Experimental Estimates of Impacts of Cost-Earnings Information on Adult Aspirations for Children's Postsecondary Education

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Abstract

Economic information may close aspiration disparities for postsecondary education across socio-economic, ethnic and partisan divides. In 2017, we estimated impacts of information on such disparities by means of a survey experiment administered to a nationally representative sample of 4,214 adults. A baseline group was asked whether they preferred a four-year degree, a two-year degree, or no further education for their oldest child under the age of eighteen (or on the option they would prefer if they had one). Before three other randomly selected segments of our sample were asked the same question, they were given either information about (1) both net costs and returns; (2) net costs; or (3) returns to a two-year and four-year degree. Information about both costs and returns did not reduce SES disparities but did affect ethnic and partisan divides. The findings suggest that reductions in socioeconomic inequalities in educational opportunity will require more than simple changes in the dissemination of information aimed at altering economic cost-benefit calculations. Sustained effort that mitigates deeper-seated cultural and social barriers seems necessary.

Keywords: College choice; college aspirations; college costs and returns; information

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In the United States, the wage premium for completing a four-year bachelor's degree has risen sharply since 1980 (Autor, 2014; Deming et al., 2016). Yet a disproportionate share of students from lower socioeconomic (SES) backgrounds forego pursuit of that degree in favor of a two-year associate's degree or no postsecondary education at all (Buchmann & DiPrete, 2006; Chetty et al., 2017; Hoxby & Avery, 2013; Ross et al., 2012; Snyder et al., 2016). Over-estimates of costs and under-estimates of returns to postsecondary degrees may explain under-investment in further education (Bleemer & Zafar, 2018). However, interventions that provide information to students from disadvantaged groups are expensive and have inconsistent impacts on both postsecondary aspirations and attainment (Avery, 2013; Bos, et al. 2012; Hoxby & Turner, 2015; Oreopolous & Dunn, 2013). It remains unclear whether less expensive information treatments administered to adults can close aspiration gaps.

In this study, we present results from a survey experiment administered in 2017 to a nationally representative sample of U.S. adults that estimated information effects on their preferences for either a four-year degree, a two-year degree, or no further education for their oldest child under the age of eighteen. If they had no such child, we inquired about preferences they would have for such a child. We treated three randomly selected, similarly-sized segments of a sample of 4,214 adults with economic information about (1) both returns and net costs; (2) only net costs; or (3) only returns to two-year and four-year degrees before asking them about their higher education preferences for their child. A fourth segment, which received no information before the question was posed, served as the control group.

Two recent studies (Bleemer & Zafar, 2018; Legetporer et al., 2018) estimated information impacts on adult aspirations for their children's further education. However, neither study provided respondents with a two-year, associate's degree response option, even though that degree is a prominent feature of U.S. higher education. Nor did either study give respondents balanced information about both net costs and returns simultaneously before ascertaining adult aspirations. The experimental results presented here are the first to be based upon a survey administered to a nationally representative sample that provided adults with balanced information on both net costs and returns for both two-year and four-year degrees.

Our findings were mixed. Balanced information about both economic costs and returns to college degrees did not narrow the aspiration gap between those from higher and lower socioeconomic backgrounds. There was suggestive evidence that economic information closed the aspiration gap between Hispanic and white respondents, and information essentially elminated the gap between Democrats and Republicans. Taken together, the findings suggest that reductions in socioeconomic inequalities in educational opportunity will require more than simple changes in the dissemination of information aimed at altering economic cost-benefit calculations. Sustained effort that mitigates deeper-seated cultural and social barriers seems necessary.

Theoretical Framework and Literature Review

Hossler & Gallagher (1987) identified three phases to the process that result in the pursuit of postsecondary education: (1) predisposition, (2) search, and (3) choice. Our work is focused on investigating the importance of information at the predisposition phase, the time at which aspirations are acquired. These aspirations are influenced by cultural norms, knowledge, expectations, habits (Bourdieu, 1986; Park & Hossler, 2014; Perna, 2006; Perna & Titus, 2005;

Serna, 2015), social networks (Coleman, 1988), and economic factors, including perceived credit constraints, debt aversion, and discount rates (Boatman et al., 2017; Toutkoushian & Paulsen, 2016). All these factors contribute toward wide SES disparities in college enrollment and completion rates (Cabrera & La Nasa, 2001; Rowan-Kenyon, 2007).

SES Attainment Disparities. Chetty et al. (2017) found serious gaps by SES among students born between 1980 and 1982. Only half of those born into households with income at the first decile of the distribution enrolled in college by age 28, while over 90 % of students whose household incomes were at the 90th percentile enrolled by that age. Similarly, Bailey and Dynarski (2011) reported that the share of students who enrolled in college among those born in households with an income in the top quartile of the distribution was 51 percentage points higher than among those born in households with incomes in the bottom quartile. Among respondents to the General Social Survey born between 1966 and 1977, only 12% of white males and only 17% of white females born of parents without a college background completed college. If both parents had attended college, those percentages were 62% and 64% for males and females, respectively (Buchmann & DiPrete, 2006).

African American and Hispanic high school students were also less likely to enroll in higher education institutions immediately after graduation, though the Hispanic-white divide has been diminishing. According to the U.S. Department of Education, the rate for African Americans, as of 2015, remained at 63%, a level that persisted since the fall of 1998. Meanwhile, the rate for Hispanics grew from 52 to 67% between 1990 and 2015. By comparison, 87% of Asian students and 70% of white students were enrolled in a postsecondary institution in 2015 (Musu-Gillette et al., 2016).

Among students who have postsecondary aspirations, there have been sizeable SES disparities in the types of colleges to which students apply. Compared to higher-income peers, high-achieving students from low-income backgrounds were more likely to apply to two-year and nonselective four-year postsecondary institutions than to selective four-year institutions (Bowen et al., 2009; Ovink, 2017). This occurred even when the availability of financial aid packages reduced the net costs of attending selective four-year institutions below those incurred at less-selective ones (Hoxby & Avery, 2013).

Determinants of Aspiration Gaps

SES divides have been both wide and deeply rooted in social and economic realities. Based on prior research, we theorize that they can be ameliorated only by intensive interventions that go well beyond the provision of small doses of information administered in the course of a survey. However, minimal amounts of information can eliminate ephemeral divides such as those between political partisans.

Social and cultural influences. Many scholars have explored the ways that SES backgrounds affect educational outcomes (Duncan and Murnane, 2011; Egalite, 2016; Magnuson et al., 2008). Children exposed to lower SES environments are at greater risk of traumatic stress and other medical problems that can affect brain development (Nelson & Sheridan, 2011). Better educated mothers speak more frequently with their infants, use a larger vocabulary when communicating with their toddlers, and are more likely to use parenting practices that respect the autonomy of a growing child (Guryan et al., 2008; Hoff, 2003). Better-educated and higher-income families have access to more enriched schooling environments (Altonji & Mansfield, 2011) and are less likely to live in extremely impoverished communities burdened with high violent crime rates (Burdick-Will et al., 2011). All these and other childhood or adolescent

experiences create profound disparities in academic preparation by SES, which, in turn, lead to concomitant differences in college aspirations (Goyette 2008; Jacob & Linkow, 2011; Kao & Tienda 1998; Perna, 2006).

Parental desires to maintain their social status may explain why children from higher SES families have higher postsecondary attainment rates (Bourdieu, 1986; Sewell, et al., 1969). Expectations of families and peer-networks influence students' own ambitions with respect to higher education (Park & Hossler, 2014). Parents are among the first to suggest to their children that they pursue a higher degree and play a key role in facilitating college choice (Hossler et al., 1999; McCarron & Inkelas, 2006). Hossler and Stage (1992) estimated that raising parental aspirations by one standard deviation increased student aspirations by about 0.45 standard deviations. Somers et al. (2002) found that children whose parents expected them to pursue any postsecondary education were 2 to 10 percentage points more likely to actually do so compared to children whose parents did not have such expectations (see also Perna & Titus, 2005). Jacob and Linkow (2011) provided causal evidence that student expectations were both influenced by SES and had their own independent impact on degree attainment.

