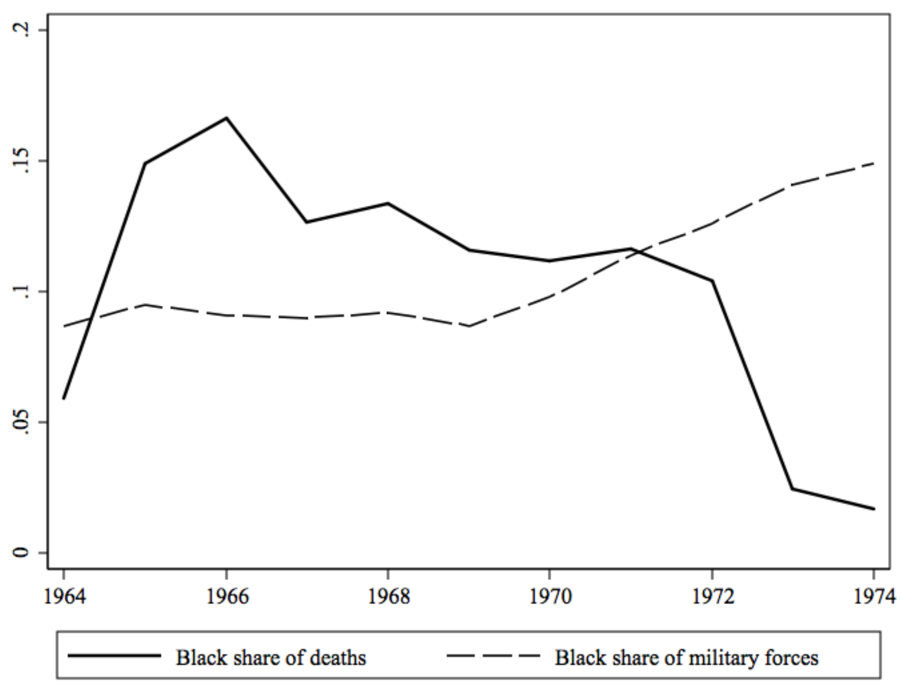
Figure 1: Black share of deaths in the Vietnam War



Notes: Casualty data taken from the Combat-Area Casualty Current File maintained by the National Archives. Personnel data taken from Department of Defense (1971) and Janowitz and Moskos (1974). Personnel statistics from 1974 include only the first half of the year.

Figure 2: Preferences over future consumption and human capital investment

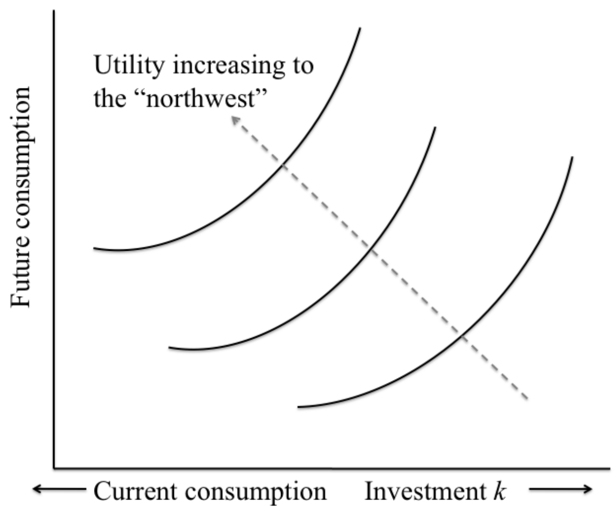


Figure 3: Indifference curves and constraints for different values of w

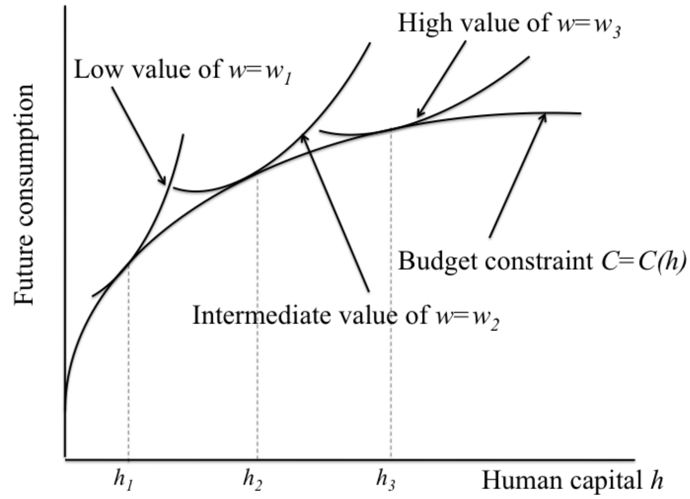
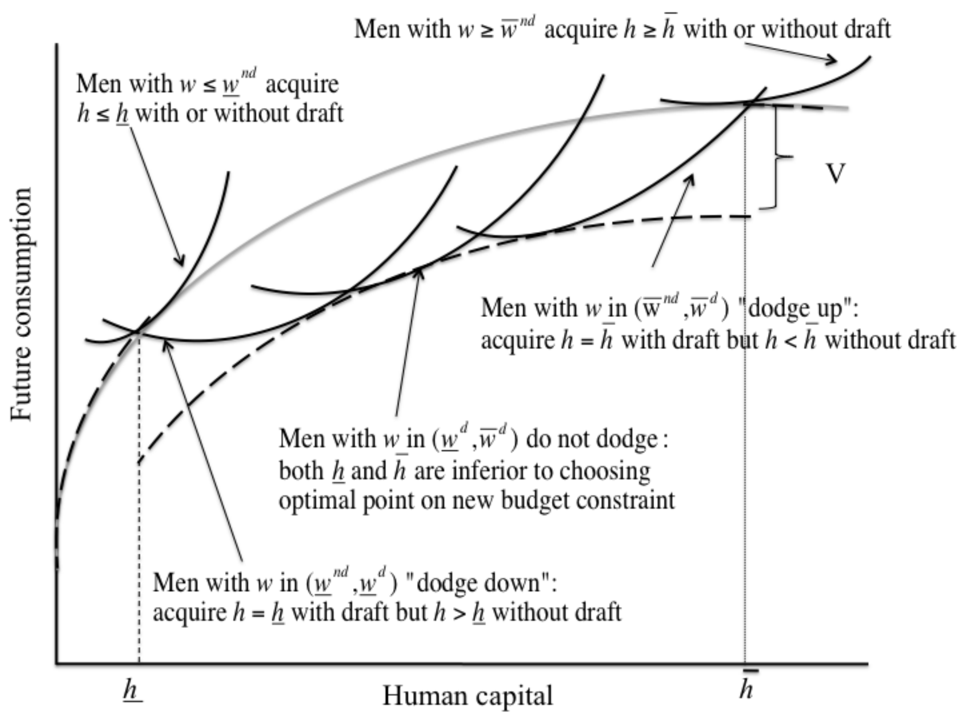


