Leadership Skills and Labor Market Outcomes*

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Very preliminary: comments most welcome

Employers claim to place a high value on interpersonal skills, including leadership, conflict resolution and teamwork, in hiring and retaining employees. They often rank the importance of these skills above notions of technical training and cognitive ability. This paper estimates the net impact of one such "noncognitive" skill –leadership ability-- on labor market outcomes, controlling for the standard human capital and cognitive skill measures typically used by economists in earnings functions. To avoid endogeneity we correlate pre-labor market measures of leadership skills with labor market outcomes in adulthood.

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1. Introduction.

Explaining wage inequality –why some workers earn more than others—has been a central concern of labor economists for at least half a century. In addition to the "usual suspects" of human capital investments (schooling and training) and compensating differentials, one question that has recently received considerable attention among both economists and psychologists is the role played by cognitive skills, as measured by standardized tests of quantitative and verbal abilities (Herrnstein and Murray 1994; Cawley, Conneely, Heckman and Vytacil 1997). It is well known, for example, that wages are positively correlated with cognitive test scores; according to some estimates this correlation is stronger today than it was twenty years ago (Murnane, Willett and Levy 1995; Grogger and Eide 1995).

At the same time, however, it is also well known that the cross-sectional variation in measured cognitive ability, either on its own or combined with the "standard" human capital variables, explains only a very small fraction of the wage inequality observed in the US population. For example, Dickens, Kane and Schultze (1995) report that differences in cognitive test scores can account for less than ten percent of all income inequality. Cawley et al.(1997) find an even smaller effect of cognitive skill. Together, all observable characteristics of individuals including cognitive skill never explain more than 30-40 percent of earnings variation.

Aside from their low explanatory power, the emphasis on cognitive skills in existing statistical analyses of wage determination is surprising also in light of the qualities employers report valuing most when hiring workers. For example, in a recent nationwide survey, the

National Association of Colleges and Employers (NACE, 2000) found that employers' five most highly-valued personal qualities, in order, were communications skills, motivation/initiative, teamwork skills, leadership skills, and academic achievement/GPA. These were followed by interpersonal skills, flexibility/adaptability, technical skills, and honesty/integrity; with "work ethic" and analytical/problem-solving skills tied for tenth place. Of these eleven qualities, only two (academic achievement and analytical/problem solving skills) seem to correspond very closely to what is measured by standard tests of cognitive skills. Employers of low-skilled workers surveyed by Holzer and Wissoker (2000) place more weight on a "good attitude" than on "basic skills" among their new hires. Employers' valuation of these "non-cognitive" qualities, or "soft skills", is further underscored by the increased use of psychological testing of new job applicants (e.g. Richtel 2000). Employers spend real money on these tests, which tend to focus much more on a mix of personality traits than on cognitive abilities, and use the test results in their hiring decisions.

In this paper we attempt to make some inroads into the "black box" containing the 60 percent or more of wage inequality that is unexplained by cognitive skills, formal schooling, and labor market experience. We do so by focusing on one personal characteristic –"leadership"-- that is often mentioned in employer surveys of desirable worker characteristics.[1] By leadership we mean the ability to work effectively with a group of people in a way that motivates other group members and coordinates their efforts.

[1] Further evidence of the market's valuation of leadership stems from the myriad of courses now offered which claim to teach leadership skills, both to youth and to mid-career workers. See for example the Center for Creative Leadership at http://www.ccl.org.

In addition to connecting human capital earnings functions with a quality employers actually say they value, our focus on leadership is also driven by data availability. Unlike most of the qualities mentioned by NACE-surveyed employers, we have access to two measures of leadership skills, taken before labor market entry. One is a self-assessed measure, derived from a battery of psychological questions. The other is behavioral: actually holding a leadership position in a sports or club activity in high school. Both of these measures are included in a large, representative, longitudinal survey of 1960 U.S. high school seniors. The behavioral measure is also included in a smaller longitudinal survey of 1982 seniors. Both surveys include information on family background and cognitive test scores from the senior year of high school, and labor market outcomes ten years after high school.

The research in this paper forms part of a rapidly-growing literature in labor economics on the importance of "non-cognitive skills" in wage determination.[2]
Much of this literature is reviewed in Bowles, Gintis and Osborne (2000); we merely provide a brief overview here. Osborne (1999) finds that, controlling for education and IQ, childhood personality measures of aggression and withdrawal had strong, negative effects on adult earnings in the UK. A number of studies, including Goldsmith, Veum and Darity (1997), Osborne (1999), and Coleman and DeLeire (2000) focus on a personality measure called "locus of control" (the belief that one's own actions can affect outcomes). All find that (again controlling for cognitive skills), measures of locus of control taken early in life affect economic outcomes, including high-school completion rates and adult wages. Duncan and Dunifon (1998) examine

[2] The term "non-cognitive skills " seems to have arisen to distinguish these personality measures or "social" skills from standard math and verbal skill measures, which have generally been referred to as

the effects of a number of noncognitive traits on adult earnings using the Michigan PSID. Goldsmith, Veum and Darity (2000) find a strong correlation between measures of motivation and labor market outcomes controlling for AFQT scores, using the NLSY.

Social scientists with an interest in education have known for a long time that participation in high school extracurricular activities is associated with positive educational, behavioral and economic outcomes (Spady 1970; Otto, 1975, 1976; Hanks and Eckland, 1976; Otto and Alwin, 1977; Landers and Landers, 1978; Camp, 1990; Gerber, 1996). Using small data sets, several economists have found positive wage effects of measures of leadership activity during high school. Both Ackerman (1999) and Rosenbaum (2000) note positive earnings effects of leadership activities in the HSB survey of 1982 high school seniors. Barron, Ewing and Waddell (2000) find that participation as a leader in high school athletics has small positive effects on the adult wages of men in the NLS72 survey of 1972 high school seniors.

Finally, in the course of writing this paper, we discovered an analysis by a prominent sociologist of the effects of "noncognitive" traits on occupational attainment and earnings using a small subset of the large Project Talent data set used here (Jencks 1979, chapter 5); an analysis of which economists seem to be totally unaware. Jencks also finds a positive effect of leadership on wages.

Our analysis improves on Jencks' by utilizing a ten-times larger representative sample, by examining separately the effects of leadership experience on athletic teams and in other organizations, by estimating the labor market effects of leadership experience on both earnings

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"cognitive skills". Psychologists sometimes object to the term, rightly pointing out that cognition is involved in the use of these other skills as well.

and labor force participation, and for both women and men, and by including controls for high school fixed effects.

Controls for the high school attended are known to explain a large portion of earnings variation. These controls capture a number of factors that are likely to influence the economic opportunities and educational attainments of all graduates of the same high school. These include both factors outside the control of the school, such as regional labor market opportunities and neighborhood crime rates, and factors affecting the quality of education provided by the school. Previous research suggests that there is a large amount of variation across high schools in opportunities for extracurricular activities (Morgan and Alwin, 1980; Schoggen and Schoggen 1988; McNeal 1999). Therefore, including high school fixed effects allows us to examine the effect of leadership experiences after controlling for leadership opportunities and many other factors likely to affect wages.