The effects of neighborhood quality on educational attainment suggest the importance of the broader cultural milieu and social resources of parents and other adults that may influence students directly or indirectly (Burdick-Will et al., 2011; Stewart et al., 2007; Wilson, 1987). Students' educational aspirations are affected by the perceptions by adults besides their parents, such as their teachers (Gershenson & Papageorge, 2018).

Economic influences. Low SES families may additionally perceive financial constraints that dissuade them from pursuing further education. Cunningham and Santiago (2008) suggested that low SES students perceive credit constraints that prevent them from borrowing to cover

college costs, and Caetano et al. (2011) found that respondents in three Latin American countries were averse to the labeling of student loans as debts. However, Botaman et al. (2017) reported that low-income students and adults in the United States were not more risk averse to borrowing for educational purposes than their higher-income counterparts.

Long-term discount rates to returns from higher education investments may vary by SES. Parents who have earned a four-year college degree are more likely to be aware of its value and therefore better able to communicate the long term value of a bachelor's degree to their children (Kao & Tienda, 1998; Perna & Titus, 2005). Meanwhile, many lower SES families have been less familiar with the necessary information on the net cost of college after financial aid packages are considered, the economic and other returns to different types of degrees, and the range of available postsecondary options (Hoxby & Avery, 2013; Hoxby & Turner, 2015). Students from lower SES backgrounds have been more likely to borrow money for their further education (Cunningham & Santiago, 2008). So returns need to be ample if they are to cover borrowing costs in addition to direct tuition, boarding costs, and opportunity costs.

Partisan Affiliation. By contrast, expectations for a child's further education held by political partisans are likely to be more malleable. Recently, Democratic and Republican leaders have taken contrasting positions on the relative value of a two-year and a four-year college degree (See Online Appendix A). Given these differences between partisan elites, we expect, in the absence of information, to find contrasting preferences for two-year and four-year colleges between Democrats and Republicans. However, partisan differences in college-going preferences are more likely to reflect the political conversations of the day than to be so strongly rooted in the citizen's partisan identity that they are impervious to information (Zoller, 1992). While partisan affiliations for some Americans are life-long, and the opinions of partisans on some

issues (e.g., abortion, taxes, entitlements, and spending levels) have persisted for decades, political opinions in the United States are noted for their inconstancy across time and their inconsistency from one issue to another (Converse, 1964; Zoller, 1992). Partisan affiliations themselves have been found to be quite malleable (MacKuen et al., 1989). Split-ticket voting — ballots simultaneously cast for candidates with different party affiliations — is so widespread that control of legislative and executive branches of government are frequently divided between the two political parties (Fiorina, 1992).

Information Interventions

Several interventions have been designed to ameliorate the SES-aspiration connection. The use of mentors and other resources to guide students through the decision-making and application process have resulted in increased enrollments and shifts to more selective, possibly higher-quality institutions (Avery, 2010; 2013; Avery & Kane, 2004; Bos et al., 2012; Carrell & Sacerdote, 2017; Castleman et al., 2012; Castleman et al., 2014; Castleman & Goodman, 2018; Oreopolous et al., 2017; Oreopolous & Ford, 2016). Researchers have also observed increases in enrollment rates from interventions that help complete financial aid and other administrative paperwork (Bettinger et al., 2012). Interventions that provided high-achieving, low-SES students with information about the net costs and benefits have encouraged students to apply to more selective institutions (Hoxby & Turner 2015; Oreopoulous & Dunn, 2013). However, Bos et al. (2012) reported no significant impact of a peer-to-peer advising intervention on post-secondary enrollment overall, though they did find a greater utilization of four-year colleges in California. Avery (2013) identified no overall effects on college enrollment of a two-year, after-school invention in St. Paul high schools, though he did find greater enrollment in a four-year rather than a two-year institution.

The costs of executing the most successful of information interventions have precluded investments that could bring them to scale. But whether less expensive information-based interventions administered to adults can ameliorate deeply entrenched SES disparities in college-going aspirations for children remains an open question. Bleemer and Zafar (2018) reported that in the United States small doses of information administered by means of a survey significantly closed the aspiration divide, but Legetporer et al. (2018) found that in Germany information had no such impact.

Methods

In the remainder of this paper we shed new light on this topic by means of a survey experiment that asked adults about their aspirations for their child after treating randomly selected groups with balanced information on two-year and four-year college returns and net costs not provided to a control group.

Data

Our experiment was based on data collected from the *Education Next* annual survey of American public opinion on education, which has previously been used in scholarly education research (Barrows et al., 2016; Chingos et al., 2012). The survey was conducted between May 5 and June 7, 2017 by the polling firm Knowledge Networks® (KN), a GfK company. KN maintains a nationally representative, probability-based online panel of 55,000 adults, identified through address-based sampling techniques (for a detailed, empirical assessment of online surveys administered by KN, see Chang & Krosnick, 2009). Sample members without internet access are provided a computer and free internet access. For the 2017 *Education Next* survey, a subset of 4,214 adults was randomly selected from the full sample of 55,000 adults included in the KN database. Two groups of particular relevance to this study — 2,170 parents of children

under the age of 18 living in their home and 805 Hispanic respondents — were over-sampled.

Survey weights, based on demographic and other background information originally collected

upon entry in to the KN panel, were employed to account for nonresponse and the oversampling

of parents and Hispanic respondents to ensure that any estimates based on the *Education Next*

survey sample are nationally representative.

Experimental Design

Unweighted and weighted summary statistics for the sample are shown in Table 1. We

divided the sample into the following randomly assigned groups: (1) a control group, (2) the net

cost and returns treatment group, (3) the net cost treatment group, and (4) the returns treatment

group. All respondents in the control group who had a child under the age of 18 in their

household were asked: "Thinking about your oldest child under the age of 18, would you want

your child to go to a community college to earn a two-year degree, a university to earn a four-

year degree, or neither?" Other adults without school-aged children were asked the same

question, except they were asked about a hypothetical child. Before these questions were posed

to other respondents assigned to one of the treated groups, they were given information on either

or both the net costs and returns to two-year and four-year degree programs. See Online

Appendix B for exact wording. Estimates of returns and net costs were based on national

averages provided by the College Board (College Board, 2016; Ma et al., 2016). The cost

treatment group was told only the net costs of each postsecondary option, while the returns

treatment group was told only the returns to each postsecondary option. Those given balanced

information were told both the net costs and returns.

≪Table 1 Here≫

Because respondents were randomly assigned to control and treatment groups, any

differences in respondent aspirations across the four groups were almost certainly attributable to

differences in the information each group received. This experimental design provides the study

with a high degree of internal validity.

Equivalence between Treatment and Control Groups

The experimental design was implemented with fidelity. In Table 2, we present tests for

covariate balance across all treatment conditions. In columns 6 and 7 we report F-statistics and p-

values for joint tests of covariate balance. We consistently failed to reject the hypothesis that

means across the four treatment conditions are equal at the 0.05 level. Tests for differences

between the control group and each of the other three treatment conditions revealed four

statistically significant differences at the 0.05 level, approximately the number that is expected to

occurred by chance. In subsequent tables, we report results with and without demographic

controls.

