The Long-Term Economic Benefits of Natural Mentoring Relationships for Youth

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Abstract

Natural mentors have been shown to help improve psychological and educational outcomes of youth, and may serve an important role for youth experiencing risk in the home. Using data from the National Longitudinal Study of Adolescent to Adult Health (Add Health), we investigated the associations between natural mentors during youth and income during early adulthood, including how these relations were moderated by the absence of a father figure and race. We also estimated the lifetime economic benefits to having a natural mentor. The presence of a natural mentor alone did not have a significant impact on annual earnings during adulthood. However, youth without a father but who had a male mentor earned significantly more, on average, than those without a male mentor. These effects were more pronounced in a sub-sample of African American youth. The net present value of total lifetime benefits to having a male natural mentor was approximately $190,000 for all fatherless youth and $458,000 for African American fatherless youth. These results suggest that natural mentors play a crucial role in economic outcomes for youth, which may vary by sociodemographic factors.

Keywords

Natural mentors; Income; Adolescence; Early adulthood; African American youth; Father absence

Introduction

Mentoring programs such as Big Brothers Big Sisters of America (BBBS) provide youth with an adult mentor whose purpose is to promote positive growth (e.g., improved self-esteem) and prevent engagement in risky behaviors (e.g., delinquency) through a nurturing relationship. In general, these programs seem to have a positive influence on at-risk youth, at least in the short run (DuBois et al. 2011). However, the long-term benefits are less clear. Herrera et al. (2011) randomly assigned mentors from BBBS to students ages 9–16 and followed them for a year and a half, finding that mentored youth improved self-perceptions and academic performance. However, by 1½ years post-intervention, the gains had disappeared. Further, Rodriguez-Planas (2012) found that mentored youth graduated from high school earlier and were more likely to attend a post-secondary school, but that there was no significant impact on employment status five years later.

Natural mentors are distinct from those found in mentoring programs. They consist of positive role models that emerge naturally from the youth's daily interactions and activities. An important question is whether natural mentors carry different sorts of benefits, and the potential for longer-term benefits, in the youth's life. Three characteristics of successful natural mentor–mentee relationships have emerged from the literature. First, there is a common interest, such as a recreational interest (e.g., sports, the arts) (DuBois and Silverthorn 2005). Second, an emotional bond and frequent contact occur (DuBois and Neville 1997). Third, the relationship spans over time, typically a year or longer (Grossman and Rhodes 2002). For example, a football coach may be a natural mentor to a player, as there is the common interest of football, there is frequent contact during practices, and the relationship extends over the course of the school year. When natural mentoring relationships exhibit these characteristics, youth can experience greater overall well-being, effects which may persist into young adulthood and beyond (Hurd and Zimmerman 2014). Williams and Kornblum (1985) showed that youth with few family resources sometimes develop "street smarts" that can help them identify safe adult mentors and community havens (e.g., a mechanic's shop). In poor communities, these safe havens are often small economic hubs, which can in turn lead to legitimate jobs for youth (Williams and Kornblum 1985). Youth employment, especially in a low-income context, can have positive effects on development (e.g., future orientation, self-efficacy) (Purtell and McLoyd 2013). But it may also encourage risky behaviors (e.g., smoking, disengagement from school) if it interferes with school (i.e., when employment begins to take on more than 15 h per week), regardless of neighborhood context (Kingston and Rose 2015). Thus, youth employment is an important focus in promoting positive development, but may be most beneficial when it fosters the cultivation of meaningful and positive relationships with gainfully employed adults.

To date, only a few studies have evaluated the relationship between the presence of a natural mentor during youth and later economic outcomes. Research has shown positive associations between natural mentors and later home, car, and bank account ownership (Greeson et al. 2010) as well as outcomes such as completing high school, attending college, and working 10 or more hours a week (DuBois and Silverthorn 2005). McDonald and Lambert (2014) found that having a natural mentor led to increased authority and autonomy at work, but found no relationship between natural mentor presence and employment or income. Such studies suggest that natural mentors have an impact on later educational and occupational attainment, but we still lack knowledge about earnings outcomes. Given that associations between natural mentors and long-term benefits have been established, another important question is whether these long-term benefits are moderated by contextual or sociodemographic factors. The present study examined whether the long-term economic benefits of natural mentors for at-risk youth were moderated by father absence and race.

Who Benefits from Natural Mentors?

To date, evidence for differential effects of natural mentors on youth living with and without risk has been mixed. Natural mentoring has led to improved outcomes for at-risk youth, including decreases in drug use and delinquent behavior (DuBois and Silverthorn 2005; Zimmerman et al. 2002). It has also been associated with reduced depressive symptoms and

anxiety in adolescent mothers (Hurd and Zimmerman 2010). But Dubois and Silverthorn (2005) found little evidence that the impact of natural mentors was moderated by individual or environmental risk (e.g., poverty or delinquency). Regardless, theorists still contend that natural mentors may offset the effects of certain environmental risks (Dubois et al. 2011).

