The Impact of Race on a Child's Educational Attainment and Life-Time Earnings

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Abstract

This paper examines the impact of using a race-neutral model on predicted educational attainment and income of a child in a personal injury legal matter. This is accomplished by comparing the results of the updated ordered probit model from Spizman and Kane (forthcoming) which includes race to the ordered probit without race.

I. Introduction

Recent federal and state legislation has addressed the topic of economic damages in personal injury or wrongful death litigation being reduced by race or gender discrimination. On the federal level, the Fair Calculation in Civil Damages Act (2016) was introduced in the House of Representatives (H.R. 6417) and Senate (S.3489). The purpose of this legislation was "*to prohibit a court from awarding damages based on race, ethnicity, gender, religion, or actual or perceived sexual orientation, and for other purposes."* The legislation died in the 114th Congress.

At the state level, California's Senate Bill No. 41 (2019) was approved by their Governor on July 30, 2019. "*This bill would prohibit the estimation, measure, or calculation of past, present, or future damages for lost earnings or impaired earning capacity resulting from personal injury or wrongful death from being reduced based on race, ethnicity, or gender."*

The purpose of this paper is to examine the impact that such legislation might have on damage awards to a minor child.

Spizman and Kane (forthcoming) updated the ordered probit educational attainment model of a minor child using Round 17 of the National Longitudinal Survey of Youth (NLSY97).[1] The Spizman/Kane ordered probit educational attainment model technique has been used by other researchers.[2]

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[1] Spizman and Kane (1992) published one of the first ordered probit models which they have continually updated. See: Kane and Spizman 2001 and Kane, Spizman and Donelson 2013 (KSD) and Spizman and Kane forthcoming.

[2] Gill, Andrew M. and Foley, Jack "Predicting Educational Attainment for a Minor Child: Some Further Evidence," *Journal of Forensic Economics,* 1996, 9(2), 101-112. Jespen, Christopher and Jespen, Lisa*," Re*-examining the Effects of Parental Characteristics on Educational Attainment for a Minor Child" *Journal of Forensic Economics 14(2), 2001, pp.141-154.* Christopher, Bruce and Carmen, Anderson (2006), "The Impact of Family Background on Educational Attainment in Canada", 18 (2-3), *Journal of Forensic Economics,* Spring-Summer, pp. 125-137, John Kane, Lawrence Spizman, Jim Rodgers, Rick Gaskins, "The Effect of the Loss of a Parent on the Future Earnings of a Minor Child", Symposium Paper, Eastern Economic Journal, 2010, 36, 370-390.

The ordered probit provides a technique that models the choices an individual has in selecting alternative educational levels. Upon estimating the model, the probabilities of a minor child achieving different educational levels can be estimated using family background characteristics.

II. Why an Update?

Round 17 of the National Longitudinal Survey of Youth (NLSY97) adds six additional years of data to the Kane, Spizman, Donelson (2013) paper. In 1997 a new cohort of youth born between the years of 1980 and 1984 were tracked. This cohort was between 12 and 17-year-olds as of December 31, 1996. The 17th follow-up would have the participants being between the ages of 30 and 35 who were born between January 1, 1980 and December 31, 1984. Six additional years will bring most of the participants in the NLSY97 sample closer to their highest level of educational attainment. There will be some participants who have not achieved their highest level of education but the risk of excluding them is more than offset by the addition of six more years of data.

The forthcoming Symposium in the *Journal of Forensic Economics* deals with the implications of legislation like the Fair Calculations in Civil Damages Act of 2016. The Symposium is devoted to analyzing the impact of utilizing race-neutral data (among other things) in the types of damage estimates that forensic economists are concerned with. In view of the Symposium's efforts and recent legislation, this paper estimates the ordered probit model from Spizman/Kane (forthcoming) by excluding the race variable and comparing earning capacity losses of a minor child with and without race.

III. The Model: Estimating the probability of obtaining different educational levels.

The ordered probit educational attainment model of Kane and Spizman (2001) provides one method of predicting the probabilities of alternative levels of educational attainment for a minor child. This differs from other studies that predicted the probability of binary choices, such as whether a student completed high school, attends college or receives a graduate degree.