We find that –controlling for family background measures, for all the standard human capital measures, for *all* factors associated with the high school attended (via high-school fixed effects) *and* for tests of math and verbal skills-- individuals who exhibited leadership propensities in high school earn significantly more about ten years later. Corroborating economists' predilection to focus on "what people do, not what they say", our measured effects are stronger for behavioral than for self-assessed leadership skills, though we do find effects for both.

2. Data and Methods

The primary data set used in our analysis is the Project Talent study of 1960 High School Students. The students in this study were surveyed during high school, and followed longitudinally for eleven years after high school. During the base year, more than 300,000 students responded to a 400-question survey, and were given cognitive and psychological assessments. About a quarter of these were selected to be followed for eleven years. While this is very old data, it has a much larger sample size, and a much more complete inventory of personality, behavioral, and ability measures taken during high school than all the more recent data sources, including the PSID, NLS-72, and NLSY. In this paper we restrict our attention to white students who were interviewed as high school seniors in 1960, and re-interviewed in 1971 to collect a variety of labor market outcome and educational attainment information. We also provide some corroborative evidence from the High School and Beyond study of 1980 high school sophomores, surveyed and tested as seniors in 1982 and resurveyed in 1992.

Our methodology in this (admittedly exploratory) paper is straightforward. We simply regress adult wages on indicators of leadership skills taken before labor market entry (i.e. in high school), controlling for standard measures of cognitive ability and family background. The focus on pre-labor market measures of leadership skill is to avoid endogeneity, i.e. the possibility that individuals who do well in the labor market for some unrelated reason (e.g. a "lucky" promotion) might begin to develop those very leadership skills whose effects we wish to measure.[3] The control for cognitive skills ensures that we are capturing only the additional

[3] Even more to the point, for self-assessed measures of leadership, accidentally-successful individuals might interpret their success as evidence of exceptional leadership ability.

effect of noncognitive skills. Because educational attainment beyond high school is properly seen as endogenous in the current context, it is not clear that we should control for it as regressor. However, to test the hypothesis that our results are not driven purely by differences in educational choices between individuals with different levels of cognitive and noncognitive skills, we provide results both with and without educational controls.

Although the question of whether "leadership" and other social skills can be taught is an important one for educational and social policy, in this paper we do not attempt to distinguish between leadership skills that are acquired in school, and those that are innate, or acquired in the family. Our first goal is simply to demonstrate that these skills are rewarded in the labor market.

Because of the eleven year time interval covered by the Project Talent study, sample attrition could potentially be a serious problem. In anticipation of this, the designers of the study randomly selected a subsample of non-respondents to pursue aggressively at each resurvey. For this special sample, they achieved a re-interview rate in excess of 90 percent, so that this group is fully representative of (initial) non-respondents. This was done using a variety of methods, including collection agencies as a last resort. In our analysis we use weights derived from this aggressively-followed sample to adjust for attrition bias in the larger sample. These weights simply up-weight the responses of this aggressively-followed sample by the inverse of their share of the (initially) non-responding population, to generate means that are representative of the entire 1960 high school population.

By fortunate coincidence, the more recent High School and Beyond study of 1980 sophomores also includes questions about the number of times each student served as an officer

of a club or as the captain of an athletic team during the senior year of high school. This study also includes senior year cognitive test scores, with educational attainment and labor market outcomes observed at a similar interval after high school (ten years). Although the HSB sample is smaller and does not contain a self-assessed leadership personality measure, we present some comparative results from that survey in this paper as well.

Descriptive statistics for our Project Talent earnings regression samples are presented in Table 1. This sample includes all persons who were working at the 1971 interview date, and whose measured wages fell between one dollar and fifty dollars per hour. The average employed man in our sample earned $5.17 per hour in 1971; the average employed woman earned $3.75. Even though men were more likely than women to participate in high school sports (at 80 versus 57 percent respectively), slightly more women (40 versus 37 percent respectively) reported being an athletic team captain at some point in their last three years of high school.[4] This suggests smaller teams and/or greater turnover of captains in women's sports. At over 85 percent of the sample, club membership was very common among both men and women; about 43 percent of both men and women were club presidents at some time after their freshman high school year.

[4] Note that our athletic participation variable refers to the current (senior) year while the "team captain" variable refers to the past three years of high school. This raises the possibility that the team captain variable captures some effects of past athletic participation for former captains who are not currently participating in athletics. These individuals constitute 2.6 percent of men (or 8.6 percent of male team captains), and 8.6 percent of women (22 percent of female team captains). Our results however changed very little when we removed all such individuals from the sample. A similar comment applies to the "club president" variable.

As is typically the case, men had higher math scores than women, and women had higher reading scores. Among those employed eleven years after graduation, men were more likely than women to be married, and to have completed either college or graduate school.

The self-assessed leadership scale (SILEAD) is constructed from the respondent's indication that each of the following five statements described him or herself "extremely well" or "quite well":

1. I am the leader in my group.

2. I am influential.

3. I have held a lot of elected offices.

4. People naturally follow my lead.

5. I like to make decisions.

An individual's score simply sums the number of positive responses. Thus, about 35 percent of men in our sample agreed with none of the above statements, while only 4 percent agreed with all five. The distribution is similar for women, with a slightly higher mean, driven largely by more observations in the top two categories. At least by this measure, the distribution of leadership in the population is highly skewed. In a way, this should not be surprising; it may be inherent in at least some notions of leadership that there be fewer leaders than followers.

3. Project Talent Results

a. Men

Table 2 presents earnings regression results for the sample of employed white men, focusing on the effects of actual leadership *behaviors* in high school on earnings eleven years later. Column 1 presents the simple correlations between the high school leadership measures

and wages eleven years later; column two controls for pure participation effects in sports or club activities. Column three adds controls for parents' education and cognitive test scores – variables which are determined before labor market entry. Although the decisions to get married, acquire further education and have children all occur after high school (and are, therefore, in some sense endogenous), column 4 adds controls for these factors as well to test the robustness of our results to standard human capital measures. Columns 5-8 estimate models identical to 1-4 but with the addition of high-school fixed effects. Effectively, these regressions pose the same statistical questions as columns 1-4, but do so by comparing respondents only with others who attended the same high school.

An immediate and striking feature of the results in Table 2 is the robustness and statistical significance of the effect of being an athletic team captain on subsequent earnings. In the version of the model with the tightest controls for cognitive ability, parental background, human capital, and school characteristics, men who were team captains in high school earned an average of four percent more than otherwise-identical men, eleven years after high school. The size of this effect changes little across all specifications of the model, and is highly statistically significant in all cases. In particular, it is worth drawing attention to the stability of the "team captain" coefficient when cognitive test scores are added to the regression. This stability suggests that leadership skills –as measured by the team captain variable-- are something quite distinct and orthogonal to cognitive skills, as some influential psychologists (e.g. Gardner 1983; Sternberg, 1988) have argued.