Risks attributed to growing up in a low SES home contribute to gaps in educational attainment and earnings (Currie 2008). In 2013, 31 % of White children, 65 % of African American (AA) children, and 42 % of children living with a single parent (the majority of which are single mothers) lived in low-income families (Jiang et al. 2015). Children in single-mother-headed homes, on average, show higher levels of aggressive behavior, incarceration and delinquency, and school failure (Bronte-Tinkew et al. 2006; Cobb-Clark and Tekin 2011; Nord and West 2001; Osborne and McLanahan 2007). These effects are likely attributable to the risks that accompany growing up in relative poverty (McLanahan and Sandefur 2009). Growing up without a father figure also costs youth a second adult who may guide their educational and career-related choices (Mortimer et al. 2008). Male mentors have been shown to provide more career-related guidance than female mentors (Allen and Eby 2004; Sosik and Godshalk 2000). Therefore, male mentors may provide some of the benefits that fathers would have provided, such as guidance in occupational choices, and may serve as a potential proxy for an absent father figure.

These economic risks are experienced more frequently among racial and ethnic minority youth in the U.S., particularly AA youth (McLoyd 1990, 1998). AA youth are thus exposed to more risk factors associated with low income, such as higher family stress and community violence, than other youth (Cooley-Strickland et al. 2009; Paschall et al. 1996). AA youth also face barriers to achievement due to institutionalized racism, such as limited access to high-quality schools, which can result in lower academic achievement and lower expectations of future orientation (Fryer et al. 2004; Kerpelman et al. 2008; Krieger and Sidney 1996; Nyborg and Curry 2003). These risks can lead to higher rates of unemployment and poverty, and are especially salient among male AA youth (Brown and Jones 2004; Wood et al. 2007), begging the question of how natural mentors benefit economic outcomes for these youth. Natural mentors also confer benefits to youth that are specific to racial identity, such as racial identity socialization (Darling et al. 2006; Hurd et al. 2012; Hurd and Sellers 2013). Therefore, it is essential to understand whether there are differential effects of the presence of a natural mentor, and that of a male natural mentor, for AA youth.

Economic Benefits of Mentoring

Economic benefits of mentoring programs are important because they may influence funding decisions regarding such programs (Stevens et al. 2010). Researchers have estimated a net benefit to taxpayers of $225 to $4524 per participant in BBBS (Aos et al. 2001). Minnesota mentoring programs returned $1.87 in public cost savings and tax revenues for every dollar spent (Anton and Temple 2007). The total benefit to the public of the ChalleNGe program was estimated as $25,549 (in 2010 dollars) per mentee or $2.66 in benefits for every dollar spent on the program (Perez-Arce et al. 2012). Thus, it seems that the short-term benefits of mentoring programs outweigh the costs. In contrast, we lack

sufficient knowledge regarding the economic benefits of natural mentoring relationships. In estimating the individual economic benefits to the mentee, we can begin to form a concrete basis for comparison of the benefits of natural mentors to those from other mentoring programs. The economic concept of NPV may also be beneficial in this regard (Perez-Arce et al. 2012). NPV takes into account a future stream of cash flow from an investment to determine the value of that investment today (Higgins and Reimers 2007). Thus, it can be used to estimate the value today of a stream of future annual earnings attributed to a natural mentoring relationship during youth. NPV may be preferable to other methods of financial analysis (e.g., taking account of options) because of its simplicity and widespread use in analysis of public policy (e.g., Anton and Temple 2007; Perez-Arce et al. 2012).

Present Study

The study examined five closely related research questions. The first question was, does the presence of a natural mentor during youth predict annual earnings during early adulthood? We hypothesized there would be a positive relationship because of the positive impacts of natural mentors on later educational attainment, hours worked, and asset ownership (Dubois and Silverthorn 2005; Greeson et al. 2010). The second question was, do male natural mentors have a different impact than female natural mentors in predicting annual earnings? This was a prerequisite for our third research question, which was, does a natural mentor have a different impact on youth without a father figure, and does mentor gender moderate this impact? We hypothesized that father absence would be associated with lower earnings (McLanahan and Sandefur 2009), but that fatherless youth with a male mentor would have higher earnings than fatherless youth who had either a female mentor or no mentor at all, given the potential for a male mentor to provide what a father figure might have offered (Mortimer et al. 2008). The fourth research question involved re-examining each of the previous research questions in a subsample of AA youth. Given the risks AA youth may be more likely to face (Cooley-Strickland et al. 2009), we hypothesized that economic benefits would be stronger for AA youth. The fifth research question involved estimating the net present value of the lifetime earnings benefits from natural mentors. We did not hypothesize specific dollar values, though we did expect to find numbers comparable to those presented in Chetty et al. (2011) and Perez-Arce et al. (2012).