The model for the ordered probit specification is:

$$Z_i = X_i \beta + \mu_i$$

The unobservable variable Z_i represents the benefits and/or costs of different levels of educational attainment. The vector X_i represents family background and demographic variables that influence Z_i. Since the variable Z_i is unobservable, an indicator variable (dummy variable) is used to show the actual educational level for everyone in the sample. It is assumed that individual *i* acquires:[3]

- less than a high school degree if $Z_i \leq \theta_1$
- GED if $\theta_1 < Z_i \leq \theta_2$
- High school diploma $\theta_2 < Z_i \leq \theta_3$
- Associate's degree if $\theta_3 < Z_i \leq \theta_4$
- Bachelor's degree if $\theta_4 < Z_i \leq \theta_5$
- Master's degree if $\theta_5 < Z_i \leq \theta_6$
- Ph.D. degree if $\theta_6 < Z_i \leq \theta_7$

[3] This specification of the ordered probit model is the same as that used in Kane, Spizman, *et al.* (2010) and is slightly different from that used in Spizman and Kane (1992) and in Kane and Spizman (2001). Under this specification, the initial threshold value is specified as θ_1 instead of zero. This alternative specification has become more common in the literature. The main difference is that the specification used in this study does not contain a separate constant term. The estimated value of θ_1 is the negative of the constant term in the earlier specification.

- MD, JD, or DDS degree if $Z_i > \theta_7$[4]

The estimated coefficients from the ordered probit are then used to determine the probability of the minor child obtaining each different educational level as his or her highest level of educational attainment.

Table 1 describes how to calculate the probability of reaching each different level of educational attainment.

Table 1: Probabilities of Alternative Levels of Educational Attainment

Outcome	**Probability**
Less than high school degree	$\Phi(\hat{\theta}_1 - \hat{Z})$
GED	$\Phi(\hat{\theta}_2 - \hat{Z}) - \Phi(\hat{\theta}_1 - \hat{Z})$
High school diploma	$\Phi(\hat{\theta}_3 - \hat{Z}) - \Phi(\hat{\theta}_2 - \hat{Z})$
Associate's degree	$\Phi(\hat{\theta}_4 - \hat{Z}) - \Phi(\hat{\theta}_3 - \hat{Z})$
BA or BS degree	$\Phi(\hat{\theta}_5 - \hat{Z}) - \Phi(\hat{\theta}_4 - \hat{Z})$
Master's degree	$\Phi(\hat{\theta}_6 - \hat{Z}) - \Phi(\hat{\theta}_5 - \hat{Z})$
PhD degree	$\Phi(\hat{\theta}_7 - \hat{Z}) - \Phi(\hat{\theta}_6 - \hat{Z})$
Professional degree (DDS, JD, MD)	$1 - \Phi(\hat{\theta}_7 - \hat{Z})$

Where: $\Phi(\cdot)$ is the cumulative density function for a standard normal random variable.

Economists determine earnings for each educational level, growth rates, discount rates, fringe benefits, etc. as they normally would. The only criterion for the methodology in determining each educational level earnings is its ability to withstand rigorous cross-examination at a trial.

[4] While a PhD degree is a higher academic rank than an MD, JD, and DDS degree, these professional degrees are placed higher in this ordering on the grounds that medical schools, dental schools, and at least some law schools are more selective than are most PhD programs. Further, graduates of professional programs generally receive higher salaries and more social status than is received by PhDs.

The earnings capacity for each educational level is then weighed by the probability of obtaining the educational level.[5] Adding these together would provide the estimated lost earnings of the minor child.