Figure 4: Thresholds for "dodging" up or down with and without a draft



Notes: The gray line corresponds to the budget constraint without the draft and the black broken line to the budget constraint with the draft. The two coincide for individuals with $h \geq \bar{h}$ or $h \leq \underline{h}$.

Figure 5: Summary of human capital investment incentives with and without a draft

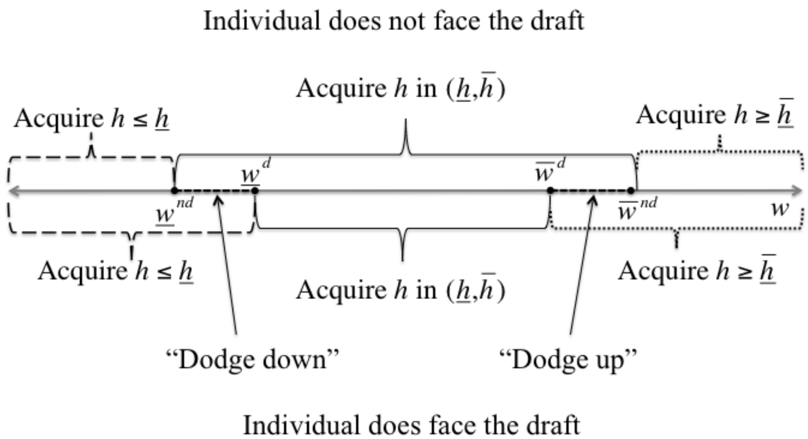
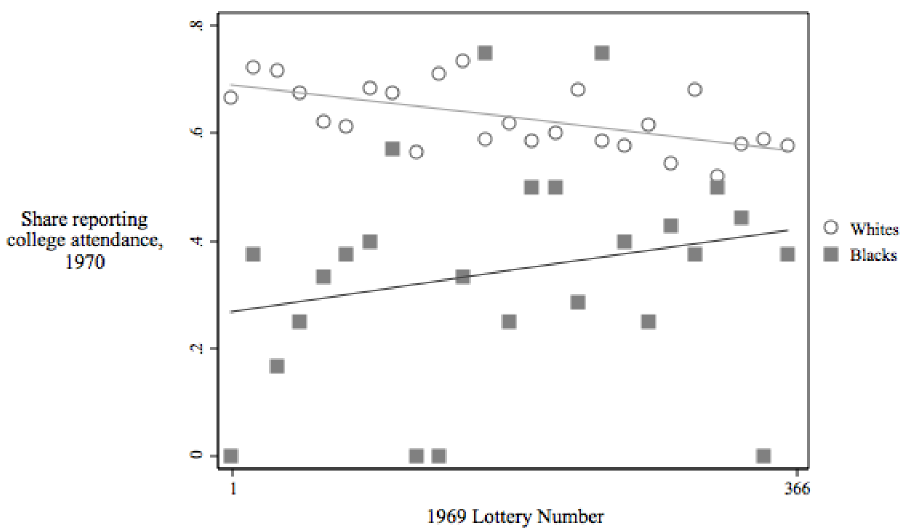
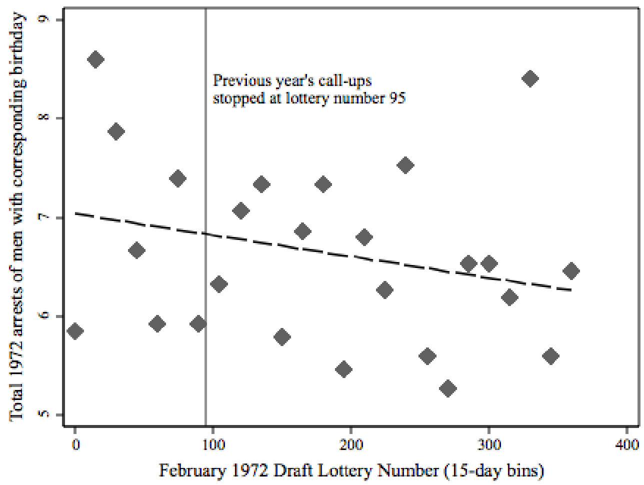