Method

Data

Data came from the unrestricted version of Add Health (Harris 2009), a study of adolescent health and education. In 1994–1995 (Wave I), a questionnaire was administered to a nationally representative sample of students in grades 7 through 12, and a separate questionnaire was administered to primary caregivers. Follow-up interviews were conducted in 1996 (Wave II), 2001–2002 (Wave III), and 2007–2008 (Wave IV). Wave II was not used for the present study. See http://www.cpc.unc.edu/projects/addhealth/data/guides and Harris (2009) for more information. To correct for non-random selection in Add Health's clustered sampling design, individual sample weights were applied in STATA 11.0 (Bell et al. 2012). We limited analysis to respondents who had complete data and individual sampling weights available (DuBois and Silverthorn 2005). Self-reported income data was examined for

mistakes, and respondents who claimed to have more personal income than their total household income were dropped.

The full sample consisted of 1839 respondents who participated in all three waves. Forty-seven percent of respondents were male, 87 % had graduated from high school, and average household income during youth was $52,000. Respondents were Non-Hispanic White (75 %), African American (21 %), Asian (4 %), Native American (4 %), and Hispanic (9 %). Seventy-six percent of respondents had a natural mentor, and average personal income during early adulthood was $34,000. The AA subsample consisted of 396 participants; 39 % of these participants were male, 88 % had graduated from high school, and their average childhood household income was $40,000. Seventy-six percent had a natural mentor, and average personal income during early adulthood was $39,000. More descriptive data can be found in Table 1.

With respect to large national datasets, researchers have advocated for addressing sample considerations a priori in order to better interpret results (DuBois and Silverthorn 2005). The present study excluded participants who did not complete pertinent questions in all three waves of the survey or were unemployed during Wave IV, introducing the possibility of sampling bias. Therefore, sampling bias may exist from four avenues: attrition, the exclusion of unemployed participants, the exclusion of participants with missing information, and self-report of personal earnings. Attrition and excluding unemployed respondents may bias earnings estimates upward, as those with more impoverished backgrounds may have been more likely to drop out of the study. The exclusion of participants with missing data may bias estimates in either direction, and self-reported earnings may systematically be underreported (Moore et al. 2000).

Measures

Personal Earnings—Personal earnings were measured by the Wave IV question, "In 2006/2007/2008, how much income did you receive from personal earnings before taxes, that is, wages or salaries including tips, bonuses, and overtime pay, and income from self-employment?"

Presence of a Natural Mentor—Natural mentor presence was assessed with the Wave III question: "Other than your parents or step-parents, has an adult made an important positive difference in your life at any time since you were 14 years old?" Respondents who identified a mentor as a younger sibling, partner, or friend were excluded (DuBois and Silverthorn 2005).

Natural Mentor Gender—Mentor gender was assessed with the Wave III questions: "How is this person related to you? If there is more than one person, describe the most influential," and "What sex is/was this person?" Respondents who identified an older brother, grandfather, or uncle or identified their mentor as male were recorded as having a male mentor, and those who identified an older sister, grandmother, or aunt or identified their mentor as female were recorded as having a female mentor.

Absent Father—Respondents in Wave IV were asked to indicate who their father was or who assumed that role. Those who indicated their biological father, stepfather, or grandfather were classified as having a father figure. All others were recorded as having an absent father.

Demographic Controls—Demographic controls were chosen based on prior research and included sex, age, racial background, educational attainment (at Wave IV), and household income during childhood (Autor et al. 2008). Household income was asked of the caregiver at Wave I: "About how much total income before taxes did your family receive in 1994? Include your own income, the income of everyone else in your household, and income from welfare benefits, dividends, and all other sources." This measure was standardized to capture the effect of a one-standard deviation increase in childhood income on later personal earnings. See Table 1 for summary statistics.

Analytic Plan

Testing for impacts of natural mentoring relationships on subsequent earnings during early adulthood involved three steps. First, several variants of a baseline ordinary least squares (OLS) model were estimated (detailed below). OLS was chosen because we examined links between retrospective reports on natural mentors during youth and later earnings. Analyses included demographic controls shown to be associated with earnings. Second, Chow tests were performed using coefficients from the estimated OLS models to test whether combinations of the coefficients on mentoring, absent father, and gender indicators were significantly different from zero. Third, the NPV of the projected cash flows were calculated using the estimated coefficients and Chow test results. The baseline OLS model is represented in Eq. (1), where the log of personal income for individual i at Wave IV was regressed on indicators for having a female or male mentor at Wave III, a retrospective indicator of an absent father at Wave IV, a male mentor/absent father interaction term, a vector of demographic characteristics (Z), and an error term. The bs were to be estimated.