How does the effect of high-school team captainship compare to that of other, more "standard" determinants of adult earnings? The best comparisons are probably to the two other

factors that are most precisely determined in column 8 of Table 2: math test scores and post-high-school education. Comparing the magnitude of the math score effect to our estimated leadership effect, the effect of being a high-school team captain is almost exactly equivalent to an increase of 30 percentiles (e.g. an increase from the 20th to the 50th, or from the 50th to the 80th percentiles) in mathematical ability. Concerning education, the team captain effect is roughly comparable to the effect of completing some college (5.9 percent), but far less valuable than a college degree, which in 1971 raised men's earnings by over 27 percent.

In contrast to being an athletic team captain, being a club president has estimated effects on earnings that vary substantially across specifications, and that become insignificant when controls for cognitive ability are introduced. The same is true for simple participation in sports and in clubs, not in a leadership position.[5] It would appear that these variables do not capture any leadership and social skills net of what is already reflected in other measured variables in the regression.

As noted, a test for mathematical ability is always a significant predictor of earnings. Comparing columns 3 and 4 to columns 7 and 8, about half of the effect of math scores works through differences in the amount of post-high school education acquired. Reading scores do not have a robust partial effect on earnings for men. Our data also show significant effects for family background in most specifications, with men who did not report their parents' education showing the worst outcomes. In the most tightly-parameterized model of column 8, however,

[5] This contrasts with Barron, Ewing and Waddell's (2000) results in the NLS-72, who do find positive earnings effects of simple participation for men. They do not, however, use high school fixed effects.

these effects are both much smaller in magnitude than the effect of "leadership skills", and statistically insignificant.

One intriguing feature of Table 2 concerns the effect of adding the high-school controls to the regressions: Unlike, say, the parental background variables, which become smaller and less significant when school fixed effects are added (clearly, an important way in which highly-educated parents help their children is by putting them in better schools) the estimated effects of being a team captain always become *stronger* when high school fixed effects are introduced.[6] This result strikes us as surprising: one might expect that part of the return to leadership would result from a tendency for the leaders to come from better-endowed schools, but this is apparently not the case. We discuss possible explanations for this unexpected pattern in Section 6 of the paper.

Table 3 reports similar regression results to those in Table 2, but using the self-assessed measure of leadership. Like the activity-based measure, it too is statistically significant in all specifications, but in this case adding controls (including the high-school fixed effects) reduces the magnitude of the estimated impact. The best way to compare the size of this coefficient to the team captain coefficient in Table 2 is probably to consider reallocating an individual randomly chosen from SILEAD categories 0 and 1 (constituting 62 percent of the population, with this cutoff chosen to be very similar to the 63 percent of men who were never athletic team captains), to the midpoint of categories 2 through 5. According to the coefficient in model 6, this increase of 3.5 – 0.5 = 3 points in self-assessed leadership is predicted to raise a man's hourly

[6] Note that this requires one to compare the same specification with and without the fixed effects, i.e. columns 1 and 5, 2 and 6, etc.

wages eleven years after high school by a little more than three percent, controlling for post-high school education, parents' education, cognitive skills, and high school fixed effects. While smaller than the four percent wage premium for athletic team captains, this is still an economically significant number, and larger than, for example, the effects of having a parent with a bachelor's degree.

In our analysis of men's labor market outcomes we also ran linear probability models for the probability of being employed at the survey date, eleven years after high school graduation. While we report these for women in the next section, we do not for men, as the vast majority of men were indeed working at the survey date. Still, it is worth noting that being a team captain had a strong and significant effect on employment rates in all specifications of these models, while self-assessed leadership was only significant in the absence of high school fixed effects.

4. Project Talent Results- Women

Table 4 presents earnings function estimates for women based on specifications identical to men's in Table 2. As for men, the coefficient on being an athletic team captain is remarkably strong, significant and stable across model specifications. Further, in all specifications, the wage effect of being a team captain, relative to being a team member, is actually greater for women than for men; in the most tightly-parametrized model of column 8, it is about 8 percent. Unlike men, however, when school fixed effects are included in the regression, the wage effect of women's athletic participation as a non-captain is significantly negative, at about minus four percent. Combining these two effects, women's net wage gains to being a team captain, relative

to not participating in athletics at all, are slightly lower than those for men. It is worth stressing once again that these comparisons are with other women who went to the same high school, with identical cognitive skills, parental education and post-high school education.

The coefficients on club presidency, and on club membership, are unstable across specifications, as they were for men. In this case, the "club presidency" effect is negative in the absence of high school fixed effects. Underscoring the importance of including these fixed effects, it becomes positive in their presence, but is insignificant when cognitive ability controls are added to the model. Math scores always matter for women, as they do for men, and their estimated effect on earnings is approximately halved when controls for education beyond high school are introduced. Unlike men, reading scores do matter for women. Women who marry earn lower hourly wages than women who do not. The positive coefficient on children under the age of 5 is puzzling, but may reflect selection into work: as we show below, women with young children are (as expected) much less likely to work for pay. Those who remain in the labor market may, disproportionately, be women facing above-average offered wages.

Table 5 presents wage regressions for women using the self-assessed leadership variable. Unlike men, for whom this variable was a significant determinant of earnings (though less so than actual leadership activity), it is never significant for women. Table 7, which looks at survey-date employment as the dependent variable, also indicates the absence of a robust effect of self-assessed leadership in that context.

The effects of high-school leadership activities on women's survey-date employment are considered in Table 6. Again, these are economically and statistically significant in all specifications of the model. As for men's wage regressions, the effects become *stronger* when

high-school fixed effects are added to the model. Apparently, schools in which women (and men) have lots of sports leadership opportunities tend to be schools whose graduates earn lower wages, on average. Thus, a failure to control for school fixed effects underestimates the effect of team captainship on adult outcomes.

5. High School and Beyond: Preliminary Results

To investigate the sensitivity of our Project Talent results to the choice of data set and of time period, we conduct a similar analysis using the 1980 High School and Beyond data. At this point we have results only for white men who were sophomores in 1980, whose earnings we examine in 1992**.** Thus they are seen ten, rather than eleven years after high school. Measures of 1982 (senior year) leadership activities, cognitive skills, and parental background very similar to those used in the Talent sample are available in this data set. The HSB survey has the advantage of referring to a more recent period, but two disadvantages for our purposes: (a) a smaller sample size, and (b) no "true" wage measure. The earnings regressions in this section, unlike the previous ones, use total annual earnings as a dependent variable, and thus include both the effects of the independent variables on wage rates and on annual hours of work.

Descriptive statistics for our HSB data are presented in Table 8. Fewer (25.7 percent) were team captains than in the Project Talent sample, but this could reflect the fact that the HSB "captain" variable refers to the current year only, not the past three. Sports participation is however also lower (at 60 versus 80 percent), even though the variable refers to the current year only in both surveys. Club leadership and membership are also lower in HSB than in

Talent, though not dramatically so. Unsurprisingly, the percent of men married about ten years after high school was lower in 1992 than in 1971, and the percent having completed college as well as pursuing graduate study was substantially higher.