<center>≪Table 2 Here≫</center>

Empirical Strategy

We estimated effects of information on postsecondary aspirations by comparing

responses of each treatment group to the control group. We estimated effect heterogeneity by

interacting each treatment condition with various subgroups. This approach is depicted in the

following model and estimated using multinomial logit:

$$Y_i = \beta_0 + \beta_1 \sum_{k=1}^{3} T_{ik} + \beta_2 \sum_{k=1}^{3} (T_{ik} \times G_i) + \beta_4 X_i + \epsilon_i.$$

In the equation, Y_i is a three-level categorical variable indicating whether respondent i desires

their child to attend a four-year university, two-year community college, or neither. T_i represents

one of the three information treatment conditions: costs and returns, only costs, or only returns,

and G_i is an indicator for one of several subgroups that we consider in our tests of effect

heterogeneity. Following the theoretical role that SES plays in postsecondary aspirations, we

focused on three indicators of SES: the respondent's household income, educational attainment,

and ethnicity. We additionally examined effects by political affiliation, given partisan differences

in perceptions of higher education among political elites. $\mathbf{X_i}$ is a vector of variables to control for

respondent's gender, ethnicity, household income, employment status, educational attainment,

political affiliation, marital status, number of children under 18, US census region of residence,

and whether the respondent lives in a metropolitan area. Given that perceptions of both parents

and other adults shape postsecondary aspirations of children, it is important to know whether

information alters the cultural envelope within which parent opinions are embedded as well as

parental opinions themselves (Burdick-Will et al., 2011; Gershenson & Papageorge, 2018;

Stewart et al., 2007; Wilson, 1987).. We therefore run the analyses for all respondents, though

we do control for parent status in our models.

We employed survey weights and heteroskedastic robust standard errors in all

estimations. We alternatively run sets of linear probability models where we separately

considered the three possible outcomes. That is, the dependent variable is one of three binary

variables indicating whether the respondent prefers the four-year university, two-year

community college, or neither instead of the single three-level categorical variable as described

in the equation above.

Results

Although the multinomial model is econometrically preferred, the presentation of results

relies on linear probability models, because results from both sets of econometric models do not

differ substantively and the latter is easier to interpret. Results from the full set of multinomial

models are available in online Appendix C. Unless otherwise stated, we discuss results that

include controls for the demographic background characteristics given in Table 1 as well as the

respondents' marital status, number of children, and employment status.

Parents and Other Adults

About 79% of U.S. parents preferred their child attends a four-year university, while

nearly 13% of parents desired a two-year community college, and 8% did not wish their child to

receive any postsecondary education (Table 3, Panel A). Other adults chose the four-year option

less frequently by 11 percentage points, the two-year option more frequently by 8 percentage

points, and the no-further-education alternative more frequently by an insignificant 3 percentage

points.

≪**Table 3 here**≫

Despite these differences between parents and other adults, treatment effects for the two

groups were similar. As shown in Panel B of Table 3, the provision of parents with balanced

information about both costs and returns lowered the preference for a four-year university by 6

percentage points, a marginally significant impact. In other words, balanced information had a

seemingly perverse impact that actually reduced the amount of further education parents

preferred. The impact of the treatment on other adults did not differ significantly from impacts

on parents.

The cost of a for-year degree seems to be driving the parent results. When net cost

information alone was provided (see Panel C), parents were nudged away from a preference for a

four-year degree. The drop was a significant 8 percentage points. That information shifted

parental preferences toward the two-year community option by about 6 percentage points, with

the remainder selecting no further education. The statistically insignificant interaction term suggests that cost information affected other adults in much the same way.

Turning to Panel D, we found evidence that parents were insensitive to returns information when presented alone. Parental preference for the four-year university bumped upward by a statistically insignificant one percentage point. However, preferences among other adults for the four-year degree increased by an additional nine percentage points when only this information was given. Under these circumstances, the opinions of other adult moved away from preferring the two-year option by 13 percentage points, a significant change.

All things considered, treatment with balanced information did not increase the demand for further education on the part of either parents or other adults. When both net costs and returns were shared with the respondent, the preferences may have even shifted parents away from the selection of the four-year university option, though this effect was of borderline significance. Parents' aspirations moved toward the two-year option when told about costs, while other adults opted for the four-year option when told about earnings. Importantly, the impact of balanced information was not statistically different for parents and other adults.

Heterogeneous Effects

Because effects are similar for parents and other adults when provided with balanced information, we followed Bleemer and Zafar (2018) and Legetporer et al. (2018) and combined these respondents together (but controlled for parent status) when estimating impact heterogeneities. This approach enlarged the number of observations in each estimation, thereby enhancing the analytical power to detect differential information impacts across SES and other subgroups. Moreover, both the perceptions of parents and other adults shape student aspirations (Burdick-Will et al., 2011; Gershenson & Papageorge, 2018; Stewart et al., 2007).

Household Income. Seventy-nine percent of high-income earners in the control group preferred their child attend a four-year university (Table 4, Panel A). The percentages for middle- and low-income earners in the control group was 10 percent and 26 percent points lower, respectively.[1] The 26 percentage point aspiration gap between the high and low income groups was nearly half the enrollment differential between the top and bottom quartile of the income distribution reported for the 1979 to 1982 birth cohort tracked by the National Longitudinal Survey of Youth (Bailey & Dynarski, 2011).

≪Table 4 Here≫

Despite the large aspiration disparities by income, the provision of information on both costs and returns to respondents did not reduce the SES gap (Table 4, Panel B). In fact, middle-income respondents, when treated with balanced information, shifted away from the 4-year option, while high-income respondents shifted toward it. While neither shift was by itself statistically significant, the difference between the two income groups enlarged by 14 percentage points, a significant and seemingly perverse change. Cost information, when given alone, also had a differential impact. Middle-income respondents were 9 percentage points less likely to choose the four year option and shift to the two-year option. Returns information, given alone, shifted responses of middle-income and low-income respondents away from the two-year option by 10 percentage points and 15 percentage points, respectively. But this shift did not significantly narrow the SES gap. Most important, however, the differential impact of balanced information on both net costs and returns is not statistically significant for any income group.

Educational Attainment. As shown in Table 5, Panel A, 88% of respondents in the control group who hold four-year degrees preferred the same university option for their children,

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[1] We refer to estimates without controls to facilitate comparison with income differentials in enrollment reported by Bailey and Dynarski (2011).

while those with only some or no college experience chose this option less frequently—by 20 and 28 percentage points, respectively.

<center>≪**Table 5 here**≫</center>

Despite these large disparities, we found no treatment effects of balanced information about college costs and returns (Panel B). Nor was there evidence of any effect heterogeneity on adult aspirations by educational attainment. None of the effects were statistically distinguishable across subgroups, and overall effects by subgroups were not statistically significant.

Providing net cost information alone shifted preferences away from the four-year option by a statistically insignificant 5 percentage points for respondents with four-year degrees (Panel C). Adults with lower levels of educational attainment moved away from the four-year university option by an additional 4 percentage points when given only cost information. Although this differential effect among those with lower educational attainment was not statistically significant, the total effect of 9 percentage points was marginally significant at the 0.1 level.

In contrast, providing returns information raised preferences for the four-year option by 6 percentage points among respondents with a four-year degree (Panel D). This change in educational aspirations stemmed mostly from a shift away from a preference for the two-year community college option. Respondents with some college experience also increased their preference for the four-year option by 9 percentage points when provided with returns information — a result that was marginally significant at the 0.1 level and stems from an equally large shift away from the two-year community college option. Providing returns information did not significantly raise preferences for the four-year option among respondents who did not attend college. However, providing returns information for this group shifted preferences away from the

two-year community college option by 16 percentage points and, surprisingly, raised preferences

for *not* pursuing higher education by 8 percentage points (Panel D).

Summing up the results for income and education, the two best indicators of SES in our

data set, we did not find any closing of the SES aspirations gap of a treatment that provided

respondents with balanced information. The only significant impact of this treatment condition

was to widen the gap between high and middle-income groups.