$$
\begin{aligned}
\mathrm{Log}(Personal\ Income)=&b_0+b_1 Female\ mentor_i\\
&+b_2 Male\ mentor_i\\
&+b_3 Absent\ father_i\\
&+b_4 Male\ mentor_i*Absent\ father_i\\
&+b_4 Z_i+\varepsilon_i
\end{aligned}
\tag{1}
$$

The NPV of projected cash flows were computed using the following two formulas:

$$
FV=\frac{A}{i}\left(1-\left(\frac{1}{(1+i)^{n_l}}\right)\right)
\tag{2}
$$

$$
NPV=\frac{FV}{(1+i)^{n_a}}
\tag{3}
$$

FV stands for the Future Value of the annuity to be estimated (an annuity is a continuous payment with a fixed annual amount), *A* is the increase in income resulting from the mentoring relationship, *i* the discount rate, n_l amount of years worked or cashflows that will occur, and n_a the years used to discount back to when the adult was an adolescent. By substituting regression results into (3), the annuity is computed. Substituting the results from (3) into (2) yields today's value of a natural mentoring relationship in 2006/2007/2008 dollars (the assessment year).

Results

First Research Question: Overall Effect of Natural Mentors

Results in the first column of Table 2 address whether the presence of a natural mentor predicted subsequent annual earnings. Contrary to expectations, we found no significant association between the overall presence of a natural mentor and later earnings. Demographic controls were significant, however. A one-unit increase in highest grade completed resulted in a 12 % increase in income ($p < .05$); being male resulted in a 40 % increase in earnings ($p < .05$); being African American resulted in a 35 % decrease in earnings ($p < .05$); and indication of Native American heritage was marginally ($p < .10$) related to a 49 % decrease in earnings.

Second Research Question: Effect of Mentor Gender

Column 2 of Table 2 reflects the results of our second research question: does natural mentor gender play a role in predicting earnings? In this test, the natural mentor indicator was excluded and instead separate indicators of male and female natural mentors were used. However, neither the presence of a male nor female natural mentor was significantly related to earnings. The effects of demographic controls previously mentioned remained significant. To ensure that the effects of mentor gender were not driven solely by same-sex mentoring relationships, we also examined an interaction between mentor gender and youth gender. However, these results also were not significant (and for parsimony, these results are not included in Table 2).

Third Research Question: Effect of Father Absence

Our third research question focused on the interaction between the absence of a father figure and the presence of a natural mentor. We hypothesized that the absence of a father figure would lead to a decrease in annual earnings, and that the presence of a natural mentor would offset this decrease. As shown in Column 3 of Table 2, neither of the main effects was statistically significant, but the interaction between the two showed a trend ($p < .10$) toward earnings being approximately 72 % higher, on average, for fatherless youth than for youth with a father figure. A Chow test was performed to compare youth without a father figure or natural mentor to fatherless youth with a natural mentor (not gender specific). Again, this result approached significance ($p < .10$) such that fatherless youth with a natural mentor showed a trend towards earning approximately 73 % more than comparison youth without a natural mentor. These findings partially supported our hypothesis that fatherless youth with a natural mentor would earn more than fatherless youth without a natural mentor.

Next we examined the interaction between mentor gender and father absence. The interaction between a male mentor and father absence (Column 4 of Table 2) was associated with an earnings increase of approximately 58 % ($p < .05$), whereas the interaction between father absence and a female mentor was not significant (Column 5). A Chow test was performed to compare youth without a father figure or natural mentor to fatherless youth with a male natural mentor. Fatherless youth with a male mentor earned, on average, approximately 68 % ($p < .05$) more than comparison youth without a natural mentor. Comparable Chow tests examining the effects of female mentors were not significant. Together, these results supported our hypothesis that a male natural mentor in particular would be associated with higher earnings for fatherless youth.

Fourth Research Question: Effects for African American (AA) Youth

Overall Effects of Natural Mentors—Column 1 of Table 3 displays results testing whether natural mentors would be associated with higher earnings for AA youth. There was a trend ($p < .10$) associated with an average increase in earnings of approximately 58 %, partially supporting our hypothesis that AA youth would benefit from the presence of a natural mentor. Demographic controls were significant as well, including highest grade completed (12 % increase in annual earnings; $p < .05$) and male gender (42 % increase in annual earnings; $p < .05$).

Effects of Mentor Gender—Column 2 of Table 3 illustrates the effects of male versus female natural mentors on AA youth. The presence of a male natural mentor was associated with an average earnings increase of 88 % ($p < .05$) for AA youth, whereas the presence of a female natural mentor was not significant. To ensure these effects were not unique to same-sex mentoring relationships, we once again tested interactions between natural mentor gender and youth gender. These results were not significant (and thus are not included in Table 3).