IV. Data

Table 2 describes the variables and the sample means of these variables used in the estimation. Since minority groups were oversampled in the NLSY97, we use sample base-year weights to estimate population means in Table 2.[6] This paper also updates the poverty levels utilized in the income to poverty ratio in KSD.[7] As discussed in KSD the advantage of having a direct measure of household income (the ratio of gross household income to the poverty level) is a better measure of the human capital stock of household head(s). Practitioners doing child cases

[5] For those uncomfortable with attempting to generate the estimates the supplement material section from the KSD (2013) provides the spreadsheet to do so. If using these new coefficients from this study all you would have to do is enter these new coefficients in place of those in the supplement. Upon publication of Spizman Kane (2020) a new supplemental section will be provided.

[6]While a weighted mean estimator is used, the ordered probit equation was estimated using an unweighted procedure. The rationale for this is that the ordered probit equation is assumed to hold for all individuals in the population. The use of weighted estimator would induce heteroskedasticity and could be justified only if the ordered probit equation would have different parameters for different subsamples of the population. If this were the case, the estimation of a single equation would be inappropriate.

[7] The income-to-poverty ratio is the family income divided by the poverty level for the prior year. Poverty levels for the 48 contiguous states and the District of Columbia depend on the number of persons in the household. In 2018, for example, the poverty levels were:

- $12,490 for a one-person household,
- $16,910 for a two-person household,
- $21,330 for a three-person household,
- $25,750 for a four-person household,
- $30,170 for a five-person household,
- $34,590 for a six-person household,
- $39,010 for a seven-person household,

$43,430 for an eight-person household (for more than 8 people add $4,430 for each additional person), (Federal Register, Annual Update of the HHS Poverty Guidelines, Notice, 84FR 1167 pp 1167-1168 document number 2019-0062, February 1, 2019.) https://www.federalregister.gov/documents/2019/02/01/2019-00621/annual-update-of-the-hhs-poverty-guidelines

Family income as defined by the Census Bureau's measures of poverty includes earnings, unemployment compensation, workers' compensation, Social Security, Supplemental Security Income, public assistance, veterans' payments, survivors benefits, pension or retirement income, interest, dividends, rents, royalties, income from estates, trusts, educational assistance, alimony, child support, assistance from outside the household, and other miscellaneous sources. It is before taxes and does not include non-cash benefits such as food stamps and housing subsidies, as well as excluding capital gains or losses (see http://www.census.gov/hhes/www/poverty/about/overview/measure.html).For practical purposes it would be line 22 (total income) from the parents' Federal 1040 Individual Income Tax Returns.

often do not have tax returns for the child's family. Consequently, we continue to estimate the model with and without the income to poverty ratio.

Table 2: Description of variables and sample means with race

Variable	Description	Sample means: Model I Males	Model I Females	Model II Males	Model II Females
Highest Level of Educational attainment					
Less than high school	= 1 if the respondent does not report a HS degree or GED	0.0929	0.0752	0.0950	0.0716
GED	= 1 if the respondent reports a GED degree	0.1220	0.0823	0.1201	0.0793
HS	= 1 if the respondent reports a high school degree	0.4533	0.3857	0.4513	0.3872
Associate's	= 1 if the respondent reports an AA or AS degree	0.0824	0.0957	0.0774	0.0967
Bachelor's	= 1 if the respondent reports a BA or BS degree	0.1818	0.2496	0.1856	0.2497
Master's	=1 if the respondent reports a Master's degree	0.0525	0.0852	0.0536	0.0893
PhD	= 1 if the respondent reports a PhD degree	0.0040	0.0075	0.0048	0.0081
Professional Degree	= 1 if the respondent reports a PhD, JD, MD, or DDS degree	0.1090	0.0185	0.0122	0.0180
Demographic Variables					
Hispanic	= 1 if the respondent reports a primary racial/ethnic identification as Hispanic or Latino	0.1677	0.1697	0.1727	0.1735
Black	= 1 if the respondent reports a primary racial/ethic identity as Black	0.1939	0.2160	0.1999	0.2235
Urban	= 1 if the respondent reports living in the central city in a Metropolitan Statistical Area	0.7980	0.8118	0.8062	0.8161
Rural	= 1 if the respondent reports living in a rural area	0.2638	0.2559	0.2576	0.2490
Parent's Education					
Mother's years of schooling	= number of years of schooling for mother	12.9899	12.8777	12.9953	12.8678
Father's years of schooling	= number of years of schooling for father	13.0299	12.8555	13.0136	12.8576
Both biological parents	= 1 if both biological parents were present in the household when the respondent was 12 years old	0.5527	0.5231	0.5602	0.5281
Mother's age at 1st birth	= the age of the mother at the birth of her first biological child	23.2057	23.1714	23.1914	23.1670
Religion raised					
Baptist	= 1 if the respondent reports being raised as a Baptist	0.2259	0.2538	0.2280	0.2533
Protestant	= 1 if the respondent reports being raised as a non-Baptist Protestant	0.3402	0.3492	0.3407	0.3457
Catholic	= 1 if the respondent reports being raised as a Roman Catholic	0.3729	0.3303	0.3695	0.3355
Jewish	= 1 if the respondent reports being raised in a Jewish religion	0.0121	0.0092	0.0132	0.0099
Other (non-agnostic and non-atheist)	= 1 if the respondent reports an alternative religion	0.0198	0.0210	0.0204	0.0209
Other household variables					
Number of siblings	= number of siblings reported in 1997	4.2185	4.2336	4.2168	4.2444
Income-to-poverty ratio	= gross household income / poverty level income	314.2998	312.8475	-	-