Figure 6: Relationship of 1970 college attendance to 1969 lottery number, by race



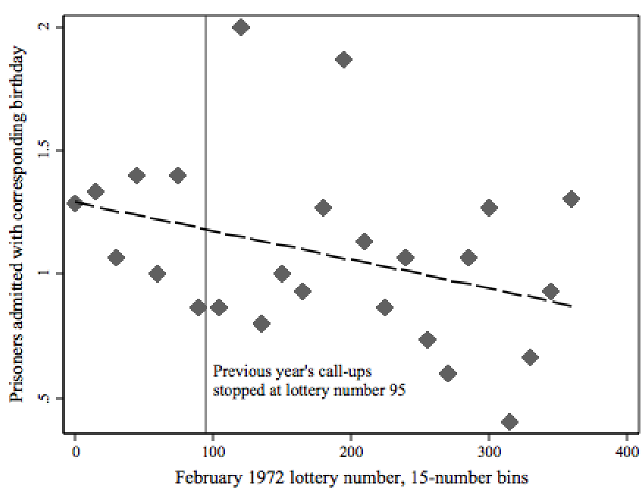
Notes: All data taken from the *Transitions* dataset. See Section 5.1 for sampling restrictions. To make the graph more readable, I plot the average college-attendance rate by race for each 15-lottery-number bin. Otherwise all points would be either zero or one since college attendance is a binary variable.

Figure 7: Number of 1972 arrests by 1972 lottery number, New York State



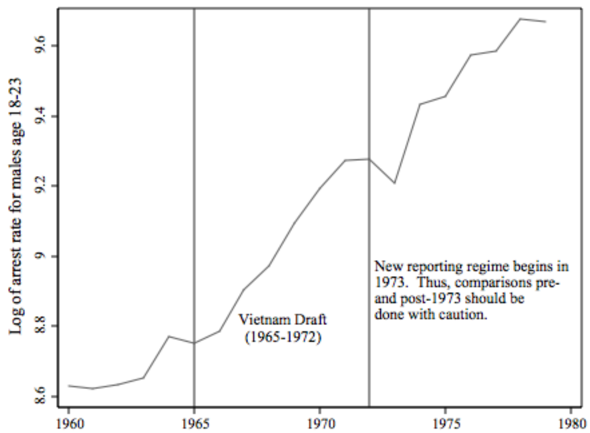
Notes: All data taken from the Computerized Criminal History file maintained by the New York State Division of Criminal Justice Services. See Section 6.2.1 for details. For each birthday (or, equivalently, lottery number) of 1953, I sum the number of arrests in the year 1972. To reduce noise and make the figure more readable, I take the average of these totals by over 15-number bins of lottery number. The vertical line corresponds to the lottery-number cut-off from 1971 over which no call-ups were made, which may have served as a benchmark for individuals estimating the 1972 lottery cut-off.

Figure 8: March 1972 - February 1973 prison admissions by 1972 lottery number, Georgia



Notes: All data taken from prison admissions data from the Georgia Department of Corrections. See Section 6.3.1 for details. For each birthday (or, equivalently, lottery number) of 1953, I sum the number of admission between March 1972 and February of 1973 (as a rough window for when someone who committed a crime in reaction to their lottery number might have entered prison). See notes to Figure 7 for further information.

Figure 9: Growth in crime rates among draft-age men, 1960 to 1979



Notes: Arrest data taken from FBI Uniform Crime Reports data compiled in ICPSR 2538; yearly population-by-age data taken from the US Census (see `http://www.census.gov/popest/archives/pre-1980/PE-11.html`). As is standard, arrest rates are expressed per 100,000 people.

Table 1: Opinion on the Vietnam War by race and class, 1966

	(1)	(2)	(3)
Black	-0.219***	0.252***	0.162***
	[0.0378]	[0.0387]	[0.0346]
Education level	0.0442***	-0.0301***	-0.0224**
	[0.0103]	[0.0101]	[0.00928]
Mid. or upper class	0.0342	-0.0510*	-0.0124
	[0.0272]	[0.0270]	[0.0247]
Male	0.158***	-0.147***	-0.0197
	[0.0256]	[0.0256]	[0.0233]
Age ÷ 1000	0.830	0.984	-1.245*
	[0.830]	[0.833]	[0.744]
Mean of dep. var.	0.412	0.410	0.281
Observations	1374	1391	1482

Source: Public Opinion and the War in Vietnam Study, National Opinion Research Council, 1966.
Notes: "Education level" ranges from zero (no schooling) to six (higher than college). "Middle or upper class" is an indicator for whether the respondent so self-classified based on the choices upper, middle, working and lower classes. The first dependent variable is coded as one if the respondent answered yes to the following question: Should we continue even if several hundred soldiers killed each week? The second dependent variable is coded as one if the respondent answered yes to: Should we gradually withdraw and let South Vietnamese work out their own problems? The third dependent variable is coded as one if the respondent answered yes to: Should we end fighting now even if it leads to eventual control of S. Vietnam by the Viet Cong? Standard errors in brackets. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 2: Summary statistics, Transitions data