Effects of Father Absence—Column 3 of Table 3 provides regression results for the main effects of father absence and the interaction between natural mentor presence and father absence for AA youth. Contrary to our hypotheses, neither the main effect of father absence nor the interaction term was significant, suggesting that the general presence of a natural mentor was not particularly beneficial for fatherless AA youth. A Chow test comparing AA youth without a father figure or natural mentor to fatherless AA youth with a natural mentor approached significance ($p < .10$). Fatherless AA youth with a natural mentor trended towards earning 135 % more, on average, than comparison youth without a natural mentor, which lent partial support to our hypothesis that fatherless AA youth may benefit more from the presence of a natural mentor.

Columns 4 and 5 of Table 3 reflect the effects of interactions between mentor gender and father absence for AA youth. Our hypothesis that a male mentor would be beneficial to fatherless AA youth was supported in that the effect of a male mentor was approximately 101 % ($p < .05$) higher for fatherless AA youth than it was for AA youth with a father figure. The interaction between father absence and female mentors was not significant. Chow tests were performed to compare fatherless AA youth without a natural mentor (either

gender) to fatherless AA youth with a male mentor. Those with a male mentor earned, on average, approximately 214 % ($p < .01$) more than those without a natural mentor (either gender); the same Chow tests examining a female mentor were not significant. Together, these results further supported our hypothesis that male natural mentors can play a key role in the lives of fatherless AA youth.

Fifth Research Question: Estimated Lifetime Earnings Benefits of Natural Mentors

To calculate the additional income associated with being mentored during youth, the estimated beta parameters representing the effects of father absence and male mentor presence on future earnings must first be converted into dollars, then projected over the working life of the individual, and finally discounted back to today. In finance, the result of this calculation is known as the net present value, or NPV, of projected cash flows, with cash flows being the annual additional income attributed to natural mentoring relationships in this case (Higgins and Reimers 2007). For a numeric example of the application of NPV, please see "Appendix".

Results of NPV calculations for the full sample and AA subsample are presented below. Only coefficients from the results of research questions 3 and 4 that were statistically significant at the $p < .05$ level or less were used given that the significance of coefficients from research questions 1 and 2 faded once we incorporated absent father/male mentor interactions. Using these estimations, the predicted values of personal income of $25,000 and $19,000 were used for the full sample and AA subsample, respectively.

For the full sample, fatherless youth with a male mentor earned approximately $17,000 more, on average, than fatherless youth who had a female natural mentor or no natural mentor at all, translating to a present-value benefit of approximately $190,000. In other words, $190,000 was the total estimated additional lifetime earnings attributed to the presence of a male natural mentor, adjusted to a 2006/2007/2008 value (the year in which the income was reported) after accounting for the opportunity cost of forgoing another investment, such as in the stock market (Higgins and Reimers 2007). For the AA subsample, fatherless youth with a male mentor earned approximately $41,000 more, on average, than fatherless youth who had a female mentor or no mentor at all, which translates to a present-value benefit of approximately $458,000. Thus, the total estimated additional lifetime earnings attributed to the presence of a male natural mentor for fatherless AA youth (as opposed to having a female mentor or no mentor) was $458,000.

Discussion

Using a nationally representative data set, the present study established a link between natural mentoring during youth and subsequent earnings in early adulthood. Thus, this study replicated the finding that natural mentors have long-term benefits that extend into adulthood (Dubois and Silverthorn 2005; Greeson et al. 2010). These effects were moderated by family structure and race: the presence of a male natural mentor had particular economic benefits for youth without a father or father figure, effects that were stronger for African American (AA) youth. To our knowledge, this is the first study to present estimates of earnings benefits associated with natural mentors. We also applied the economic concept

of NPV, which allowed us to estimate a dollar value of the long-term economic gains associated with natural mentors.

We did not find that the presence of natural mentors was associated with higher future earnings in general. Instead, only youth without a father figure who had a male mentor had higher earnings. Having a male mentor was also associated with higher earnings for fatherless youth compared to having no natural mentor at all, whereas the same was not true of female mentors. Fatherless AA youth appeared to benefit more than youth of other races from male natural mentors, with double to triple the earnings as compared to the full sample. Although male AA youth have been shown to be at greater risk for certain economic or employment-related challenges (Wood et al. 2007), we did not find that male AA youth benefited more from male natural mentors than female AA youth.