Ethnic Background. Sixty-eight percent of whites in the control group wanted their

child to pursue a bachelor's degree (Table 6, Panel A). In the models unadjusted for

demographic characteristics, this proportion was 10 percentage points less than the percentage of

African Americans having this preference, a large difference but one that was not statistically

significant given the small number of observations available for African Americans. Whites were

14 percentage points more likely than Hispanic Americans to prefer the four-year options, a

difference that was statistically significant but not robust to the inclusion of control variables.

<center>≪**Table 6 Here**≫</center>

For white respondents, treatment effects fell roughly along the same lines as those

observed for SES subgroups. When balanced information on both costs and returns was

provided, white respondents did not differ significantly from their peers in the control group

(Panel B). Information about costs nudged adults away from the four-year option by 9

percentage points (Panel C), while information on expected returns moved them toward the

bachelor's degree option by 6 percentage points (Panel D).

Among Hispanic respondents, a somewhat different pattern of treatment effects was

observed. Information about both costs and returns altered their views, as compared to those of

whites, toward selection of the four-year degree option by 17 percentage points in the model

without controls (Panel B). When SES and other demographic controls were introduced, the

impact attenuated to 12 percentage points, a difference that fell just short of statistical

significance. However, the 16 percentage point shift away from the two-year option, even after

controls had been introduced, did pass the significance threshold. These shifts seem to have been

driven by information on earnings rather than costs, for which we could identify no significant

treatment effects. But earnings returns information spurred a shift to the four-year option that

was 10 percentage points higher among Hispanics than among whites (Panel D). That shift was

large enough to close the Hispanic-white gap that had been observed within the control group.

The same pattern was found for results from models that did not include control variables.

The African American sample size was too small to detect anything other than very large

treatment effects, and, accordingly, we did not observe significant treatment impacts on African

American aspirations when only costs and when only returns information was provided.

However, balanced information on both costs and benefits reduced the percentage of African

Americans wanting a four-year college for their child by nearly 18 percentage points even after

SES and other characteristics were controlled, a statistically and substantively significant shift

(Table 6, Panel B). We nonetheless urge caution in interpreting this finding because only 59

African American respondents were in this treatment group.

Political Affiliation. Turning to results by political affiliation in Table 7, we observe that

Republicans in the control group were about 16 percentage points less likely to choose the four-

year option relative to Democrats. The results cannot be attributed simply to the lower SES

background of Republicans, because they were robust to the inclusion of background

characteristics. Treatment altered the gap between Republicans and Democrats. Providing costs

and returns information lowered the preference for the four-year university by 8 percentage

points among Democrats, with most shifting to the no postsecondary education option (Panel B). This information shifted Republican aspirations in the opposite direction by 8 percentage points, effectively eliminating the aspiration gap across political partisans. Costs may be more salient for Democrats: we observed a 12 percentage-point shift away from the four-year university option among Democrats given only cost information. No change was observed among Republicans when given this information. Returns seemed more salient for Republicans, who shifted their aspirations towards the four-year university option by 12 percentage points after being provided with information on returns alone.

≪**Table 7 Here**≫

Summary and Interpretation

The capacity of information to reduce group differences in college aspirations of adults for their children depends upon the structure of the division. If gaps are embedded in enduring social and cultural relationships, small doses of cost-benefit information intended to correct informational asymmetries, such as those provided in a survey, are unlikely to eliminate them. When balanced information is provided, those with less education and lower income remained much more likely to prefer the no-college option or the two-year option than those with more education and higher income. Information may have little impact because, as Bleemer and Zafar (2018) found, the facts seem just as well known to those on both sides of the SES divide. Addressing SES inequalities in educational opportunity will require more than simple changes in the distribution of information. Higher-cost interventions that enhance academic preparation, foster trust and generate social capital may be crucial for overcoming barriers to pursuing an optimal further education program (Carrell & Sacerdote, 2017).

For three reasons our results differ from Bleemer and Zafar (2018), who found that information on returns to further education reduced SES aspiration disparities. First, we offered respondents the option of selecting pursuit of a two-year degree, a choice favored by a disproportionate share of lower SES respondents. Second, ceiling effects may have come into play in the Bleemer and Zafar analysis, as close to 90 percent of high SES control group respondents selected the four-year option over the no further education alternative. Finally, we treated respondents with balanced information on costs and returns, while they treated them with just costs or earnings information.

If a divide is ephemeral, a modest amount of information can narrow substantial differences. The contrasting college aspirations of those in the United States who identify with one or another of the two major political parties is a case in point. Public opinion on many issues are unstable, inconsistent, and only weakly connected to partisan affiliations. So it is with college aspirations. Whether students should prefer pursue a two-year or a four-year degree is a matter that divides political elites, but it has yet to become deeply entrenched in partisan identities of the public at large. Those are the circumstances when preferences can be erased by small doses of information conveyed in a survey.

Information may also close the Hispanic-white gap. Although our results were of borderline significance, the point estimates were large. Two complementary explanations for the surprising finding deserve careful consideration in further research. First, Hispanic Americans may not be well-informed about the returns to postsecondary education. Though they may perceive the importance of education for social mobility, they may be *relatively* less informed than whites about the costs and benefits of different kinds of further education (Hoxby & Avery, 2013; Ovink, 2017). In the absence of specific information, many prefer the two-year associate's

degree in the expectation that this amount of additional education will suffice. As newcomers

who speak a different language, Hispanic adults may not have access to the same social networks

and may not have accumulated as much relevant social capital as white adults. Without those

resources, they find it more difficult to obtain critical information about educational

opportunities (Perna, 2006).[2] In such cases, small doses of information may alter aspirations—

especially, and this is our second point, if the group has lower discount rates. Massey (1990) has

theorized that those who migrate across international borders are exceptionally likely to take

risks, hoping that the venture will yield large long-run returns. The results from our experiments

are consistent with that theory. Cost information, when presented alone, has little impact on

Hispanic respondents, but earnings information, presented alone, shifts opinion decisively

towards the bachelor's degree option. The net effect of balanced information on both costs and

returns is to close the Hispanic-white gap. In sum, it appears that cost-returns information about

investments in higher education will have the most substantial impact when the subjects are

initially not as well informed and have a low discount rate for returns on long-term investments.

Both factors would allow new information to contribute to a more favorable cultural perception

of more extended postsecondary education.

Limitations and Further Research

We acknowledge several limitations to this research. First, those in our treatment

conditions were not told the average annual earnings for those who do not pursue higher

education. Second, respondents were not asked for estimates of costs and earnings before the

experiment was administered. While this has the advantage of not embarrassing respondents by

correcting errors of those who guessed incorrectly, we could not estimate treatment effects for

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[2] Almost half of the U.S. Hispanic population in 2016 was foreign born, and 72.4 percent of Hispanics over the age
of five lived in households where Spanish was the language spoken at home (U.S. Census Bureau, 2016).

those who are more or less informed. Future research may explore this topic further by first

asking respondents to estimate the costs of and returns to four-year, two-year degree, and a high

school diploma. Third, the information on costs and returns to postsecondary education are

national averages, not ones specific to the respondent's location and eligibility for specific

scholarship programs. A national average masks variation in costs and returns attributable to

differences in, for example, college major, child ability, and geography (Altonji & Zimmerman,

2017). Although these factors should affect all arms of a randomized experiment in similar ways,

future research may be able to identify heterogeneities in impacts by any one or all of these

variables. Fourth, findings for African American respondents were underpowered. Given the

preliminary findings that have emerged, future research on this question is urgently required.