	(1) Full sample	(2) NLS 1966	(3) Reg. sample	(4) Reg. sample	(5) Reg. sample
Demographics, education:					
Black	0.116	0.131	0.129		0.400
	(0.320)	(0.338)	(0.335)		(0.494)
Low SES	0.105		0.116	0.367	
	(0.307)		(0.320)	(0.487)	
Mom has HS degree	0.665	0.552	0.633	0.540	0.200
	(0.472)	(0.497)	(0.483)	(0.503)	(0.404)
1966 IQ	108.6	105.9	108.5	98.95	97.97
	(12.29)	(13.76)	(11.23)	(14.31)	(12.35)
College plans	0.587		0.602	0.545	0.467
	(0.492)		(0.490)	(0.503)	(0.503)
In college (1970)	0.520		0.518	0.400	0.333
	(0.500)		(0.500)	(0.494)	(0.475)
Delinquency (1970 wave):					
Frequency	163.7		163.9	167.5	164.3
	(51.48)		(51.14)	(62.23)	(60.47)
Violent	122.3		122.5	134.6	130.6
	(42.23)		(41.96)	(58.92)	(57.48)
Property	144.9		139.9	149.1	146.7
	(54.92)		(50.23)	(68.10)	(62.83)
Data source	Transitions	NLS 1966	Transitions	Transitions	Transitions
Subsample	All	50, 51 cohorts	All	Black	Low SES
Observations	2213	1358	427	55	60

Sources and notes: Transitions data and NLS 1966 (see Section 5.1 for more information). "Low SES" is an indicator variable for whether a respondent is at or below the tenth percentile of the SES measure defined by the Transitions data. "College plans" is an indicator variable from 1966 for whether the respondent stated he planned to attend college. The "Frequency of delinquency" index is based on respondents' answers to such questions as "How often do you run away from home, trespass, hurt someone badly enough to need medical care, shoplifted, hit your parents, drink alcohol without permission?" The "Violent delinquency index" is based on answers to "Have you threatened someone with a gun or a knife, hurt someone badly enough to need medical care, been in a fight with a classmate or coworker, been in a fight where a bunch of your friends were against another bunch of people?" The "Property delinquency index" is based on answers to "Have you ever stolen something worth more than $50, shoplifted, driven someones car without permission, set fire to someone's property, set fire to a school building?"

Table 3: 1970 college attendance as a function of 1969 lottery number

	(1)	(2)	(3)	(4)
Scaled lottery no.	0.184**	0.246***	0.177*	0.218***
	[0.0915]	[0.0813]	[0.0922]	[0.0829]
Group x Scaled lot. no.	-0.592**	-0.499**	-0.189	-0.145
	[0.275]	[0.244]	[0.258]	[0.232]
Group	-0.120*	-0.0220	-0.243***	-0.00341
	[0.0715]	[0.0676]	[0.0744]	[0.130]
Additional controls?	No	Yes	No	Yes
Group equals...	Black	Black	Low SES	Low SES
Observations	427	427	415	415

Source: Transitions data (see Section 5.1 for more information and sampling rules). Notes: The dependent variable is an indicator variable for whether the respondent was in or about to be enrolled in college in the Spring of 1970. *Scaled lottery number* is defined as $0.5 - \frac{Lottery\ number}{366}$ so that *Scaled lottery number* has a mean of zero and its coefficient represents the effect of going from the "best" lottery number to the "worst" (i.e., from the lowest to the highest probability of being drafted). Every regression includes month dummies, and "additional controls" is composed of dummy variables for each SES decile, IQ quartile and geographical region. Standard errors in brackets. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 4: Delinquent behavior in 1970 as a function of Dec. 1969 lottery number, by race

	(1) Frequency	(2) Frequency	(3) Violent	(4) Violent	(5) Property	(6) Property
Scaled lottery no.	-2.086	-2.326	-5.320	-7.184	5.112	3.709
	[9.734]	[9.969]	[7.779]	[7.893]	[9.547]	[9.824]
Black x Scaled lot. no.	66.38**	71.61**	88.29***	95.89***	74.02**	81.02***
	[29.25]	[29.87]	[23.37]	[23.65]	[28.68]	[29.43]
Black	6.296	6.602	13.93**	10.98*	13.37*	14.85*
	[7.658]	[8.375]	[6.119]	[6.631]	[7.510]	[8.253]
Additional controls?	No	Yes	No	Yes	No	Yes
Mean of dep. var.	163.9	163.9	122.5	122.5	139.9	139.9
St. dev. of dep. var.	51.14	51.14	41.96	41.96	50.23	50.23
Observations	424	424	424	424	424	424

Sources and notes: See Table 2 for definitions of dependent variables and Table 3 for information on additional controls. All regressions include month-of-birth fixed effects. Standard errors in brackets. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 5: Delinquent behavior in 1970 as a function of Dec. 1969 lottery number, by SES