Our results build upon previous findings and offer new evidence for the specificity of the effects of natural mentors. McDonald and Lambert (2014) suggested that natural mentors led to improved employment outcomes during early adulthood, though not to higher earnings. Greeson et al. (2010), however, reported that having a natural mentor resulted in higher asset ownership in early adulthood, which may reflect higher earnings. Our approach was to try to clarify these mixed findings by examining whether the link between early natural mentors and later income was moderated by the sociodemographic factors of father absence and race. The finding that fatherless youth benefited specifically from a male natural mentor in terms of future earnings is supported by previous literature. Male mentors have been shown to support mentees through the provision of career and educational advice, which may in turn lead to higher earnings (Allen and Eby 2004). Additionally, growing up in a single-parent home costs youth an additional role model who can help them plan for their future and explore possible career trajectories, and in particular, careers that have the promise of advancement (Mortimer et al. 2008). The loss of this guidance can also result in a lower likelihood of attaining the higher education needed for higher-paying jobs (Mortimer et al. 2008). Thus, it is possible that male natural mentors provide youth unique mentorship, for example information on labor markets and career options that may have otherwise been provided by their fathers. If this is the case, male natural mentors may be serving a specific and valuable role in the lives of fatherless youth. However, future research will be needed to examine whether and how male natural mentors serve as proxies for an absent father figure or mimic the content that would otherwise be provided by a father or father figure.

There are other reasons that male natural mentors may be especially important for fatherless youth. Fathers are instrumental in teaching their offspring social values and skills (Möller, Majdandži   et al. 2013). They contribute to family functioning, which acts as a buffer against environmental risks, such as exposure to community violence (McDonald et al. 2011), and their involvement improves educational outcomes (Wilson and Prior 2011). Father absence, on the other hand, has been associated with risky behaviors and outcomes in youth, such as increased incarceration rates in males and early pregnancy in females (Ellis et al. 2003; Harper and McLanahan 2004). Many male natural mentors come from the community and are teachers or public servants, meaning they are likely to be involved with institutions such as the school system (DuBois and Silverthorn 2005). Their presence may provide fatherless youth with a positive male role model who can fulfill some of the roles

left by the absent father, such as guidance in social settings (e.g., school), meaningful experiences that lead to educational and occupational mobility, and prevention of engagement in risky behaviors.

AA youth specifically have been shown to benefit from mentoring relationships characterized by frequent contact over a long period of time and high levels of involvement (Hurd and Sellers 2013). Natural mentors often share cultural and demographic characteristics with their mentees, and therefore also can act as an important source of racial identity socialization for racial and ethnic minority youth (Hurd et al. 2012; Hurd and Sellers 2013). Mentors may also assist racial minority youth with the experiences of racism and prejudice that they are likely to face in institutions such as the school system and the workplace (Bertrand and Mullainathan 2003; Fisher et al. 2000). Risks such as these can disrupt social competence, autonomy, and academic functioning in these settings, which in turn may have negative repercussions for future employment and earnings (Purtell and McLoyd 2013). These challenges may be exacerbated when an important role model is absent, such as the father, and risks must be faced without this additional source of support and guidance. Therefore, we would expect AA youth, and especially fatherless AA youth, to see increased benefits from the presence of a male natural mentor who may act as a father figure.

NPV is an economic tool used to provide a current estimate of the value of a stream of cash flows that are expected to continue into the future. Through its use, researchers and policymakers can compare the effectiveness of social programs aimed at at-risk youth, and can begin to make evidence-based decisions on which programs most merit the allocation of resources. Although our results are not directly comparable to related studies on the broader social and earnings benefits of the presence of positive adults in youths' lives, it is worth noting that our estimates are similar. Chetty et al. (2011) estimated that replacing a below-average teacher with an average teacher in a grade school classroom resulted in an increase in a student's lifetime income of $250,000. Perez-Arce et al. (2012) estimated the NPV of social benefits (such as increased participant earnings) of the ChalleNGe mentoring program to be $26,000 (in 2010 dollars). Heckman (2006) estimated the NPV of participation in the Perry Preschool Program, a 2-year preschool for disadvantaged African American children, to be over $127,000 (in 2004 dollars). These numbers are smaller in magnitude than our estimates, and not directly comparable, but together they support the notion that society stands to benefit from investment in effective mentoring programs for at-risk youth.

Limitations

The present study had certain limitations. First, using the respondent-indicated presence of a natural mentor is not analogous to randomly assigning mentors to youth, as respondents may have been led to answer that they had a mentor due to the phrasing of the question. Because of this, bias as a result of differences in reporting cannot be ruled out. Second, the indication that a youth had no father figure may have had a few inaccuracies, as we only dichotomized respondents to have father figures if they indicated that their biological father, their step-father, or their grandfather was their father figure, and respondents could have felt that someone else acted as a father to them. Third, the NPV of any stream of cash flows is