V. Empirical Results

Table 3 contains the estimated coefficients for the ordered probit model that includes the race variable. The religion variables, in general, seem to be less important in this younger cohort than they were in studies of earlier cohorts. Jewish males, Catholic females, and males of other religions are the only religious groups that, *ceteris paribus*, appear to have higher levels of educational attainment than would otherwise be expected.[8] A large share of the "other religious group" consists of Muslim, Hindu and Buddhist individuals. Given the emphasis placed on male education in Middle Eastern and Asian cultures, the positive coefficient on this variable is not very surprising.[9]

The parental income and education variables have the expected signs and are highly significant for both males and females. As found by Fryer and Levitt (2004), mother's age at first birth is also a significant determinant of educational attainment. As other studies have shown,[10] the presence of both biological parents has a substantial positive impact on educational attainment.[11] The negative sign on the coefficients for black and Hispanic males is consistent with the relatively lower levels of educational attainment for these groups as found by Cameron and Heckman (2001), McDaniel, DiPrete, Buchman, and Shwed (2011), and Jasinski (2000). Black females, on the other hand, tend to acquire more education than their white counterparts. This is probably the result of the higher and more continuous labor force participation realized by this group (relative to black males and white females).

In general, though, the results of this estimation are very consistent with the findings of earlier studies.

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[8] More precisely, given the nonlinearity of the normal distribution, all we can say is that this model suggests that a positive coefficient indicates that an increase in the level of the variable results in a lower probability that the individual will become a high school dropout and a higher probability that the individual will acquire a professional degree. The probabilities of other categories of educational attainment may rise or fall in this case.

[9] A similar result is found in Sander (2010).

[10] See: Gill and Foley (1996), Kane and Spizman (2001), Kane, Spizman, Rodgers, and Gaskin (2010), Spizman and Kane (1992), Jespen and Jespen (2001), and to some extent Bruce and Anderson (2005).

[11] While other variables such as quality of schools, teacher quality, class size, expenditures per pupil might also affect educational attainment, this data is not available in the current data set (or any other large longitudinal data set). Also, in the case of minor preschool injured children, even if this data were available, assumptions about these variables by forensic economists would be speculative.