	(1) Frequency	(2) Frequency	(3) Violent	(4) Violent	(5) Property	(6) Property
Scaled lottery no.	-2.374	-2.697	-6.110	-7.108	5.946	4.457
	[9.979]	[10.17]	[7.988]	[8.075]	[9.643]	[9.839]
Low SES x Scaled lot. no.	42.49	45.08	67.82***	68.15***	29.58	30.45
	[27.75]	[28.27]	[22.21]	[22.45]	[26.81]	[27.35]
Low SES	-2.404	11.90	8.483	12.66	5.374	30.24**
	[8.007]	[15.53]	[6.410]	[12.34]	[7.738]	[15.03]
Additional controls?	No	Yes	No	Yes	No	Yes
Mean of dep. var.	163.7	163.7	122.3	122.3	139.5	139.5
St. dev. of dep. var.	51.04	51.04	42.00	42.00	49.21	49.21
Observations	412	412	412	412	412	412

Sources and notes: See Table 4. All regressions include month-of-birth fixed effects. Standard errors in brackets. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 6: Delinquent behavior in 1969 as a function of Dec. 1969 lottery number

	(1) Frequency	(2) Violent	(3) Property	(4) Frequency	(5) Violent	(6) Property
Scaled lottery no.	-8.296	-12.15	9.222	-12.29	-16.48*	0.555
	[9.617]	[8.314]	[9.956]	[9.874]	[8.522]	[10.17]
Group x Scaled lot. no.	15.77	34.14	-15.20	27.16	40.55*	29.86
	[28.84]	[24.93]	[29.86]	[27.58]	[23.81]	[28.40]
Group	21.73***	25.49***	22.94***	24.73	9.297	28.62*
	[8.002]	[6.948]	[8.283]	[15.16]	[13.22]	[15.61]
Additional controls?	Yes	Yes	Yes	Yes	Yes	Yes
Group equals...	Black	Black	Black	Low SES	Low SES	Low SES
Coeff. on cross-sample test	74.68***	68.20***	88.61***	42.27*	43.07*	29.79
Standard error	[26.88]	[26.04]	[28.42]	[25.297]	[24.564]	[26.877]
Observations	427	426	427	415	414	415

Sources and notes: See Table 4. The cross-sample test is based on the regression of wave-person observations $Y_{iw} = \beta_1 Group_i * Lottery_i * Fourth_w + \beta_2 Group_i * Lottery_i + \beta_3 Lottery_i * Fourth_w + \beta_4 Group_i * Fourth_w + \beta_5 Group_i + \beta_6 Lottery_i + \beta_7 Fourth_w + \gamma X_i$, where i indexes persons, w wave ($wave = 1, 2, 3, 4$, $Fourth$ is an indicator variable for the fourth wave, and X is the vector of control variables including the "additional controls" described in Table 3. The coefficient and standard error reported at the bottom of the table are those corresponding to $Group_i * Lottery_i * Fourth_w$. Standard errors in brackets. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 7: New York arrests as a function of lottery number

	(1)	(2)	(3)	(4)	(5)	(6)
Scaled lot. no.	1.128*			1.231***	0.970	1.058
	[0.0807]			[0.0984]	[0.0749]	[0.0589]
Lot. no. < 95		1.084*				
		[0.0508]				
Lot. no. < 50			1.159**			
			[0.0670]			
Model	Poisson	Poisson	Poisson	Poisson	Poisson	Poisson
Year	1972	1972	1972	1972	1973	1975-78
Crimes	All	All	All	Burg, Rob	All	All

Sources: Adult Criminal Careers in New York, 1972-1983 (ICPSR 9535). See Section 6.2.1 for more information. Notes: Coefficients are reported as exponentiated poisson coefficients, and should be thought of as changes in the incident-rate ratio. Each unit of observation is a birthday from the 1953 birth cohort and the dependent variable is the number of arrests of people with that birthday. Thus, each regression has 365 observations as 1953 was not a leapyear. *Scaled lottery number* is the 1972 draft lottery number corresponding to that birthday, demeaned and scaled so that its coefficient represents the change associated with going from the the lottery number with the lowest probability of being drafted to that with the highest (see Table 3). All regressions include month-of-birth fixed effects. Standard errors in brackets. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 8: Georgia prison admissions as a function of lottery number

	(1)	(2)	(3)	(4)	(5)	(6)
Scaled lot. no.	1.547**	0.240***			-0.0547	1.128
	[0.276]	[0.0889]			[0.0874]	[0.100]
Lot. no. < 95			0.0794			
			[0.0573]			
Lot. no. < 50				0.0737		
				[0.0720]		
Model	Poisson	Probit	Probit	Probit	Probit	Poisson
Year	1972-3	1972-3	1972-3	1972-3	1970-71	1975-78

Sources: Data provided to the author by the Georgia Department of Corrections. See Section 6.3.1 for more information. Notes: See Table 7. The Poisson regressions take the count of prisoners with a given birthday admitted during the relevant sample period as the dependent variable, and coefficients are reported as exponentiated poisson coefficients and should be thought of as changes in the incident-rate ratio. The probit regressions take as their dependent variable an indicator for whether at least one prisoner with a given birthday was admitted during the relevant sample period, and coefficients are reported as changes in probability. All regressions include month-of-birth fixed effects. Standard errors in brackets. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Appendix (Not for publication)

The following lemma is useful in proving many of the propositions from Section 3.

Lemma 1. *If $V(c,h;w)$ satisfies the monotonicity condition, then the following three conditions hold:*

(i) At any point of intersection between an indifference curve of an individual with $w = w_i$ and an indifference curve of an individual with $w = w_j$, the slope of i's indifference curve will be steeper iff $w_i < w_j$.