We additionally acknowledge that we were asking parents at a specific point in time. We

could not ascertain whether results would differ if, on one hand, parents were given information

when their child is near college-going age or if, on the other hand, parents were given

information many years earlier. Other questions remain unanswered as well, including questions

about persistence of information effects, the dosage required for impact, and the connection

between information-induced shifts in aspirations and actual enrollments.

It is also unclear whether our observed effects are attributable to respondents (1) updating

their prior beliefs about costs and returns to higher education or (2) reacting to the framing of the

information. Two of our three treatment arms are at risk of framing effects. Those who are told

only costs information are framed to think only about immediate impacts on their finances, while

those only informed about the returns to education are framed to think about the long-term

benefits correlated with a bachelor's degree. For this reason, we believe balanced cost and

returns information should be provided when estimating impacts on aspirations. But even this

balanced treatment may be biased by nudging respondents to consider only economic matters to the exclusion of broader cultural and social concomitants of further education.

This study of adult aspirations opens up only one window into the large world of social divides in access to further education, which will not be closed without addressing the social and cultural forces that affect the preparation of students for pursuit of an advanced degree (Park & Hossler, 2014; Perna, 2006; Serna, 2015). Nothing in this study should be taken to suggest otherwise. In fact, the inability of small doses of economic information to close gaps by SES in college aspirations reinforces that conclusion. A more holistic and sustained approach that engages students and families in a comprehensive way may prove to be a more fruitful strategy for improving postsecondary aspirations and outcomes.

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Table 1: Sample Averages

	Unweighted	Weighted
Parent	0.51	0.28
Racial Background		
White	0.68	0.66
Black	0.06	0.11
Hispanic	0.19	0.16
Education Level		
No College	0.24	0.25
Some College	0.27	0.44
B.A. Degree or Higher	0.48	0.30
Income (in $1000s)		
Less than 35	0.23	0.39
35 to 100	0.49	0.29
More than 100	0.28	0.31
Political Affiliation		
Republican	0.45	0.43
Democrat	0.51	0.53
Female	0.55	0.52
Region		
Northeast	0.17	0.18
Midwest	0.24	0.21
South	0.35	0.37
West	0.24	0.23
Metropolitan Area	0.87	0.85

Notes: Sample size is 4,214. Standard errors in parenthesis. [*]$p < 0.05$

Table 2: Mean Characteristics of Baseline Group and Randomization Check

	Control Group Mean	Differences from Control Group			F-Statistic For Joint Test of Balance across All Groups	P-value
		Costs and Returns	Costs	Returns		
	(1)	(2)	(3)	(4)	(6)	(7)
Parent	0.27	0.01	0.01	0.02	0.28	0.84
		(0.02)	(0.02)	(0.02)		
Racial Background						
White	0.64	0.05	0.02	0.00	1.30	0.27
		(0.03)	(0.03)	(0.03)		
Black	0.09	0.00	0.01	0.05*	1.74	0.16
		(0.02)	(0.02)	(0.02)		
Hispanic	0.19	-0.05*	-0.03	-0.02	1.58	0.19
		(0.02)	(0.02)	(0.02)		
Income (in $1000s)						
Less than 35	0.27	-0.01	-0.05	-0.02	1.21	0.30
		(0.03)	(0.03)	(0.03)		
35 to 100	0.44	-0.01	0.01	0.01	0.24	0.87
		(0.03)	(0.03)	(0.03)		
More than 100	0.29	0.02	0.03	0.01	0.49	0.69
		(0.03)	(0.03)	(0.03)		
Education Level						
No College	0.40	0.00	-0.04	0.01	1.01	0.39
		(0.03)	(0.03)	(0.03)		
Some College	0.28	-0.01	0.04	0.01	0.89	0.44
		(0.03)	(0.03)	(0.03)		
B.A. Degree or Higher	0.31	0.01	0.01	-0.02	0.30	0.83
		(0.03)	(0.03)	(0.03)		
Political Affiliation						
Republican	0.41	0.06*	0.01	0.00	1.65	0.18
		(0.03)	(0.03)	(0.03)		
Democrat	0.55	-0.07*	-0.03	0.00	1.96	0.12
		(0.03)	(0.03)	(0.03)		
Female	0.55	-0.03	-0.02	-0.04	0.52	0.67
		(0.03)	(0.03)	(0.03)		
Region						
Northeast	0.18	0.01	0.00	-0.01	0.33	0.81
		(0.02)	(0.02)	(0.02)		
Midwest	0.21	0.01	0.00	-0.01	0.21	0.89
		(0.03)	(0.03)	(0.03)		
South	0.38	-0.03	-0.03	0.04	2.19	0.09
		(0.03)	(0.03)	(0.03)		
West	0.23	0.01	0.02	-0.02	0.80	0.49
		(0.03)	(0.03)	(0.03)		
Metropolitan Area	0.87	-0.02	-0.01	-0.03	0.65	0.58
		(0.02)	(0.02)	(0.02)		
Observations	1,.071	1,082	1,056	1,005		

Notes: Total sample size is 4,214. Standard errors in parenthesis. *$p<0.05$

Table 3: Information Treatment Effects for US Adults by Parent Status

	Linear Probability Models						Multinomial Logit Models			
	Four-Year University		Two-Year College		No Postsecondary Education		Two-Year College		No Postsecondary Education	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Subgroup Difference										
Control Group Mean for Parents	0.793		0.129		0.079		0.129		0.079	
Other Adults	-0.162**	-0.113**	0.123**	0.084*	0.039	0.028	0.116**	0.081+	0.045+	0.040
	(0.036)	(0.041)	(0.032)	(0.035)	(0.024)	(0.032)	(0.029)	(0.033)	(0.026)	(0.031)
Panel B: Cost and Returns										
Costs and Returns Treatment	-0.058+	-0.058+	0.042	0.043	0.016	0.016	0.052	0.050	0.018	0.023
	(0.034)	(0.033)	(0.028)	(0.028)	(0.023)	(0.024)	(0.036)	(0.035)	(0.030)	0.032
Costs and Returns × Other Adults	0.052	0.061	-0.061	-0.064	0.008	0.002	-0.066	-0.065	0.004	-0.008
	(0.052)	(0.048)	(0.045)	(0.043)	(0.036)	(0.036)	(0.047)	(0.045)	(0.042)	(0.042)
Panel C: Costs Only										
Costs Treatment	-0.084*	-0.084**	0.059*	0.056+	0.025	0.028	0.070+	0.065+	0.028	0.032
	(0.035)	(0.035)	(0.030)	(0.030)	(0.025)	(0.025)	(0.038)	(0.038)	(0.032)	(0.033)
Costs × Other Adults	0.015c	0.006a	-0.020	-0.015	0.005	0.009	-0.035	-0.025	0.001	0.004
	(0.054)	(0.051)	(0.047)	(0.046)	(0.037)	(0.036)	(0.047)	(0.046)	(0.042)	(0.042)
Panel D: Returns Only										
Returns Treatment	0.011	0.012	-0.024	-0.033	0.013	0.021	-0.032	-0.040	0.018	0.026
	(0.033)	(0.032)	(0.026)	(0.026)	(0.024)	(0.024)	(0.035)	(0.033)	(0.032)	(0.032)
Returns × Other Adults	0.080b	0.087+, b	-0.100*, a	-0.100*, a	0.020	0.013	-0.094+	-0.092+	0.013	0.007
	(0.052)	(0.048)	(0.042)	(0.040)	(0.038)	(0.037)	(0.054)	(0.051)	(0.044)	(0.042)
Includes Control Variables		x		x		x		x		x

Notes: N = 4,204; 2,166 for parents and 2,038 for other adults. Other adults refer to respondents who are not parents of children ages 0-17. Marginal effects reported for multinomial logit estimates. Omitted outcome category in the multinomial logit models is preference for four-year university. Sampling weights included. Heteroskedastic robust standard errors used. **, *, and + indicate the coefficient is statistically distinguishable from zero at the 0.01, 0.05, and 0.1 levels, respectively. Superscript letters a, b, and c indicate that the treatment effect for other adults is statistically distinguishable from zero at the 0.01, 0.05, and 0.1 levels, respectively.