Table 3: Ordered probit equation With Race

Variable	Model I		Model II	
	Males	Females	Males	Females
	Coefficient	Coefficient	Coefficient	Coefficient
Demographic Variables				
Hispanic	-.17855	.04707	-.21896	.04104
	(-2.62)***	(0.66)	-(3.53)***	(0.62)
Black	-.09106	.27366	-0.12529	.25187
	(-1.34)	(4.09)***	(-2.05)**	(4.18)***
Urban	.05951	-.03146	0.09752	.02444
	(1.04)	(-0.53)	(1.84)*	(0.45)
Rural	.00569	.11635	.01312	.11492
	(0.11)	(2.17)**	(.27)	(2.31)**
Parent's Education				
Mother's years of schooling	.02197	.07806	0.03293	.08592
	(3.63)***	(7.54)***	(5.72)***	(9.06)***
Father's years of schooling	.01995	.05814	0.02626	.06451
	(4.02)***	(6.19)***	(5.53)***	(7.49)***
Both biological parents	.41993	.41421	0.4380	.43473
	(8.89)***	(8.75)***	(10.32)***	(10.13)***
Mother's age at 1st birth	.03214	.02703	0.03741	.02610
	(6.36)***	(5.19)***	(8.16)***	(5.55)***
Religion raised				
Baptist	.13274	.05564	.15416	-.0214
	(0.98)	(0.45)	(1.24)	(-0.18)
Catholic	.20091	.12046	.17480	.19638
	(1.53)	(2.30)**	(1.43)	(1.074)
Jewish	.59025	.43201	0.5964	.44979
	(2.56)**	(1.71)*	(2.9)***	(2.0)**
Other (non-agnostic and non-atheist)	.63544	.30834	0.50469	.20150
	(3.23)***	(1.64)*	(2.81)***	(1.16)
Protestant	.21723	.12760	0.19186	.0691
	(1.67)*	(1.08)	(1.59)	(0.62)
Other household variables				
Number of siblings	-.00964	-.00141	-0.01557	-.0029
	(-1.29)	(-0.19)	(-2.27)**	(-0.42)
Income-to-poverty ratio	.00051	.00042	-	-
	(5.91)***	(4.47)***		
Thresholds				
θ_1	.37035	1.3139	0.56700	1.30837
θ_2	.95284	1.7969	1.13239	1.78417
θ_3	2.3250	3.0715	2.4921	3.0631
θ_4	2.602	3.3639	2.7489	3.3539
θ_5	3.5357	4.3633	3.67542	4.3353
θ_6	4.2834	5.1556	4.3951	5.1542
θ_7	4.4131	5.30955	4.5355	5.32229
N	2475	2380	2947.00	2823
χ^2	502.79***	584.01***	574.33***	653.2***

(t-statistics in parentheses)

* significant at the 0.1 level t value >1.645

** significant at the 0.05 level t value >1.96

*** significant at the 0.01 level t value >2.58

VI. Advantage of S/K Model

Another method used by forensic economists to estimate the earning capacity loss of a minor child is to assume the child would have either earned a high school degree or a college degree. Sometimes an economist will assume the attainment of an associate's degree; that is, they use broad statistical evidence without any personalization of the minor child's familial characteristics. Both scenarios make it an either/or situation. The expert may either leave it to the trier of fact to choose an earning capacity loss based on the broad statistical evidence or the expert will simply take the average of the two scenarios. The economic or vocational expert might provide demographic characteristics such as the child's parents' educational levels. They then will justify the child's educational attainment on the basis that the child will follow in the parents' footsteps and graduate high school or attend college. They do not provide any probability of this occurring.

When an economist presents the earning capacity loss for only a high school degree, they are claiming with 100% certainty that the child will obtain a high school degree. When the same economist presents the earning capacity loss for only a college degree, they also claim with 100% certainty that the minor child will obtain the degree. If the economist or trier of fact takes the average lost earning capacity of the two educational levels, they are essentially saying there is a 50% probability of attaining a high school degree and a 50% probability of attaining a college degree. Yet the economist should have the skills and tools necessary to utilize family demographic variables in determining the probability of a minor child attaining all education levels, not just two outcomes.

The convenience and simplicity of using the average of two earning capacities conditioned on two levels of educational attainment loss methodology always assumes a 50/50 probability for every child, no matter what the family background characteristics. If both parents are highly successful and educated, the expert might only provide earning capacity loss assuming the minor child gets a bachelor's degree, claiming with 100% certainty that the minor child will obtain a bachelor's degree. In all the studies estimating educational probabilities, though, there are no statistical combinations of family background characteristics that will provide any outcome of educational attainment with 100 percent probability.