(ii) An indifference curve for an individual with w_j crosses an indifference curve of an individual with w_i only once if $w_i \neq w_j$.

(iii) $\frac{U_e}{U_c h_e}$ is an increasing function of w.

Proof.

(i) This result follows directly from the definition of monotonicity and the fact that $-\frac{V_h}{V_c}$ is the slope an indifference curve in (c,h)-space.

(ii) Take any point of intersection (c_0,h_0) and consider individuals i with $w = w_i$ and j with $w = w_j$, $w_i < w_j$. Define $IC_i(h)$ as the mapping from h to c corresponding to the indifference curve of i at (c_0,h_0) and define $IC_j(h)$ analogously. By monotonicity, for small $\epsilon > 0$, $IC_i(h_0+\epsilon) > IC_j(h_0+\epsilon)$.

Assume for the sake of contradiction that there exists an additional intersection point at some (c_1,h_1). Without loss of generality assume further that $c_1 > c_0$ and $h_1 > h_0$ and that $h_1 - h_0$ is minimized; that is, (c_1,h_1) is the only intersection point with $h \in (h_0,h_1]$. By continuity, for all h' in (h_0,h_1), i's indifference curve is above j's or else h_1 would not be the first intersection point. Therefore, for any $\delta > 0$, $IC_i(h_1-\delta) > IC_j(h_1-\delta) \implies \frac{IC_i(h_1)-IC_i(h_1-\delta)}{\delta} < \frac{IC_j(h_1)-IC_j(h_1-\delta)}{\delta} \implies \lim_{\delta\to 0}\left(\frac{IC_i(h_1)-IC_i(h_1-\delta)}{\delta}\right) < \lim_{\delta\to 0}\left(\frac{IC_j(h_1)-IC_j(h_1-\delta)}{\delta}\right) \implies \frac{\partial IC_i(h)}{\partial h} < \frac{\partial IC_j(h)}{\partial h}$ at $h = h_1$, in violation of Lemma 1 (i).

(iii) As $U(c,e) = V(C,h(e,w))$ for all e, $U_c = V_c$ and $V_h = U_e \hat{e}_h$. Differentiating the equation $h(w,\hat{e}(w,h')) = h'$ with respect to h' gives $\hat{e}_h = \frac{1}{h_e}$, so $V_h = \frac{U_e}{h_e}$ and the result follows by the monotonicity condition.

∎

Proposition 1. *Given monotonicity, for any budget constraint strictly positive and concave in h, h^* is a strictly positive, continuous function of w.*

Proof. Individuals maximize $U(c(h(w,e),e)$ with respect to e, yielding the first-order condition

$$U_c c'(h) h_e + U_e = 0, \tag{3}$$

or,

$$U_c h_e \left(c'(h) + \frac{U_e}{U_c h_e}\right) = 0.$$

As $U_c h_e$ is everywhere positive, the first-order condition reduces to

$$c' + \frac{U_e}{U_c h_e} = 0. \tag{4}$$

Differentiating Equation (4) with respect to w gives:

$$c'' h_w^* + \frac{\partial}{\partial w}\left(\frac{U_e}{U_c h_e}\right) = 0$$

or

$$h_w^* = \frac{-\frac{\partial}{\partial w}\left(\frac{U_e}{U_c h_e}\right)}{c''},$$

where h^* is the optimal level of human capital h.

As the numerator is negative from Lemma 1(iii) and c'' is negative, $h_w^* > 0$. Continuity follows by continuity of $\frac{\partial}{\partial w}\left(\frac{U_e}{U_c h_e}\right)$ and c''. ■

Proposition 2. *Assume there is no draft. Then, there exists a unique $\bar{w}^{nd}$ such that an individual with $w = w'$ acquires $h > \bar{h}$ iff $w' > \bar{w}^{nd}$ when there is no draft. Similarly, there exists a unique $\underline{w}^{nd}$ such that an individual with $w = w'$ acquires $h < \underline{h}$ iff $w' < \underline{w}^{nd}$.*

Proof. Without a draft, individuals face the budget constraint $C(h)$. By Proposition 1, the optimal human capital level h is a continuous, strictly increasing function of w. Thus, the w' for which the optimal h is $\bar{h}$ is well-defined. By Proposition 1, anyone with $w > w'$ will choose some $h \geq \bar{h}$ and anyone with $w < w'$ will choose some $h < \bar{h}$. Thus, $w' = \bar{w}^{nd}$. A parallel argument appies to $\underline{w}^{nd}$. ■

Proposition 3. *Given the draft, there exists a unique $\bar{w}^d \leq \bar{w}^{nd}$ such that all individuals acquire $h \geq \bar{h}$ (dodge up) iff $w \geq \bar{w}^d$. Similarly, there exists a unique $\underline{w}^d \geq \underline{w}^{nd}$ such that all individuals acquire $h \leq \underline{h}$ (dodge down) iff $w \leq \underline{w}^d$.*

I start with a definition and lemma useful in proving later results.

Definition. *Consider two budget constraints, $c(h)$ and $c(h) - V$. For each w, consider the indifference curve that is tangent to $c(h) - V$. Define $h^+(w)$ as the largest h and $h^-(w)$ as the smallest h such that this indifference curve intersects the budget constraint $c(h)$.*

Lemma 2. *Both $h^+(w)$ and $h^-(w)$ are well-defined, continuous, strictly positive functions from w to h.*

Proof. I only prove the lemma for $h^+(w)$ as a parallel proof applies to $h^-(w)$.