Table 4: Information Effects by Household Income

	Outcome Category					
	Four Year University		Two Year College		No Postsecondary Education	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Subgroup Difference						
Control Group Mean for High Income Earners	0.790		0.169		0.042	
Middle Income	-0.103*	-0.016	0.043	-0.015	0.060*	0.032
	(0.048)	(0.045)	(0.045)	(0.043)	(0.024)	(0.025)
Low Income	-0.258**	-0.127**	0.114*	0.050	0.143**	0.077*
	(0.057)	(0.058)	(0.053)	(0.055)	(0.039)	(0.041)
Panel B: Cost and Returns						
Costs and Returns Treatment	0.050	0.071	-0.057	-0.065	0.007	-0.006
	(0.051)	(0.047)	(0.047)	(0.043)	(0.025)	(0.027)
Costs and Returns × Middle Income	-0.109	-0.135**	0.079	0.096*	0.030	0.039
	(0.067)	(0.062)	(0.060)	(0.056)	(0.041)	(0.041)
Costs and Returns × Low Income	-0.098	-0.102	0.083	0.079	0.015	0.023
	(0.079)	(0.075)	(0.073)	(0.070)	(0.057)	(0.057)
Panel C: Costs Only						
Cost Treatment	-0.062	-0.063	0.051	0.045	0.011	0.017
	(0.054)	(0.050)	(0.051)	(0.048)	(0.025)	(0.026)
Costs × Middle Income	-0.049[b]	-0.039[b]	0.041[b]	0.046[b]	0.008	-0.007
	(0.071)	(0.065)	(0.066)	(0.062)	(0.039)	(0.039)
Costs × Low Income	0.006	0.003	-0.097	-0.091	0.091[c]	0.088[c]
	(0.083)	(0.079)	(0.075)	(0.073)	(0.062)	(0.062)
Panel D: Returns Only						
Returns Treatment	0.028	0.046	-0.061	-0.067	0.033	0.021
	(0.054)	(0.047)	(0.048)	(0.043)	(0.030)	(0.031)
Returns × Middle Income	0.054[c]	0.037[b]	-0.041[a]	-0.036[a]	-0.013	-0.001
	(0.068)	(0.062)	(0.059)	(0.054)	(0.042)	(0.042)
Returns × Low Income	0.060	0.052	-0.063[b]	-0.084[a]	0.004	0.032
	(0.082)	(0.077)	(0.068)	(0.066)	(0.064)	(0.063)
Includes Controls		x		x		x

Notes: N = 4,204; 971 low-income households; 2,056 medium income households, 1,177 high-income households. Middle income household earn between \$35,000 and \$100,000. Low income household earn less than \$35,000. Sampling weights included. Heteroskedastic robust standard errors used. **, *, and + indicate the coefficient is statistically distinguishable from zero at the 0.01, 0.05, and 0.1 levels, respectively. Superscript letters a, b, and c indicate that the treatment effect for middle- or-low income is statistically distinguishable from zero at the 0.01, 0.05, and 0.1 levels, respectively.

Table 5: Information Effects by Educational Attainment

	Four Year University		Two Year College		No Postsecondary Education	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Subgroup Difference						
Control Group Mean for B.A. Holders	0.882		0.080		0.038	
Some College	-0.244**	-0.197**	0.171**	0.142**	0.073*	0.055*
	(0.043)	(0.042)	(0.038)	(0.038)	(0.029)	(0.028)
No College	-0.344**	-0.281**	0.223**	0.205**	0.121**	0.076*
	(0.044)	(0.046)	(0.041)	(0.043)	(0.030)	(0.030)
Panel B: Cost and Returns						
Costs and Returns Treatment	0.014	0.024	-0.002	-0.010	-0.011	-0.015
	(0.026)	(0.026)	(0.023)	(0.022)	(0.014)	(0.016)
Costs and Returns × Some College	-0.015	-0.025	0.009	0.017	0.006	0.008
	(0.061)	(0.060)	(0.054)	(0.053)	(0.041)	(0.040)
Costs and Returns × No College	-0.074	-0.077	-0.004	-0.002^{c}	0.078^{+}	0.078$^{+,\,b}$
	(0.061)	(0.059)	(0.056)	(0.054)	(0.045)	(0.044)
Panel C: Costs Only						
Cost Treatment	-0.059^{+}	-0.052	0.049^{+}	0.040	0.010	0.011
	(0.033)	(0.033)	(0.028)	(0.028)	(0.019)	(0.020)
Costs × Some College	-0.030	-0.040^{c}	0.041^{c}	0.057^{c}	-0.011	-0.017
	(0.066)	(0.064)	(0.060)	(0.059)	(0.041)	(0.040)
Costs × No College	-0.024	-0.038^{c}	-0.042	-0.035	0.066^{c}	0.073^{b}
	(0.065)	(0.063)	(0.060)	(0.059)	(0.049)	(0.047)
Panel D: Returns Only						
Returns Treatment	0.054*	0.055*	-0.041*	-0.048*	-0.013	-0.007
	(0.024)	(0.024)	(0.020)	(0.021)	(0.014)	(0.016)
Returns × Some College	0.042^{c}	0.037^{c}	-0.055^{b}	-0.040^{b}	0.013	0.003
	(0.058)	(0.056)	(0.049)	(0.048)	(0.041)	(0.040)
Returns × No College	0.024	0.020	-0.106^{*,a}	-0.107^{*,a}	0.082^{+}	0.087$^{+,\,c}$
	(0.061)	(0.059)	(0.052)	(0.051)	(0.047)	(0.045)
Includes Control Variables		x		x		x

Notes: N = 4,204; 1,036 respondents without a college degree; 1,172 respondents with some college experience; 1,996 respondents with at least a B.A. degree. Sampling weights included. Heteroskedastic robust standard errors used. **, *, and + indicate the coefficient is statistically distinguishable from zero at the 0.01, 0.05, and 0.1 levels, respectively. Superscript letters a, b, and c indicate that the treatment effect for respondents who attended some college or did not attend college is statistically distinguishable from zero at the 0.01, 0.05, and 0.1 levels, respectively.

Table 6: Information Effects by Racial/Ethnic Background

	Four Year University		Two Year College		No Postsecondary Education	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Subgroup Difference						
Control Group Mean for White Respondents	0.680		0.226		0.094	
Hispanic	-0.137[*]	-0.057	0.065	0.056	0.072[+]	0.001
	(0.058)	(0.058)	(0.056)	(0.056)	(0.041)	(0.041)
African American	0.102	0.087	-0.111[*]	-0.078	0.009	-0.009
	(0.073)	(0.064)	(0.049)	(0.051)	(0.063)	(0.055)
Panel B: Cost and Returns						
Costs and Returns Treatment	-0.032	-0.017	-0.001	-0.004	0.032	0.021
	(0.036)	(0.033)	(0.032)	(0.031)	(0.025)	(0.024)
Costs and Returns × Hispanic	0.165[*,c]	0.124	-0.169[*,a]	-0.155[*,a]	0.004	0.031
	(0.083)	(0.079)	(0.067)	(0.065)	(0.068)	(0.064)
Costs and Returns × African American	-0.199[+,b]	-0.179[+,b]	0.244[*,b]	0.228[*,c]	-0.046	-0.049
	(0.116)	(0.102)	(0.102)	(0.097)	(0.080)	(0.075)
Panel C: Cost Only						
Cost Treatment	-0.092[*]	-0.092[**]	0.050	0.049	0.042	0.043[+]
	(0.037)	(0.033)	(0.034)	(0.032)	(0.025)	(0.023)
Costs × Hispanic	0.134	0.084	-0.072	-0.059	-0.061	-0.026
	(0.082)	(0.079)	(0.078)	(0.076)	(0.057)	(0.055)
Costs × African American	-0.041	-0.040	0.047	0.049	-0.005	-0.010
	(0.117)	(0.110)	(0.093)	(0.090)	(0.093)	(0.086)
Panel D: Returns Only						
Returns Treatment	0.052	0.059[+]	-0.100[**]	-0.108[**]	0.048[+]	0.049[+]
	(0.036)	(0.033)	(0.030)	(0.029)	(0.027)	(0.025)
Returns × Hispanic	0.128[b]	0.095[b]	-0.015[c]	0.001	-0.113[*]	-0.096[+]
	(0.082)	(0.079)	(0.074)	(0.072)	(0.057)	(0.055)
Returns × African American	-0.055	-0.060	0.042	0.037	0.013	0.024
	(0.103)	(0.088)	(0.064)	(0.063)	(0.091)	(0.080)
Includes Controls		x		x		x