While the model in this paper requires more effort to estimate the earnings loss (since all earning capacities must be calculated for every educational level) it is statistically more accurate than assuming there is a 50/50 probability of getting a bachelor's degree and high school degree, or some equally weighted average of different educational combinations. The model examines facts personal to the minor child and combines those with national data that also corresponds to the child's characteristics. This paper provides the statistical methodology to make the probability statements for each level of education. The economist will have to estimate each educational level earning capacity; however, with data sources such as *Full-Time Earnings in the United States' "Expectancy Data"* it is relatively straightforward.[12]

VII. Race Neutral Estimates

In 2016 the Fair Calculation in Civil Damages Act was introduced in the House of Representatives (H.R. 6417) and Senate (S.3489). The purpose of this legislation was "*to prohibit a court from awarding damages based on race, ethnicity, gender, religion, or actual or perceived sexual orientation, and for other purposes."* The legislation died in the 114th Congress. Given that both sponsors of the Fair Calculation in Civil Damages Act have had presidential ambitions in 2020 it is possible that some version of this act may resurface at the federal level. Cory Booker (D-NJ), as of this writing, is running for President of the United States. Kirsten Gillibrand (D-NY) dropped out of the presidential race late in August 2019.

At the state level California's Senate Bill No. 41 (2019) was approved by their governor on July 30, 2019. Senate Bill No. 41 states:

> *Existing law authorizes a person who suffers a loss or harm to that person or that person's property, from an unlawful act or omission of another to recover monetary compensation, known as damages, from the person in fault. Existing law specifies the measure of damages as the amount which will compensate for the loss or harm, whether anticipated or not, and requires the damages awarded to be reasonable.*
>
> *This bill would prohibit the estimation, measure, or calculation of past, present, or future damages for lost earnings or impaired earning capacity resulting from personal injury or wrongful death from being reduced based on race, ethnicity, or gender.*

[12] We make no judgment on how the earning capacity loss should be projected or the data source to be used.

Section 1 declares:

> (a) The principals of equal protection and due process are fundamental to our democracy and the concept of civil liberty.
> (b) California has been a pioneer in civil rights, leading the way in prohibiting discrimination based on race, ethnicity, gender, and other protected categories.
> (c) However, in tort actions around the state and country, race, ethnicity, and gender are routinely used in calculating damage awards that are meant to provide restitution to victims. For example, since women in America earn lower wages, on average, than men, the damages awarded to women are substantially lower than those received by men.
> (d) Nearly one-half of economists surveyed by the National Association of Forensic Economics said they consider race, and 92 percent consider gender, when projecting earning potential for an injured person, including children. Future lost earning potential is a significant component of the damages awarded in tort actions.
> (e) To determine projected lost earning potential, court experts typically rely on the Bureau of Labor Statistics' Current Population Survey. The results reflect gender pay gaps and workforce discrimination, and they fail to account for possible progress or individual achievement.
> (f) The consequence of this bias—to use averages that represent generations of discriminatory practices—is to perpetuate systemic inequalities. These practices disproportionately injure women and minority individuals by depriving them of fair compensation.
> (g) Using race and gender-based tables can, by some estimates, under-value women and minorities by hundreds of thousands of dollars, including children who have not yet had the opportunity to work or identify career options. Specifically, these practices greatly disadvantage children of color, who are more likely to be impacted by environmental hazards created by the industrial facilities and factories located in low-income communities.
> (h) Any generalized reduction of civil damages using statistical tables alone, based on a plaintiff's membership in a protected class identified in Section 51 of the Civil Code, is counter to the public policy of the State of California.
> (i) This act shall not be construed to explicitly permit the generalized reduction of damages for lost earnings or impaired earnings capacity based on protected classifications not identified in the Bureau of Labor Statistics' Current Population Survey unless otherwise permitted by existing law.