For each w, define $h^{-v}(w)$ as the optimal h given the budget constraint $c(h) - V$. As $c(h) - V$ is a positive, concave function of h, by Proposition 1, $h^{-v}(w)$ is an increasing, continuous function of w. It remains to show that $h^+(w)$ is as well.

First, for a given w, consider $h^{-v}(w)$ and let IC^w be the associated indifference curve tangent to $c(h) - V$ and $IC^w(h)$ the corresponding mapping from h to C. As IC^w is by definition tangent to $c(h) - V$ at $h^{-v}(w)$, $IC^w(h^{-v}(w)) = c(h^{-v}(w)) - V < c(h^{-v}(w))$. Given the strict convexity of IC^w and the strict concavity of $c(h)$ they intersect at a unique $h > h^{-v}(w)$. As this h is by definition $h^+(w)$, $h^+(w)$ is well-defined. Furthermore, as $h^{-v}(w)$, IC^w and $c(h)$ are all continuous, so is $h^+(w)$.

Now, take any $w_i < w_j$, which implies that $h^{-v}(w_i) < h^{-v}(w_j)$. For notational simplicity, define IC_i as i's indifference curve through $(c(h^{-v}(w_i)) - V, h^{-v}(w_i))$ and IC_j as j's indifference curve through $(c(h^{-v}(w_j)) - V, h^{-v}(w_j))$. Note that IC_i (IC_j) is the indifference curve for i (j) tangent to the budget constraint $c(h) - V$ and thus the indifference curve associated with i's (j's) utility maximization given the draft budget constraint $c(h) - V$.

Given that each have maximized their utility, IC_i must be above IC_j at $h^{-v}(w_j)$ and IC_j above IC_i at $h^{-v}(w_i)$ so by continuity they must intersect at some $h' \in (h^{-v}(w_i), h^{-v}(w_j))$ and by Lemma 1 IC_i is steeper and thus by single-crossing $IC_i > IC_j$ for $h > h'$.

For the sake of contradiction, assume that $h^+(w_i) > h^+(w_j)$. Therefore, at $h^+(w_i)$, IC_j has yet to cross $c(h)$ and thus still below $c(h^+(w_i)$ while IC_i maps to $c(h^+(w_i)$, implying $IC_j < IC_j$ at $h^+(w_i)$, contradicting $IC_i > IC_j$ for $h > h'$. ■

Given Lemma 2, I can show how the optimal levels of human capital under a draft vary with w and prove Proposition 3.

Proof. Define w' as the inverse of $h^+(w)$ at $\bar{h}$ and w'' as the inverse of $h^-(w)$ at $\underline{h}$, which are both well-defined since $h^+(w)$ and $h^-(w)$ are strictly increasing. Note that by the construction of h^+ and h^-, all individuals with $w > w'$ prefer $(C(\bar{h}), \bar{h})$ to any point on $C(h) - V$ and all individuals with $w < w''$ prefer $(C(\underline{h}), \underline{h})$ to any point on $C(h) - V$. There are two cases to consider.

Case 1: $w' > w''$ In this case, everyone with $w > w'$ dodges up, everyone with $w < w''$ dodges down, and everyone with $w \in (w'', w')$ chooses their optimal point on $C(h) - V$. Thus, $\bar{w}^d = w'$ and $\underline{w}^d = w''$.

Case 2: $w' \leq w''$ Again, all individuals with $w > w'$ prefer $(C(\bar{h}), \bar{h})$ to any point on $C(h) - V$ and all individuals with $w < w''$ prefer $(C(\underline{h}), \underline{h})$ to any point on $C(h) - V$. Therefore, given $w' \leq w''$, all individuals have w either greater than w' or less than w'' so everyone dodges either up or down. Thus, in deciding whether individuals dodge up or down, one need only consider whether they prefer the point $(C(\bar{h}), \bar{h})$ to $(C(\underline{h}), \underline{h})$.

Let w''' be such that individuals with $w = w'''$ are indifferent between $(C(\underline{h}), \underline{h})$ and $(C(\bar{h}), \bar{h})$, which is well-defined by Lemma 1. At $(C(\bar{h}), \bar{h})$, the indifference curve for any $w < w'''$ is steeper than that of w''' by Lemma 1(i), and thus would fall below $(C(\underline{h})$ at $\underline{h}$. Therefore, an individual with $w < w'''$ would prefer $\underline{h}$ to $\bar{h}$. By the same logic, an individual with $w > w'''$ would prefer $\bar{h}$ to $\underline{h}$. Therefore $w''' = \bar{w}^d = \underline{w}^d$.

To complete the proof of Proposition 3, I now show that $\bar{w}^{nd} \geq \bar{w}^d$ and $\underline{w}^{nd} \leq \underline{w}^d$.