As an alternative measure of leadership in HSB, we also constructed an indicator based on the number of times an individual reported participating in a variety of teamwork and leadership activities, ranging from group-problem solving activities to public speaking before an audience of 50 or more (details are provided in Table 8). The mean of the constructed variable was 4.5 of 18 possible points.

Log annual earnings regression coefficients based on almost-identical specifications to the Talent sample are presented in Tables 9 and 10. Table 9 focuses on "team captain" and "club president" effects, and shows very similar patterns to the Talent results. First, the team captain variable is economically significant in all specifications, and strongly statistically significant in most, including the most highly-parameterized version of the model (column 6) with high school fixed effects, cognitive ability controls, education and parental background controls. Second, the estimated effect in all cases is considerably larger than in the Talent sample. For the moment, we cannot argue that this means the labor market placed a higher premium on leadership skills in 1992 than in 1971, because the HSB regressions include the effects of leadership skills on hours worked and wages, while the Talent regressions capture only effects on hourly wages.

Third, club presidency affects earnings less than team captainship does, though the effects are larger in HSB than in Talent, and are statistically significant in three of four specifications with high school fixed effects. Fourth, and strikingly, *as in the Talent results, the*

effects of both team captainship and club presidency become larger and statistically more significant when high school fixed effects are introduced. This suggests, once again, that high schools with more opportunities for sports leadership tend to have graduates, who, on average, earn less. Clearly, controls for unobserved characteristics common to a high school are essential in accurately measuring the effect of early leadership activities on subsequent wages. Finally, as in Talent, Table 9 shows no significant effects of simple participation in sports or clubs on adult wages.

Table 10 uses our alternative measure of leadership in the HSB data. It is, once again, not nearly as strong or as significant a predictor of adult earnings as being an athletic team captain *or* a club president. In sum, Table 10 merely reinforces our result that something, especially, about being an athletic team captain in high school, is associated with higher earnings ten years later. Whatever attribute or skill this captures, it is largely orthogonal to measured cognitive ability, and manifests itself most dramatically when a student is compared with others who attended the same high school.

6. Can "Leadership Skills" be Taught?

We now return to the puzzle of why the wage effects of leading athletic teams are greater when school fixed effects are included. It may simply be the case that a larger number of athletic leadership opportunities are available in lower wage regions of the country. Alternatively, the increased wage effect under fixed effects specifications might indicate that what matters in the labor market is being *more* of a leader than one's schoolmates, holding the school's leadership opportunities (and other characteristics) fixed. A third possibility is that

there is a complex relationship between leadership potential, leadership opportunities in high school, the development of leadership skills, and labor market outcomes--and that understanding those relationships will require a much more complex specification of the model.

The higher earnings of high school leaders might reflect pre-existing characteristics of the individuals who choose, or are chosen for, leadership roles. Alternatively, provision of leadership opportunities by high schools might contribute to the development of leadership skills valued by the labor market. These two possibilities might be distinguishable using the rich Project Talent data set. This study contains large numbers of observations of 1960 10^{th}-12^{th} grade students in each of hundreds of high schools. One promising direction for research is to look at the earnings of 10^{th} graders 11 years after high school graduation, with controls for 10^{th} grade cognitive skills, self-assessed leadership ability, family background, and also controlling for school-level information about opportunities for academic and leadership development. These school-level controls might include measures of average changes, between 10^{th} and 12^{th} grades, in cognitive test scores, self-assessed leadership ability, and the proportions of 12^{th} graders who held leadership roles during high school, as well as school dropout rates[7], regional wage levels and peer group information.

A preliminary school-level analysis finds that the growth rate, between 10^{th} and 12^{th} grades, of self-assessed leadership ability is higher in schools where more students participate as leaders. The fact that rates of growth in self-assessed leadership vary across high schools in this way strongly suggests a role for schools to influence the development of leadership skills, or at

[7] Note that high dropout rates will tend to bias upward the growth rates of cognitive and leadership measures.

least of confidence as a leader.[8] The question still open is whether school-level opportunities can be shown to influence labor market outcomes as well, and whether the amount of influence a school exerts varies with the initial characteristics of individual entering high school students.

7. Discussion

This paper has attempted to take a small peek into the "black box" that labor economists call "unobserved ability". It has taken its inspiration from a list of qualities employers often mention as their most highly-valued attributes when hiring workers. It has shown, we believe quite conclusively, that a high-school behavior which can be plausibly interpreted as indicative of leadership skills –acting as an athletic team captain—has robust effects on the wages and employment of men and women eleven years after high school. These effects are both economically and statistically significant; for example they have a larger effect on earnings than having a parent with a bachelor's degree (relative to less than high school). They persist in the presence of detailed controls for cognitive skills, parental background, school fixed effects, and educational attainment after high school. Indeed the stability of the "team captain" effect when cognitive and other controls are added suggests that whatever skill is measured by this variable, it is largely orthogonal to traditional measures of "g", i.e. the one-dimensional cognitive ability that Herrnstein and Murray (1994) argue plays the dominant role in U.S wage inequality.

[8] One caveat to this interpretation, however, should be kept in mind: One of the five elements of the constructed leadership variable to which we have access asks whether the individual *actually* held elected office. This may account for some of the correlation between the amount of opportunities and the growth in self-assessed leadership at the school level.

This said, the results in this paper raise at least as many questions as they answer. For example, why does high-school leadership activity matter in sports, but not in clubs? For men, being a team captain, on the surface, is only slightly more selective than being a club president (in the Talent data, 46% of current athletic team members were captains at some time in the last three years; 50% of club members were presidents)[9]; by this measure it is *less* selective for women. On the other hand, casual empiricism suggests that leadership in sports is a more time- and energy-intensive activity than club leadership; further the emotional and social interactions that need to be "managed" in athletic teams may be much more intense (preventing fist fights is probably not a big issue in chess and science clubs).[10]

Alternatively, the team captain effect may confound a leadership effect with a "beauty" effect: team captains may be physically attractive, and it is well known that this is rewarded in labor markets (Hamermesh and Biddle,1994). While we acknowledge this possibility and cannot test it directly, we are skeptical of this explanation. For one thing, the beauty hypothesis would require that athletic teams choose their captains on the basis of physical attractiveness, rather than their athletic ability or social skills with their teammates. This strikes us as unlikely. Second, Hamermesh and Biddle found larger "beauty"-wage effects for men than for women; we find the opposite for leadership. Third, supporting evidence that team captainship reflects a

[9] In the HSB data, where we have information for current membership and captainship, 42.8 percent of athletic team members are captains, while 46.4 percent of club members were presidents.