Section 2 added Section 3361 which states:

> *Estimations, measures, or calculations of past, present, or future damages for lost earnings or impaired earning capacity resulting from personal injury or wrongful death shall not be reduced based on race, ethnicity, or gender.*

California courts will deal with interpreting SB41 for many years. With the potential for more state and or federal legislation dealing with perceived racial bias, we estimated the SK model

without any race variables in order to determine what the impact, if any, on earnings eliminating race would have.

Table 4 shows the results of the model, excluding race. Table 3 includes the race variable.

Table 4: Ordered probit equation Without Race

Variable	Model I		Model II	
	Males	Females	Males	Females
	Coefficient	Coefficient	Coefficient	Coefficient
Demographic Variables				
Urban	.03778	-.01481	0.07375	.03648
	(0.67)	(-0.25)	(1.4)	(0.67)
Rural	.02250	.0831	0.0371	.08483
	(0.44)	(1.59)	(0.78)	(1.75)*
Parent's Education				
Mother's years of schooling	.02299	.07915	0.03481	.08631
	(3.82)***	(7.74)***	(6.09)***	(9.26)***
Father's years of schooling	.02094	.05817	0.02801	.06384
	(4.25)***	(6.25)***	(5.94)***	(7.48)***
Both biological parents	.42435	.37912	0.4493	.39725
	(9.16)***	(8.17)***	(10.8)***	(9.50)***
Mother's age at 1st birth	.03315	.02491	0.0393	.02401
	(6.58)***	(4.81)***	(8.62)***	(5.14)***
Religion raised				
Baptist	.1095	.16108	0.1301	.0767
	(0.82)	(1.33)	(1.06)	(0.68)
Catholic	.16183	.26508	0.1362	.18379
	(1.25)	(2.22)**	(1.13)	(1.64)*
Jewish	.56645	.4397	0.5913	.11097
	(2.46)**	(1.74)*	(2.87)***	(1.96)**
Other (non-agnostic and non-atheist)	.6541	.32056	0.53857	.20820
	(3.33)***	(1.71)*	(3.00)***	(1.20)
Protestant	.2053	.14500	0.18997	.08321
	(1.58)	(1.23)	(1.58)*	(0.75)
Other household variables				
Number of siblings	-.01488	.00564	-0.02239	.00355
	(-2.08)**	(0.79)	(-3.41)***	(.53)
Income-to-poverty ratio	.00055	.00038	-	-
	(6.43)***	(4.08)***		
Thresholds				
θ_1	.42542	1.2528	0.6680	1.2351
θ_2	1.0076	1.7324	1.2328	1.7080
θ_3	2.3771	3.0018	2.5881	2.9820
θ_4	2.6538	3.2936	2.8443	3.272
θ_5	3.5853	4.2901	3.7676	4.2513
θ_6	4.3305	5.0798	4.4840	5.0673
θ_7	4.4598	5.2338	4.6238	5.2358
N	2475	2380	2947.00	2823
χ^2	502.79***	584.01***	574.33***	653.2***

(t-statistics in parentheses)

* significant at the 0.1 level t value >1.645

** significant at the 0.05 level t value >1.96

*** significant at the 0.01 level t value >2.58

Table 5 shows the present value earnings estimates for each educational level based on an actual case by one of the authors. Earnings for each educational level determined by the economist will be multiplied by the coefficients of the ordered probit to get the earnings adjusted for the probability of obtaining each educational level.

VIII Evidence

Age Earning Base Year Profiles

Data from the *Full-time Earnings in the United States, American Community Survey Analysis* was used in this analysis.[13] Earnings are broken down by levels of education. Age earnings profiles use median earnings for age levels 18-24, 25-34, 35-44, 45-54, 55-64 and 63-67. Table 5 shows the age earning wages from 2017 for each educational level age cohort.