Without the draft, the budget constraint is continuous and strictly convex, implying that the indifference curve at any optimum h^* is tangent to the budget constraint and is above the budget constraint at all points except for its (unique) intersection at h^*. Thus, the indifference curve that defines $\bar{w}^{nd}$ intersects the budget constraint just once, at $(C(\bar{h}), \bar{h})$, and otherwise is above the budget constraint. From the proof of Proposition 3, the indifference curve that defines $\bar{w}^d$ contains both $(C(\bar{h}), \bar{h})$ and either $(C(\underline{h}), \underline{h})$ or a point on $C(h) - V$ for $h < \bar{h}$. As this indifference intersects a point on or below $C(h)$ for $h < \bar{h}$ it must be flatter than the indifference curve that defines $\bar{w}^{nd}$ when they intersect at $(C(\bar{h}), \bar{h})$. Thus, $\bar{w}^{nd} \geq \bar{w}^d$ by Lemma 1(i). ■

Bias discussion from Section 5.2.2

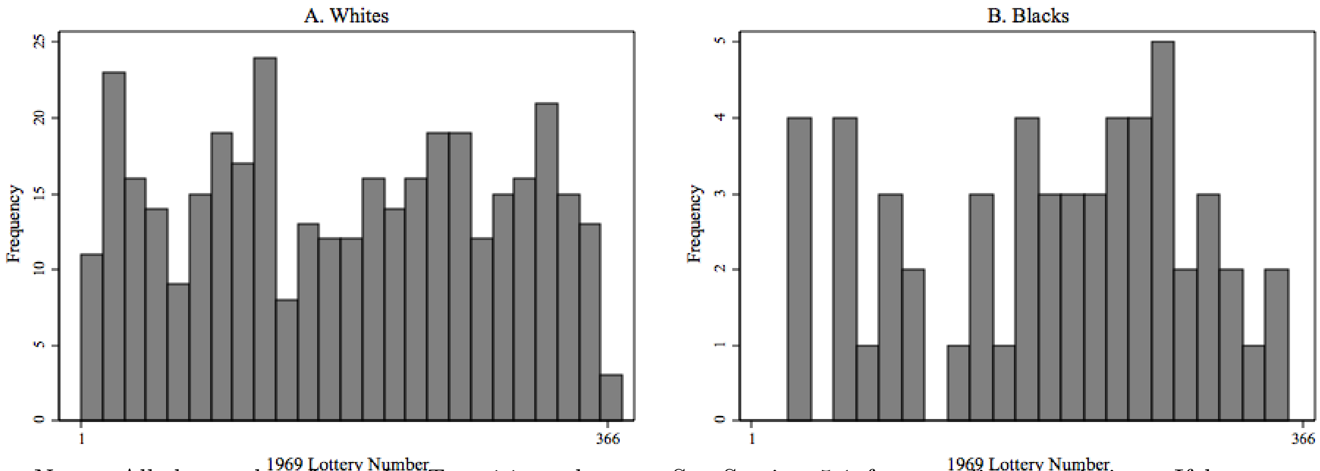
Consider the following latent variable model of entry into the armed services by June of 1970:

$$S_i = \beta Lottery_i + \gamma Z_i + \epsilon_i$$

where S_i is the latent variable and Z_i is some unobserved, de-meaned variable that decreases the probability of military service (family connections, on the one hand, or very low aptitude, on the other). Inclusion in my regression sample requires that someone not be inducted, that is, for some constant $\bar{S}$, $S_i = \beta Lottery_i + \gamma Z_i + \epsilon_i < \bar{S}$, or $\gamma Z_i < \bar{S} - \epsilon_i - \beta Lottery_i$. Therefore,

$$\begin{aligned}
Cov(Z, Lottery) &= E(Z * Lottery) - E(Z)E(Lottery) \\
&= E(Z * Lottery) \\
&= E(nE(Z|Lottery = n)) \\
&= E(n\int_{-\infty}^{\frac{\bar{S}-\beta n}{\gamma}} Zf(Z)dZ) \\
&< E(n\int_{-\infty}^{\infty} Zf(Z)dZ) = E(N)E(Z) = 0.
\end{aligned}$$

Appendix Figure 1: Distribution of 1969 lottery numbers from *Transitions* data



Notes: All data taken from the *Transitions* dataset. See Section 5.1 for sampling restrictions. If lottery numbers were distributed randomly from the $U[1, 366]$ distribution, then the expected value of the mean would be $1 + \frac{366-1}{2} = 183.5$. The mean (standard deviation) for whites in my sample is 183.1 (105.9) and for blacks 198.0 (92.6). Comparing these results to monte-carlo simulations, there is no evidence that lottery numbers among whites are not distributed $U[1, 366]$. For blacks, however, the mean is just under the 90^{th} percentile (based on 55 draws, given 55 black subjects in the regression sample) and the standard deviation is below the 5^{th} percentile, suggesting blacks have a significant number of missing observations from the left side of the distribution.

Appendix Table 1: Earlier academic indicators as a function of 1969 lottery number

	(1) College plans	(2) 1966 IQ	(3) College plans	(4) 1966 IQ
Scaled lottery no.	-0.0563	0.561	-0.0113	1.575
	[0.0930]	[2.006]	[0.0944]	[2.015]
Group x Scaled lot. no.	-0.166	-4.757	-0.165	-7.824
	[0.280]	[6.031]	[0.264]	[5.631]
Group	-0.0523	-10.64***	-0.141*	-12.67***
	[0.0727]	[1.568]	[0.0761]	[1.625]
Group equals...	Black	Black	Low SES	Low SES
Mean of dep. var.	0.602	108.5	0.605	108.7
St. dev. of dep. var.	0.490	11.23	0.489	11.23
Observations	427	427	415	415

Sources and notes: See Table 3. Standard errors in brackets. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.