[10] Ease of exit may be another consideration: quitting a debating club because of social difficulties one is having with other members may carry much less of a social stigma than quitting the basketball team. Costly exit could thus force athletic team members to invest in learning to use their "voice".

leadership skill comes from the fact that these individuals are more likely to hold jobs (i.e. managerial occupations) where those skills are useful.[11]

Finally, why does acting in a leadership role matter more than self-assessed leadership?[12] Economists will surely, and cheerfully answer that "actions matter more than words", but perhaps participation in these roles not only signals leadership abilities but *builds* them. The next stage of this research will utilize more fully the rich Project Talent data to address the question of whether schools vary in the extent to which they foster the development of leadership skills.

[11] Results available from the authors.

[12] Recall that, when we compared self-assessed leadership to team captainship, we imposed linearity on the effect of self-assessed leadership and we allocated the population of self-assessed leaders into two groups of roughly equal size to the populations of team captains and non-captains. If, instead, we focus on men reporting the highest self-assessed leadership scores only (scores 4 and 5, constituting under 12 percent of the population), the estimated effect on earnings is much stronger, at between 6 and 11 percent (results available from the authors).

References

Ackerman, Deena. "Do the Math: High School Mathematics Classes and the Lifetime Earnings of Men " Unpublished manuscript, Nov. 1999, University of Wisconsin.

Barron, J. M., B. Ewing, and G. Waddell, "The Effects of High School Athletic Participation on Education and Labor Market Outcomes". Review of Economics and Statistics , August 2000, 82(3), pp. 1-13.

Bowles, S., H. Gintis, and M. Osborne, "The Determinants of Earnings: Skills, Preferences and Schooling". Unpublished manuscript, University of Massachusetts, August 2000.

Camp, William, "Participation in Student Activities and Achievement: A Covariance Structural Analysis, Journal of Educatoinal Research, 1990, 83: 272-278.

Cawley, J., K. Conneely, J. Heckman and E. Vyactil, "Cognitive Ability, Wages and Meritocracy". in B. Devlin, S. Fienberg, D. Resnick, and K. Roeder, eds., Intelligence, Genes and Success: Scientists Respond to the Bell Curve. New York: Springer-Verlag, 1997. pp. 179-192

Coleman, M. and T. DeLeire. "An Economic Model of Teenagers' Locus of Control and High School Graduation Decisions". Unpublished manuscript, Irving B. Harris School of Public Policy Studies, University of Chicago, July 2000.

Duncan, G. J. and R. Dunifon. "'Soft Skills and Long-Run Labor Market Success". Research in Labor Economics 17 (1998): 123-149.

Gardner, Howard. Frames of Mind : The Theory of Multiple Intelligences New York : Basic Books, 1983.

Gerber, Susan. "Extracurricular Activities and Academic Achievement." Journal of Research and Development in Education. 1996, 30(1):42-50.

Goldsmith, Arthur H; J. R. Veum, and W. Darity, Jr. "The Impact of Psychological and Human Capital on Wages" Economic Inquiry 35 (4), (Oct 1997):815-829.

Goldsmith, Arthur H; J. R. Veum, and W. Darity, Jr. "Motivation and Labor Market Outcomes". Unpublished manuscript, Washington and Lee University, 2000.

Grogger, J. and E. Eide, "Changes in College Skills and the Rise in the College Wage Premium," Journal of Human Resources, 30(2), (1995):280-310.

Hamermesh, D. and J. Biddle. "Beauty and the Labor Market". American Economic Review 84(5) (December 1994): 1174-94..

Hanks, Michael and Bruce Eckland, " Athletics and Social Participation in the Educational Attainment Process." Sociology of Education, 1976, 49:271-294.

Herrnstein, R. and C. Murray. The Bell Curve: Intelligence and Class Structure in American Life. New York: The Free Press, 1994.

Holzer, H. and D. Wissoker, "Non-Cognitive Skills and Employer Hiring Behavior in the Low-Wage Labor Market: A Preliminary Exploration". Unpublished manuscript, The Urban Institute, 2000.

Jencks, C. Who Gets Ahead? The Determinants of Economic Success in America. New York: Basic Books, 1979.

Landers, Daniel and Donna Landers, "Socialization via Interscholastic Athletics: Its Effects on Delinquency," Sociology of Education, 1978, 51:299-303.

McNeal, R.B. "Participation in High School Extracurricular Activities: Investigating School Effects." Social Science Quarterly, June 1999, 80(2):291-309.

Morgan, David and and Duane Alwin, "When Less is More: School Size and Student Social Participation," 1980, Social Psychology Quarterly, 143(2):241-252.

National Association of Colleges and Employers, "Ideal Candidate Has Top-Notch Interpersonal Skills, Say Employers". January 18, 2000. Posted at http://www.jobweb.org/pubs/pr/pr011800.htm).

Osborne, M. "Personality and Labor Market Success". Unpublished manuscript, University of Massachusetts, Amherst, October 1999.

Otto, Luther, "Extracurricular Activities in the Educational Attainment Process." Rural Sociology, 1975, 4-:162-176.

Otto, Luther, "Extracurricular Activities and Aspirations in the Status Attainment Process." Rural Sociology, 1976, 41:217-233.

Otto, Luther and Duane Alwin, "Athletics, Aspirations, and Attainments." Sociology of Education, 1977, 42:102-113.

Richtel, Matt. "Computer Screening of Job Seekers Has Risks". Santa Barbara News-Press, February 6, 2000, p. A1.

Rosenbaum, James, Stephanie DeLuca, and Shazia Miller. 2000. "Are Noncognitive Behaviors in School Related to Later Life Outcomes?" Unpublished Manuscript. April 2000. Northwestern University.

Schoggen, Phil and Maxine Schoggen, "Student Voluntary Participation and High School Size." Journal of Educational Research, 1988, 81:288-293.

Spady, W. "Lament for the Letterman: Effects of Peer Status and Extracurricular Activities on Goals and Achievement," American Journal of Sociology, 1970, 75:680-701.

Sternberg, Robert. The Triarchic Mind: A New Theory of Human Intelligence. New York: Viking Penguin, 1988.

TABLE 1: DESCRIPTIVE STATISTICS, PROJECT TALENT DATA (Earnings Regression Sample)

	MEN	**WOMEN**
Hourly earnings (1971 dollars)	5.1747 (2.44)	3.75 (2.13)
Athletic Team Captain	0.367 (0.482)	0.399 (0.4897)
Athletic Team Member	0.8039 (0.397)	0.572 (0.495)
Club President	0.4296 (0.495)	0.435 (0.496)
Club Member	0.8583 (0.3488)	0.929 (0.257)
Parent high school graduate (if parent ed is known)	0.663 (0.473)	0.6028 (0.489)
Parent college graduate (if parent ed is known)	0.1817 (0.386)	0.177 (0.381)
Percentile math test score	60.615 (27.7)	51.37 (26.46)
Percentile reading test score	48.66 (27.53)	62.13 (25.73)
Married	0.693 (0.461)	0.607 (0.488)
Some college	0.2897 (0.454)	0.261 (0.439)
College graduate	0.157 (0.363)	0.082 (0.274)
Graduate school	0.212 (0.41)	0.182 (0.386)
Self-assessed leadership Distribution of leadership scores: Lowest: 0 1 2 3 4 Highest: 5	1.35 (1.38) 34.76 27.19 15.95 10.53 7.56 4.02	1.481 (1.511) 34.21 25.88 15.54 10.37 9.25 4.75
N	8179	4022

*in discrete values from 0 to 5

(Standard deviations in parentheses)
Data are for white 1960 high school seniors with 1971 hourly wages between $1.00 and $50.00.