Table 5

Education	Earnings
Less than High School Diploma	$660,547
GED	$1,110,002
High School	$1,240,925
Associate degree	$2,236,564
Bachelor's Degree	$3,141,754
Master's Degree	$4,154,718
Ph.D. Degree	$8,695,910
Professional Degree	$11,310,974

Growth rate

The historical growth rate of earnings was calculated for each level of education.[14]

[13] The publication *Full-time Earnings in the United States: 2017 Edition.* Shawnee Mission, Kansas, 2019, constructs summary earnings figures regarding year-round, full-time workers using data in the 2013 - 2017 Census' American Community Survey (ACS). This expands the ACS data by publishing percentile views of year-round: full-time earnings. Data for different educational levels by age are from the appropriate tables for women. (Tables 60 77, 94, 148, 166,184, 202 and 216). All data is in the public domain from the U.S. Census Bureau's *American Community Survey* at http://www.census.gov/acs/.

[14] The growth rate is based on the time frame from when Expectancy Data started using the American Community Survey in their analysis in 2002.

Fringe Benefits

Fringe benefits are 20.054 percent of income for insurance, retirement and savings and are derived from "Employer Costs for Employee Compensation, Bureau of Labor Statistics (2019)."

Present Value

The discount rate for lost earnings is based on a Laddered U.S. Government Treasury Constant Maturities, as of August 8, 2019.[15] There are an infinite number of demographic combinations that will generate income based on educational levels.

IX, Results and Conclusion

Table 6 presents the results for twelve different scenarios.[16] The example used in the paper compares a female child's income between the ordered probit in Table 4 (race neutral) and Table 3 (inclusive of race). The purpose of estimating earnings for each level of education under both models is to get an idea of how legislation requiring using race neutral data will impact a child's earnings. The earnings in the income race model shows earnings considering the child's race. Scenario 3 shows a black female child whose mother was 28 years old for her first child, living in an urban area with 14 years of education whose biological father of the child has 16 years of education with one sibling that is Protestant and has an income of $3,447,249. If race neutral estimates are used, the child's life-time earnings are reduced to $2,980,526. The gap between earnings using race neutral versus race narrows as the educational levels of one or both parents is reduced. In general, the earnings of Hispanic females and black females are consistently reduced using race neutral data. Thus, the unintended consequences of legislation to eliminate race will harm the very groups that the legislation is intended to help.

[15] These can be found in Federal Reserve Statistical Release located at http://www.federalreserve.gov/Releases/H15/update/. The Laddered interest rates are based on 1, 2, 3, 5, 7, 10, 20 and 30 year Treasury Constant Maturities. The rates are 1.79, 1.62, 1.54, 1.54, 1.62, 1.72, 2.02 and 2.25 percent respectively.

[16] In this example we assume tax returns of the parents were not available, thus Model II without the income to poverty ration was used.

Table 6: Model II Females No income of parents

Scenario	F	H	B	U	R	ME	FE	BB	MA	BAP	CAT	JEW	OT	PRO	#S	Income race model	Income race neutral model
1	x			x		14	16	x	28					x	1	$2,974,801	$2,980,526
2	x	x		x		14	16	x	28					x	1	$3,046,699	$2,980,526
3	x		x	x		14	16	x	28					x	1	$3,447,249	$2,980,526
4	x			x		12	12	x	28					x	1	$2,271,669	$2,273,964
5	x	x		x		12	12	x	28					x	1	$2,324,426	$2,273,964
6	x		x	x		12	12	x	28					x	1	$2,619,163	$2,273,964
7	x			x		11	11	x	28					x	1	$2,090,141	$2,092,052
8	x	x		x		11	11	x	28					x	1	$2,137,873	$2,092,052
9	x		x	x		11	11	x	28					x	1	$2,404,722	$2,092,052
10	x			x		16	12	x	28					x	1	$2,628,419	$2,628,169
11	x	x		x		16	12	x	28					x	1	$2,690,947	$2,628,169
12	x		x	x		16	12	x	28					x	1	$3,039,908	$2,628,169

F- Female
H-Hispanic
B-Black
U-Urban
R-Rural
ME-Mothers Years of Education
FE-Fathers Years of Education
BB-Both Biological Parents
MA- Mothers Age of 1st born
BAP-Baptist
CAT-Catholic
JEW-Jewish
OT-Other
PRO-Protectant
#S-Number of Siblings

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