Notes: N = 4,204; 810 Hispanics, 261 African Americans; 2,892 Whites. Sampling weights included. Heteroskedastic robust standard errors used. [**], [*], and [+] indicate the coefficient is statistically distinguishable from zero at the 0.01, 0.05, and 0.1 levels, respectively. Superscript letters a, b, and c indicate that the treatment effect for Hispanics or African Americans is statistically distinguishable from zero at the 0.01, 0.05, and 0.1 levels, respectively

Table 7: Information Effects by Political Affiliation

	Four Year University		Two Year Community College		No Postsecondary Education	
	Outcome Category					
Panel A: Subgroup Difference						
Control Group Mean for Democrats	0.749		0.162		0.089	
Republican	-0.169**	-0.162**	0.149**	0.114**	0.020	0.048+
	(0.043)	(0.041)	(0.040)	(0.039)	(0.029)	(0.027)
Panel B: Cost and Returns						
Costs and Returns Treatment	-0.089*	-0.083**	0.035	0.023	0.054+	0.060*
	(0.040)	(0.037)	(0.033)	(0.033)	(0.030)	(0.030)
Costs and Returns × Republican	0.173**, c	0.158**, c	-0.100+	-0.077	-0.073+	-0.081+
	(0.061)	(0.056)	(0.054)	(0.053)	(0.043)	(0.042)
Panel C: Costs Only						
Cost Treatment	-0.137**	-0.119**	0.101**	0.089*	0.036	0.030
	(0.041)	(0.038)	(0.036)	(0.036)	(0.029)	(0.026)
Costs × Republican	0.162**	0.110*	-0.141*	-0.112*	-0.021	0.002
	(0.062)	(0.058)	(0.056)	(0.055)	(0.043)	(0.040)
Panel D: Returns Only						
Returns Treatment	0.035	0.052	-0.054+	-0.072*	0.018	0.020
	(0.038)	(0.036)	(0.029)	(0.030)	(0.029)	(0.027)
Returns × Republican	0.088a	0.064a	-0.107*, a	-0.084+, a	0.019	0.020
	(0.061)	(0.057)	(0.051)	(0.050)	(0.046)	(0.043)
Includes Controls		x		x		x

Notes: N = 4,204; 1,900 Republicans; 2,145 Democrats. Sampling weights included. Heteroskedastic robust standard errors used. **, *, and + indicate the coefficient is statistically distinguishable from zero at the 0.01, 0.05, and 0.1 levels, respectively. Superscript letters a, b, and c indicate that the treatment effect for Republicans is statistically distinguishable from zero at the 0.01, 0.05, and 0.1 levels, respectively.

Appendix A

Republican and Democratic Public Opinion on Colleges and Universities and Statements

by Political Elites on Further Education.

Opinions on Colleges and Universities by Party

Between 2010 and 2017 the percentage of Republicans who say "colleges and universities have a negative impact on the country," increased from 32% to 58% between 2010 and 2017, while among Democrats that percentage declined from 36% to 19% (Pew Research Center, 2017.

Statements by Political Elites

Table A1: Statements by Democrats

Source	Statement
Hillary Clinton, presidential candidate (as cited in Meckler & Huges, 2016).	It is imperative that the next president put forward a bold plan to make debt-free college available to all."
Vermont Senator Bernie Sanders after introducing a 2017 bill in Congress that would enact free tuition at two-year and four-year institutions alike (as cited in O'hara, 2017)	"If we are to succeed in a highly competitive global economy and have the best-educated workforce in the world, public colleges and universities must become tuition-free for working families and we must substantially reduce student debt."
2016 Democratic Party Platform	"Democrats believe that in America, if you want a higher education, you should always be able to get one: money should never stand in the way. Cost should not be a barrier to getting a degree or credential, and debt should not hold you back after you graduate. Bold new investments by the federal government, coupled with states reinvesting in higher education and colleges holding the line on costs, will ensure that Americans of all backgrounds will be prepared for the jobs and economy of the future. Democrats are unified in their strong belief that every student should be able to go to college debt-free, and working families should not have to pay any tuition to go to public colleges and universities. We will also make community college free."

Table A2: Statements by Republicans

Source	Statement
Republican Platform 2016	We need new systems of learning to compete with traditional four-year schools: Technical institutions, online universities, life-long learning, and work-based learning in the private sector. Public policy should advance their affordability, innovation, and transparency and should recognize that a four-year degree from a brick-and-mortar institution is not the only path toward a prosperous and fulfilling career.
Donald Trump, president, speaking at Gateway Technical College, Kenosha, Wisconsin April 2017 (as cited in Schwartz, 2017).	"Vocational education is the way of the future."
Elaine Chao, Secretary of Transportation, (as cited in Nagurka, 2017).	"The good news is that workers don't need an expensive 4-year degree to access those good-paying jobs."
Donald Trump, president, State of the Union Address (as cited in Stratford, 2018).	Congress should "invest in workforce development and job training" and "open great vocational schools."
Donald Trump, President. Annual Congressional Republican policy retreat, Sulpher Springs, West Virginia (as cited in Green, 2018).	"We should have vocational schools. . . . You learn bricklaying and carpentry and all of these things. We don't have that very much anymore. And I think the word 'vocational' is a much better word than in many cases, a community college. A lot of people don't know what a community college means or represents."

Appendix A References

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Appendix B

Experimental Design and Survey Questionnaire

Table B1: Main Survey and Experimental Design

	No Costs Information	Providing Costs Information
No Returns Information	Thinking about your oldest child under the age of 18 (If you had a child of college-going age), do you want that child to go to a community college to earn a two-year degree, a university to earn a four-year degree, or neither?	On average, it costs $14,210 per year to complete a four-year degree at an in-state public university, while it costs $7,620 per year to complete a two-year degree at a local community college. These are average costs (including tuition, fees, and room and board) after deducting the amount that students typically receive in scholarships and grants. Thinking about your oldest child under the age of 18 (If you had a child of college-going age), do you want that child to go to a community college to earn a two-year degree, a university to earn a four-year degree, or neither?
Providing Returns Information	On average, students completing a four-year degree earn $61,400 each year over the course of their working lives, while those completing a two-year degree earn $46,000 each year over the course of their working lives. Thinking about your oldest child under the age of 18 (If you had a child of college-going age), do you want that child to go to a community college to earn a two-year degree, a university to earn a four-year degree, or neither?	On average, students completing a four-year degree earn $61,400 each year over the course of their working lives, while those completing a two-year degree earn $46,000 each year over the course of their working lives. On average, it costs $14,210 per year to complete a four-year degree at an in-state public university, while it costs $7,620 per year to complete a two-year degree at a local community college. These are average costs (including tuition, fees, and room and board) after deducting the amount that students typically receive in scholarships and grants. Thinking about your oldest child under the age of 18 (If you had a child of college-going age), do you want that child to go to a community college to earn a two-year degree, a university to earn a four-year degree, or neither?