TABLE 2: LOG EARNINGS REGRESSION COEFFICIENTS, PROJECT TALENT DATA, WHITE MEN
(Effects of High-School Leadership Activities) N=8179

	MODEL 1	MODEL 2	MODEL3	MODEL 4	MODEL 5	MODEL 6	MODEL 7	MODEL 8
Athletic Team Captain	0.03617 0.0096	0.03233 0.00973	0.0327 0.0095	0.0256 0.0094	0.050478 0.01016	0.0477 0.0103	0.0508 0.010	0.041 0.00985
Club President	0.0252 0.00935	0.0162 0.00946	-0.00076 0.0093	-0.0191 0.0093	0.03908 0.0097	0.0240 0.0099	0.0115 0.0098	-0.0184 0.0097
Athletic Team Member		0.06424 0.0131	0.0258 0.0114	0.0163 0.011		0.0349 0.0119	0.0278 0.0118	0.02 0.012
Club Member		0.0255 0.01165	0.0162 0.0129	-0.028 0.0127		0.0804 0.0135	0.0478 0.0135	0.0297 0.013
Math score percentile			0.00248 0.00024	0.00126 0.00025			0.00273 0.0003	0.00137 0.00027
Reading score percentile			0.00082 0.00024	0.00062 0.00024			0.00001 0.00027	-0.00039 0.00026
Parent High School Graduate			0.0333 0.0097	0.01972 0.0096			0.01625 0.0104	0.0028 0.01
Parent Bachelor's degree			0.0317 0.0118	0.01003 0.012			0.0294 0.0124	0.0171 0.012
Parent's education missing			-0.0571 0.0238	-0.041 0.0234			-0.0591 0.0257	-0.0268 0.025
Married				-0.0485 0.0136				0.0322 0.015
Married missing				-0.0874 0.0893				0.0241 0.102
Some College				0.067 0.0123				0.0589 0.013
BA				0.234 0.0161				0.2715 0.0165
Some Graduate School				0.19 0.0155				0.2371 0.016
Education missing				0.0953 0.015				0.1099 0.0167
Number of children				-0.0085 0.0113				0.0052 0.0124
Number of children missing				0.00008 0.009				0.0023 0.0099
Number of children under 5				-0.0093 0.0151				-0.041 0.0158
Children under 5 missing				-0.1244 0.0194				-0.123 0.02
HIGH SCHOOL DUMMIES?	NO	NO	NO	NO	YES	YES	YES	YES
R-SQUARED	0.0035	0.0076	0.0625	0.0975	0.4126	0.4165	0.437	0.4728
ADJ R-SQUARED	0.0033	0.0071	0.0614	0.0954	0.3526	0.3567	0.379	0.4176

(Standard errors below regression coefficients)

TABLE 3: LOG EARNINGS REGRESSION COEFFICIENTS, PROJECT TALENT DATA, WHITE MEN
(Effects of Self-Assessed Leadership) N=8177

	MODEL1	MODEL 2	MODEL3	MODEL4	MODEL 5	MODEL6
SELF-INVENTORY LEADERSHIP SKILLS	0.031477 0.0032	0.0211 0.00317	0.0132 0.0032	0.0292 0.0033	0.02004 0.0033	0.0103 0.0033
Math score percentile		0.00248 0.00024	0.00129 0.00025		0.00271 0.00027	0.00137 0.00027
Reading score percentile		0.00072 0.00024	0.0005 0.00024		-1.02E-06 0.00026	-0.0004 0.00026
Parent High School Graduate		0.0355 0.0096	0.0205 0.0096		0.001 0.0103	0.0027 0.0102
Parent Bachelor's degree		0.0315 0.0117	0.0085 0.0119		0.02997 0.0124	0.0155 0.0122
Parent's education missing		-0.0493 0.0237	-0.0384 0.023		-0.0614 0.0257	-0.0291 0.0249
Married			-0.0491 0.0136			0.0318 0.0147
Married missing			-0.0922 0.08897			0.015 0.102
Some College			0.0634 0.0121			0.0611 0.013
BA			0.2255 0.01599			0.275 0.0164
Some Graduate School			0.18193 0.015			0.239 0.016
Education missing			0.092 0.015			0.1174 0.0165
Number of children			-0.0108 0.011			-0.00092 0.0124
Number of children missing			0.0023 0.0093			0.00695 0.0098
Number of children under 5			-0.0103 0.015			-0.04297 0.0158
Children under 5 missing			-0.127 0.019			-0.1289 0.0199
HIGH SCHOOL DUMMIES?	NO	NO	NO	YES	YES	YES
R-SQUARED	0.0116	0.0647	0.098	0.414	0.4351	0.4715
ADJ R-SQUARED	0.0115	0.064	0.0963	0.355	0.377	0.4164

(Standard errors below regression coefficients)

TABLE 4: LOG EARNINGS REGRESSION COEFFICIENTS, PROJECT TALENT DATA, WHITE WOMEN
(Effects of High School Leadership Activities) N=4022

	MODEL1	MODEL 2	MODEL3	MODEL4	MODEL 5	MODEL6	MODEL 7	MODEL8
Athletic Team Captain	0.0938 0.0146	0.0824 0.01497	0.0995 0.0143	0.1018 0.0135	0.0885 0.0152	0.0885 0.0152	0.1042 0.0147	0.079215 0.014
Club President	-045 0.014	-0.051 0.0144	-0.0716 0.0137	-0.064 0.0132	0.0513 0.0148	0.0528 0.0149	0.021 0.014	0.0144 0.0138
Athletic Team Member		0.0405 0.0147	0.0296 0.014	0.0197 0.0132		-0.058 0.0154	-0.055 0.0148	-0.0384 0.014
Club Member		0.1285 0.0273	-0.0124 0.0269	0.0143 0.0257		0.147 0.027	0.0007 0.0278	0.0222 0.0265
Math score percentile			0.00255 0.00039	0.00012 0.00038			0.0029 0.0004	0.001202 0.0004
Reading score percentile			0.0031 0.0004	0.0024 0.00039			0.00179 0.00043	0.00086 0.00041
Parent High School Graduate			0.0437 0.0145	0.0422 0.0136			0.0326 0.0151	0.0445 0.0142
Parent Bachelor's degree			0.0546 0.0186	-0.0065 0.0178			0.0833 0.0188	0.0476 0.01799
Parent's education missing			0.2517 0.0402	0.19 0.0378			-0.0122 0.0418	-0.046 0.0395
Married				0.0744 0.0174				0.0432 0.01897
Married missing				0.3413 0.0284				0.3433 0.02686
Some College				0.295 0.02197				0.233 0.0218
BA				0.1229 0.022				0.1459 0.0226
Some Graduate School				-0.0563 0.016				-0.3676 0.108
Education missing				-0.3574 0.1314				-.00071 0.0164
Number of children				0.012 0.0164				-0.062 0.0193
Number of children missing				-0.0683 0.0123				-0.0192 0.0138
Number of children under 5				0.144 0.0186				0.1226 0.0188
Children under 5 missing				0.119 0.0244				0.00495 0.026
HIGH SCHOOL DUMMIES?	NO	NO	NO	NO	YES	YES	YES	YES
R-SQUARED	0.011	0.0187	0.1210	0.2398	0..57	0.575	0.6113	0.6606
ADJ R-SQUARED	0.0106	0.0178	0.1191	0.2362	0.484	0.49	0.5328	0.5908