sensitive to variations in discount rates, the decision to include or exclude growth rates, and if growth rates are included, their variations as well. To be conservative, we followed Chetty et al. (2011) in assuming no growth of earnings over time in our model, which may underestimate total lifetime benefits. Fourth, any observed percentage change in income as a result of being mentored was assumed to remain constant over the working lifespan and respondents were assumed to begin working at age 29. Assuming that the percentage change in income is constant over the working lifespan automatically rules out any fading out of the effect, potentially overestimating lifetime total benefits, whereas assuming that respondents did not work before age 29 may underestimate total benefits, as many individuals begin working in their late teens or early twenties. Therefore, the present study did not take into account impacts of mentoring relationships on earnings during late adolescence and early adulthood, possibly leading to an underestimate of total benefits. Fifth, community effects were not controlled for, and it may be that the presence of a natural mentor is indicative of a community rich with potential mentors. Sixth, the relatively low R^2 values indicate that there is significant heterogeneity within earnings outcomes that remains to be explained. Lastly, non-monetary returns such as reduced crime or better health were not addressed, so future research will be needed to determine the indirect effects of social benefits of having a natural mentor on individual earnings.

Another important consideration in any examination of family structure is less traditional family structures, such as children raised by same-sex parents. We did not account for this, thus respondents who indicated that they did not have a father figure in youth may have had two mothers, which may have moderated our findings. There is increasing evidence that being raised by same-sex parents yields similar outcomes for youth compared to being raised by heterosexual parents (Biblarz and Stacey 2010; Perrin et al. 2013). Thus, we should consider that the present findings reflect that it was youth who did not have a father figure or a second parental figure that benefited the most from a male mentor. Additionally, youth were not asked if their mentor lived with them, which was possible given that relatives could have been named as mentors. This may be especially pertinent to AA families, in which it may be more common for extended family to reside together (Boyd-Franklin 2013), support one another, and interact on a daily basis (Taylor et al. 2013). Thus, the present findings may also illustrate the benefits youth garner from additional adults in the home who act as second parents.

Conclusion

Overall, the present findings lent support to the notion that natural mentors may be effective in producing long-term benefits for youth at risk (Southwick et al. 2007). Specifically, the present study provided evidence that male natural mentors may be instrumental in providing long-term economic benefits for youth without a father figure, benefits that were particularly high for AA youth. The present findings also suggest that the economic concept of NPV may be useful in calculating and assigning a numeric index, in this case an economic value, to a particular component of positive youth development. These results can be considered in terms of planning and evaluating interventions for at-risk youth. Given our findings on the economic benefits of male natural mentors for fatherless youth, future research could continue to explore specific moderators of their effects. For example, useful targets for

research might be identifying the contexts in which youth from fatherless homes meet potential male mentors, how these relationships may be influencing educational and occupational choices, and what the social value of these relationships may be. As a result of such research efforts, policies focused on providing at-risk youth with access to positive role models may be enhanced.

Acknowledgments

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Appendix

Consider the AA subsample's absent father/male mentoring coefficient of .70 from column 4 of Table 3, which implies a 101 % increase in income at the average age of 29. Average predicted income of respondents included in the AA subsample was $19,000. Therefore, on average, a fatherless youth who had a male mentor at or after turning age 14 saw an increase of 101 % in annual income, or an increase of approximately $19,200. To compute the present value, at age 29, of this stream of revenues for another 25 years, we follow Chetty et al. (2011) in using a discount rate of 3 %:

$$FV = \frac{19,200}{.03} \times \left[1 - \left(\frac{1}{(1+.03)^{25}} \right) \right] = \$334,000$$

This is the present value of the future increase in income of a mentored 29-year-old who works for another 25 years. But this value must be discounted back because the increase in income occurred after the mentoring took place, and the focus of this study is to estimate the value of mentors today on youth. Discounting future values allows for comparison of one potential investment (in this case, a mentor) versus another (for example, investing in the stock market). The value is discounted back to when the respondent was age 14 because, according to the survey, this was the earliest in the life of the respondent that the mentor could have been important in his or her life, and discounting benefits to a younger age results in more conservative estimates due to a larger denominator. To discount the value back to when the respondent was age 14, we use Eq. (3):

$$PV = \frac{FV}{(1+i)^n}$$
$$= \frac{\$334{,}000}{(1+.03)^{15}}$$
$$= \$215{,}000$$

where the numeric value 15 comes from the average respondent age (29) less the age when the mentoring relationship may have started (14).