(Standard errors below regression coefficients)

TABLE 5: LOG EARNINGS REGRESSION COEFFICIENTS, PROJECT TALENT DATA, WHITE WOMEN (Effects of Self-Assessed Leadership) N=4022

	MODEL1	MODEL 2	MODEL3	MODEL 4	MODEL5	MODEL6
SELF-INVENTORY LEADERSHIP SKILLS	0.00514 0.00466	-0.0084 0.0045	-0.0155 0.0044	0.0261 0.0047	0.0104 0.0046	-0.00287 0.0045
Math score percentile		0.00246 0.00039	0.00007 0.00038		0.003 0.0004	0.00131 0.0004
Reading score percentile		0.0031 0.0004	0.0023 0.00038		0.00164 0.0004	0.00078 0.0004
Parent High School Graduate		0.0368 0.0146	0.0326 0.01371		0.0231 0.015	0.0371 0.0142
Parent Bachelor's degree		0.0622 0.0186	-0.0012 0.0179		0.0768 0.0189	0.045 0.018
Parent's education missing		0.2662 0.0404	0.1989 0.038		-0.0013 0.042	-0.039 0.0395
Married			0.094 0.017			0.058 0.0189
Married missing			0.359 0..028			0.364 0.027
Some College			0.31 0.0225			0.249 0.022
BA			0.125 0.022			0.1499 0.023
Some Graduate School			-0.0554 0.016			0.0045 0.0164
Education missing			-0.433			-0.409 0.108
Number of children			-0.00063 0.0165			-0.0669 0.0192
Number of children missing			-0.059 0.124			-0.0169 0.0138
Number of children under 5			0.137 0.0185			0.119 0.0187
Children under 5 missing			0.104 0.024			0.000024 0.0257
HIGH SCHOOL DUMMIES?	NO	NO	NO	YES	YES	YES
R-SQUARED	0.0003	0.105	0.2272	0.5675	0.6049	0.6566
ADJ R-SQUARED	0.0001	0.1037	0.2241	0.4813	0.5255	0.5864

(Standard errors below regression coefficients)

TABLE 6: LINEAR PROBABILITY MODEL COEFFICIENTS FOR SURVEY-DATE EMPLOYMENT, PROJECT TALENT DATA, WHITE WOMEN (Effects of High School Leadership Activities) N=9926

	MODEL1	MODEL 2	MODEL3	MODEL4	MODEL 5	MODEL6	MODEL7	MODEL 8
Athletic Team Captain	0.0215 0.0104	0.0203 0.0107	0.0267 0.0107	0.032842 0.0099	0.06 0.0115	0.0586 0.0117	0.0627 0.0117	0.0481 0.0107
Club President	0.0004 0.0102	-0.0055 0.01035	-0.01315 0.0103	-0.00281 0.0097	-0.027 0.011	-0.02786 0.011	-0.0354 0.011	-0.0272 0.0103
Athletic Team Member		-0.0084 0.0106	-0.0076 0.0105	-0.0208 0.0098		0.0079 0.0116	0.0112 0.0116	0.0106 0.0106
Club Member		0.0959 0.01848	0.056 0.0187	0.0678 0.0175		-0.0025 0.0203	-0.0475 0.021	-0.0296 0.019
Math score percentile			0.00125 0.000275	0.00042 0.00027			0.001676 0.00299	0.0015 0.00028
Reading score percentile			0.00134 0.00276	0.00115 0.00026			0.0007 0.0003	0.00023 0.000285
Parent High School Graduate			0.0268 0.0142	-0.0451 0.0098			-0.0382 0.011	-0.0428 0.0104
Parent Bachelor's degree			-0.0451 0.0105	0.0017 0.0136			0.00634 0.0148	-0.01256 0.0139
Parent's education missing			0.1563 0.0328	0.093 0.0306			0.1196 0.03346	0.0366 0.0308
Married				0.0705 0.0128				0.109 0.0137
Married missing				-0.0174 0.02				-0.0143 0.02
Some College				0.112 0.018				0.074 0.0187
BA				0.107 0.017				0.1617 0.017
Some Graduate School				-0.115 0.0148				-0.0926 0.0157
Education missing				-0.1198 0.0918				0.0545 0.0886
Number of children				0.131 0.0123				0.131 0.0133
Number of children missing				-0.152 0.01				-0.1533 0.0107
Number of children under 5				-0.1659 0.0126				-0.175 0.01295
Children under 5 missing				0.1791 0.0193				0.2396 0.02007
HIGH SCHOOL DUMMIES?	NO	NO	NO	NO	YES	YES	YES	YES
R-SQUARED	0.0005	0.0032	0.022	0.16	0.3564	0.3565	0.3652	0.4721
ADJ R-SQUARED	0.0003	0.0028	0.0212	0.1584	0.3023	0.3022	0.3113	0.4266

(Standard errors below regression coefficients)
(Sample includes all women regardless of wages or labor force status)

TABLE 7: LINEAR PROBABILITY MODEL COEFFICIENTS FOR SURVEY-DATE EMPLOYMENT, PROJECT TALENT DATA, WHITE WOMEN (Effects of Self-Assessed Leadership) N=9924

	MODEL1	MODEL 2	MODEL3	MODEL4	MODEL 5	MODEL6
SELF-INVENTORY LEADERSHIP SKILLS	0.01356 0.0034	0.00595 0.0034	0.00887 0.0032	-0.00298 0.0036	-0.009 0.00367	-0.0047 0.0034
Math score percentile		0.0013 0.0003	0.0005 0.00026		0.00167 0.000298	0.0015 0.00028
Reading score percentile		0.0013 0.0003	0.0011 0.00026		0.000594 0.0003	0.0001 0.00028
Parent High School Graduate		-0.045 0.01	-0.0447 0.0098		-0.0404 0.011	-0.0448 0.0104
Parent Bachelor's degree		0.0265 0.0142	0.0021 0.0136		0.008 0.0148	-0.0118 0.0139
Parent's education missing		0.155 0.033	0.091 0.031		0.1274 0.0334	0.04298 0.031
Married			0.0725 0.0127			0.1147 0.0136
Married missing			-0.02145 0.02			-0.0124 0.02
Some College			0.1056 0.0108			0.076 0.018
BA			0.1087 0.017			0.116 0.0172
Some Graduate School			-0.1136 0.0147			-0.0899 0.01566
Education missing			-0.1157 0.0918			0.0467 0.0886
Number of children			0.1293 0.0122			0.131 0.0132
Number of children missing			-0.1516 0.01			-0.154 0.0107
Number of children under 5			-0.1656 0.0126			-0.175 0.0129
Children under 5 missing			0.178 0.0192			0.244 0.0199
HIGH SCHOOL DUMMIES?	NO	NO	NO	YES	YES	YES
R-SQUARED	0.0016	0.0208	0.1584	0.3544	0.3627	0.4706
ADJ R-SQUARED	0.0015	0.0202	0.157	0.3001	0.3088	0.4252

(Standard errors below regression coefficients)
(Sample includes all women regardless of wages or labor force status)

TABLE 8: DESCRIPTIVE STATISTICS, HIGH SCHOOL AND BEYOND DATASET, WHITE MALE SOPHOMORE COHORT OF 1980

	Mean (standard deviation in parentheses)
log(annual earnings)	9.134 (0.852)
Athletic Team Captain	0.257 (0.437)
Athletic Team Member	0.6 (0.489)
Club President	0.353 (0.478)
Club Member	0.76 (0.45)
Parent high school graduate (if parent ed is known)	0.79 (0.407)
Parent college graduate (if parent ed is known)	0.156 (0.363)
%-tile math test score	59.48 (27.2)
%-tile reading test score	54.7 (27.4)
Married	0.513 (0.499)
Some college	0.353 (0.478)
College graduate	0.261 (0.439)
Graduate school	0.112 (0.315)
Number of children	1.637 (0.766)
Kids5 (Indicator for presence of a childunder 5) (conditional on having childern)	0.7658 (0.424)
Leader*	4.52 (3.928)
N	2060

TABLE 9: LOG ANNUAL EARNINGS REGRESSION COEFFICIENTS, HIGH SCHOOL AND BEYOND DATA, WHITE MEN (Effects of High-School Leadership Activities) N=2060

	MODEL1	MODEL 2	MODEL3	MODEL4	MODEL 5	MODEL6	MODEL 7	MODEL8
Athletic Team Captain	0.1719 0.0433	0.0872 0.0489	0.0728 0.0486	0.053 0.0487	0.2187 0.054	0.1788 0.0601	0.1873 0.0604	0.172 0.0609
Club President	0.017 0.0396	0.0307 0.0436	0.00063 0.0431	-0.0133 0.0432	0.1179 0.0495	0.1104 0.054	0.105 0.054	0.0873 0.0547
Athletic Team Member		0.1659 0.0447	0.176 0.0446	0.1444 0.045		0.0791 0.0546	0.08035 0.0556	0.0663 0.0567
Club Member		-0.0178 0.0503	-0.0165 0.0484	-0.0438 0.0485		0.0096 0.061	-0.0043 0.0613	-0.00202 0.0618
Math score percentile			0.00285 0.00093	0.001673 0.00098			0.00042 0.0012	0.000189 0.00124
Reading score percentile			-0.000175 0.00091	-0.00029 0.00092			0.0015 0.0011	0.0014 0.0012
Parent High School Graduate			0.1336 0.0886	0.0968 0.0887			-0.103 0.1253	-0.119 0.126
Parent Bachelor's degree			0.0828 0.101	0.0351 0.102			-0.118 0.1405	-0.143 0.142
Parent's education missing			0.247 0.102	0.2137 0.1015			0.0469 0.1397	0.0275 0.1408
Married				0.1151 0.0438				0.0993 0.0529
Married missing				0.12899 0.1282				-0.0943 0.1541
Some College				0.07805 0.0503				0.0136 0.0671
BA				0.2267 0.0615				0.0746 0.0788
Some Graduate School				0.1999 0.0766				0.1476 0.095
Education missing				0.973 0.4652				-0.0967 0.959
Number of children				0.0398 0.0417				0.0101 0.0529
Number of children missing				-0.0553 0.1057				-0.1126 0.12899
Children under 5?				0.124 0.0772				-0.1007 0.101
Children under 5 missing				0.1766 0.117				-0.0264 0.1489
HIGH SCHOOL DUMMIES?	NO	NO	NO	NO	YES	YES	YES	YES
R-SQUARED	0.0081	0.0144	0.0281	0.0455	0.4494	0.4503	0.4533	0.4595
ADJ R-SQUARED	0.0071	0.0124	0.0238	0.0366	0.1766	0.1767	0.1781	0.1812

TABLE 10: LOG ANNUAL EARNINGS REGRESSION COEFFICIENTS, HIGH SCHOOL AND BEYOND DATASET, WHITE MALE SOPHOMORE COHORT OF 1980 (Effects of Self-Assessed Leadership) N=2031

	MODEL1	MODEL 2	MODEL3	MODEL4	MODEL5	MODEL 6
SELF-INVENTORY LEADERSHIP SKILLS	0.0181 0.0048	0.0163 0.00488	0.012 0.0049	0.0156 0.00605	0.01469 0.0062	0.0127 0.0062
Math score percentile		0.00387 0.0009	0.00235 0.00099		0.0015 0.0012	0.00094 0.00122
Reading score percentile		-0.00075 0.0009	-0.00084 0.0009		0.00048 0.001	0.00037 0.0012
Parent High School Graduate		0.104 0.089	0.0655 0.08895		-0.0879 0.1255	-0.1199 0.12596
Parent Bachelor's degree		0.0406 0.102	-0.014 0.102		-0.11005 0.141	-0.1584 0.142
Parent's education missing		0.1789 0.102	0.148 0.102			-0.02945 0.1397
Married			0.1322 0.0437			0.1459 0.0526
Married missing			0.1344 0.1289			-0.0454 0.1552
Some College			0.1043 0.0505			0.05898 0.0666
BA			0.2606 0.0615			0.1372 0.078
Some Graduate School			0.215 0.0768			0.1912 0.0954
Education missing			1.06 0.465			0.0631 0.9528
Number of children			0.0466 0.0418			0.02577 0.05299
Number of children missing			-0.0338 0.1057			-0.121 0.129
Number of children under 5			0.1299 0.0771			-0.0886 0.1004
Children under 5 missing			0.16799 0.117			0.0036 0.1482
HIGH SCHOOL DUMMIES?	NO	NO	NO	YES	YES	YES
R-SQUARED	0.0069	0.0198	0.0421	0.4512	0.4534	0.4638
ADJ R-SQUARED	0.0064	0.0169	0.0345	0.1774	0.1776	0.1870