Table 1

Descriptive statistics for full and African American samples

Variable	Mean or %	SD	Min	Max
Full sample				
Educational attainment	6.08	2.18	1	13
Age	28.83	1.72	25	34
Personal annual earnings ($)	34,037	24,169	0	150,000
Childhood household income ($)	52,000	61,000	0	999,000
Graduated with high school diploma	87 %	–	–	–
Male	44 %	–	–	–
Mentor	76 %	–	–	–
Female mentor	37 %	–	–	–
Male mentor	39 %	–	–	–
Asian	04 %	–	–	–
Native American	04 %	–	–	–
African American	21 %	–	–	–
White	75 %	–	–	–
Hispanic	09 %	–	–	–
Absent father	12 %	–	–	–
Absent father/male mentor interaction	05 %	–	–	–
Absent father/mentor interaction	09 %	–	–	–
Absent father/female mentor interaction	05 %	–	–	–
African American subsample				
Educational attainment	6.04	2.12	2	13
Age	28.76	1.74	25	33
Personal annual earnings ($)	28,883	21,000	0	150,000
Childhood household income ($)	40,000	43,000	0	600,000
Graduated with high school diploma	88 %	–	–	–
Male	39 %	–	–	–
Mentor	76 %	–	–	–
Male mentor	34 %	–	–	–
Female mentor	43 %	–	–	–
Absent father	24 %	–	–	–
Absent father/male mentor interaction	09 %	–	–	–
Absent father/mentor interaction	20 %	–	–	–
Absent father/female mentor interaction	10 %	–	–	–

Table 2

OLS regression analyses predicting annual earnings: full sample

Independent variable	(1)	(2)	(3)	(4)	(5)
Highest grade completed	.11** [.08, .14]	.11** [.08, .15]	.11** [.08, .15]	.11** [.08, .14]	.11** [.08, .14]
Sex	.34** [.25, .44]	.32** [.21, .42]	.34** [.25, .44]	.31** [.21, .42]	.32** [.21, .42]
Age	.01 [−.02, .04]	.01 [−.02, .04]	.01 [−.02, .04]	.01 [−.02, .04]	.01 [−.02, .04]
Hispanic	.12 [−.10, .33]	.12 [−.09, .34]	.11 [−.10, .32]	.12 [−.10, .34]	.12 [−.10, .34]
African American	−.30** [−.46, −.14]	−.29* [−.46, −.13]	−.31** [−.49, −.14]	−.30** [−.48, −.12]	−.30** [−.47, −.12]
Native American	−.40† [−.81, .00]	−.40† [−.81, .00]	−.41† [−.82, .00]	−.41† [−.82, −.01]	−.40† [−.81, .00]
Asian	.17 [−.09, .43]	.17 [−.09, .43]	.16 [−.10, .42]	.17 [−.10, .43]	.17 [−.10, .43]
Mentor	.07 [−.07, .22]		.01 [−.13, .16]		
Absent father			−.40 [−.94, .14]	−.17 [−.42, .08]	.02 [−.26, .29]
Childhood household income	.04 [−.02, .11]	.05 [−.02, .11]	.04 [−.94, .14]	.05 [−.02, .11]	.05 [−.02, .11]
Male mentor (MM)		.10 [−.05, .26]		.06 [−.10, .21]	.11 [−.05, .26]
Female mentor (FM)		.03 [−.13, .18]		.03 [−.13, .18]	.03 [−.13, .19]
Mentor/absent father interaction			.54† [−.03, 1.11]		
MM/absent father interaction				.46* [.08, .84]	
FM/absent father interaction					−.03 [−.38, .32]
Constant	8.27**	8.29**	8.28**	8.26**	8.28**
N	1839	1839	1839	1839	1839
R²	.10	.10	.10	.10	.10

95 % confidence intervals in brackets

†
p < .10,

*
p <.05;

**
p <.01

Table 3

OLS regression analyses predicting annual earnings: African American subsample

Independent variable	(1)	(2)	(3)	(4)	(5)
Highest grade completed	.11* [.02, .21]	.10† [.00, .21]	.12* [.02, .21]	.11* [.00, .21]	.10* [.00, .21]
Sex	.35* [.08, .61]	.25 [−.07, .56]	.36* [.07, .65]	.25 [−.07, .56]	.24 [−.08, .56]
Age	.01 [−.09, .11]	.02 [−.08, .13]	.01 [−.08, .11]	.02 [−.08, .13]	.02 [−.08, .13]
Mentor	.46† [−.06, .98]		.35 [−.24, .94]		
Absent father			−.42 [−1.38, .55]	−.25 [−.63, .13]	.13 [−.22, .48]
Childhood household income	−.04 [−.23, .15]	−.03 [−.21, .14]	−.04 [−.22, .14]	−.03 [−.21, .14]	−.03 [−.21, .14]
Male mentor (MM)		.63* [.04, 1.22]		.45 [−.21, .10]	.62** [.03, 1.21]
Female mentor (FM)		.33 [−.18, .84]		.35 [−.15, .85]	.41 [−.09, .91]
Mentor/absent father interaction			.51 [−.62, 1.63]		
MM/absent father interaction				.70** [.07, 1.33]	
FM/absent father interaction					−.31 [−.83, .20]
Constant	7.51**	7.37**	7.55**	7.31**	7.32**
N	396	396	396	396	396
R²	.07	.08	.07	.09	.08

95 % confidence intervals in brackets

† $p < .10$;

* $p < .05$;

** $p < .01$