Note: Parents with children ages 0 to 17 are asked to think about their oldest child under the age of 18. Other adults are asked to consider a hypothetical child of college-going age.

Appendix C

Multinomial Logit Results

Table C1: Multinomial Logit Estimates of Information Treatment Effects for US Adults by Parent Status

	Outcome Category			
	Two-Year College		No Postsecondary Education	
	(1)	(2)	(3)	(4)
Subgroup Difference				
Other Adults	0.116**	0.081+	0.045+	0.040
	(0.029)	(0.033)	(0.026)	(0.031)
Cost and Returns				
Costs and Returns Treatment	0.052	0.050	0.018	0.023
	(0.036)	(0.035)	(0.030)	0.032
Costs and Returns × Other	-0.066	-0.065	0.004	-0.008
Adults	(0.047)	(0.045)	(0.042)	(0.042)
Costs Only				
Costs Treatment	0.070+	0.065+	0.028	0.032
	(0.038)	(0.038)	(0.032)	(0.033)
Costs × Other Adults	-0.035	-0.025	0.001	0.004
	(0.047)	(0.046)	(0.042)	(0.042)
Returns Only				
Returns Treatment	-0.032	-0.040	0.018	0.026
	(0.035)	(0.033)	(0.032)	(0.032)
Returns × Other Adults	-0.094+	-0.092+	0.013	0.007
	(0.054)	(0.051)	(0.044)	(0.042)
Includes Control Variables		x		x

Notes: N = 4,204; 2,166 parents and 2,038 other adults. Other adults refer to respondents who are not parents of children ages 0-17. Marginal effects shown. Omitted outcome category is preference for four-year university. Sampling weights included. Heteroskedastic robust standard errors used. **, *, and + indicate the coefficient is statistically distinguishable from zero at the 0.01, 0.05, and 0.1 levels, respectively. Superscript letters a, b, and c indicate that the treatment effect for other adults is statistically distinguishable from zero at the 0.01, 0.05, and 0.1 levels, respectively

Table C2: Multinomial Logit Estimates of Information Effects by Household Income

	Outcome Category			
	Two Year College		No Postsecondary Education	
	(1)	(2)	(3)	(4)
Panel A: Subgroup Difference				
Middle Income	0.029	-0.023	0.099*	0.025
	(0.048)	(0.046)	(0.044)	(0.044)
Low Income	0.092$^+$	0.041	0.174**	0.001
	(0.050)	(0.063)	(0.046)	(0.050)
Panel B: Cost and Returns				
Costs and Returns Treatment	-0.077	-0.085	0.023	0.004
	(0.064)	(0.060)	(0.060)	(0.060)
Costs and Returns × Middle Income	0.096	0.115$^+$	0.014	0.029
	(0.072)	(0.068)	(0.068)	(0.067)
Costs and Returns × Low Income	0.101	0.095	-0.006	0.012
	(0.077)	(0.072)	(0.069)	(0.068)
Panel C: Costs Only				
Cost Treatment	0.047	0.044	0.023	0.029
	(0.053)	(0.051)	(0.058)	(0.057)
Costs × Middle Income	0.029	0.033	-0.001	-0.013
	(0.064)	(0.060)	(0.066)	(0.064)
Costs × Low Income	-0.072	-0.069	0.037	0.036
	(0.070)	(0.068)	(0.067)	(0.066)
Panel D: Returns Only				
Returns Treatment	-0.092	-0.101$^+$	0.072	0.054
	(0.067)	(0.060)	(0.055)	(0.054)
Returns × Middle Income	-0.032	-0.016	-0.043	-0.027
	(0.079)	(0.073)	(0.064)	(0.062)
Returns × Low Income	-0.024	-0.037	-0.048	-0.015
	(0.081)	(0.076)	(0.066)	(0.064)
Includes Controls		x		x

Notes: N = 4,204; 971 low-income households; 2,056 medium income households, 1,177 high-income households.. Middle income household earn between $35,000 and $100,000. Low income household earn less than $35,000. Marginal effects shown. Omitted outcome category is preference for four-year university. Sampling weights included. Heteroskedastic robust standard errors used. **, *, and $^+$ indicate the coefficient is statistically distinguishable from zero at the 0.01, 0.05, and 0.1 levels, respectively. Superscript letters a, b, and c indicate that the treatment effect for middle- or-low income is statistically distinguishable from zero at the 0.01, 0.05, and 0.1 levels, respectively.

Table C3: Multinomial Logit Estimates of Information Effects by Educational Attainment

	Two Year College		No Postsecondary Education	
	(1)	(2)	(3)	(4)
Panel A: Subgroup Difference				
Some College	0.181**	0.188**	0.100*	0.066
	(0.045)	(0.050)	(0.044)	(0.048)
No College	0.219**	0.244**	0.144**	0.081+
	(0.044)	(0.052)	(0.041)	(0.046)
Panel B: Cost and Returns				
Costs and Returns Treatment	0.005	-0.007	-0.038	-0.042
	(0.049)	(0.047)	(0.045)	(0.044)
Costs and Returns × Some College	0.001	0.012	0.032	0.037
	(0.063)	(0.061)	(0.061)	(0.058)
Costs and Returns × No College	-0.005	0.008	0.083	0.086+
	(0.061)	(0.059)	(0.054)	(0.052)
Panel C: Costs Only				
Cost Treatment	0.074	0.064	0.015	0.012
	(0.047)	(0.047)	(0.049)	(0.048)
Costs × Some College	-0.009	0.008	-0.014	-0.017
	(0.061)	(0.060)	(0.062)	(0.060)
Costs × No College	-0.062	-0.052	0.038	0.049
	(0.061)	(0.060)	(0.057)	(0.055)
Panel D: Returns Only				
Returns Treatment	-0.103+	-0.112+	-0.025	-0.019
	(0.060)	(0.058)	(0.049)	(0.048)
Returns × Some College	0.013	0.026	0.029	0.021
	(0.074)	(0.072)	(0.064)	(0.061)
Returns × No College	-0.026	-0.026	0.073	0.079
	(0.074)	(0.072)	(0.058)	(0.055)
Includes Control Variables		x		x

Notes: N = 4,204. ; 1,036 respondents without a college degree; 1,172 respondents with some college experience; 1,996 respondents with at least a B.A. degree Marginal effects shown. Omitted outcome category is preference for four-year university. Sampling weights included. Heteroskedastic robust standard errors used. **, *, and + indicate the coefficient is statistically distinguishable from zero at the 0.01, 0.05, and 0.1 levels, respectively. Superscript letters a, b, and c indicate that the treatment effect for respondents who attended some college or did not attend college is statistically distinguishable from zero at the 0.01, 0.05, and 0.1 levels, respectively.

Table C4: Multinomial Logit Estimates of Information Effects by Racial/Ethnic Background

	Outcome Category			
	Two Year College		No Postsecondary Education	
	(1)	(2)	(3)	(4)
Panel A: Subgroup Difference				
Hispanic	0.068	0.051	0.077*	0.003
	(0.044)	(0.043)	(0.035)	(0.035)
African American	-0.116	-0.079	0.018	-0.014
	(0.071)	(0.070)	(0.074)	(0.064)
Panel B: Cost and Returns				
Costs and Returns Treatment	0.001	0.002	0.031	0.019
	(0.028)	(0.027)	(0.027)	(0.025)
Costs and Returns × Hispanic	-0.175**	-0.157*	-0.006	0.028
	(0.066)	(0.061)	(0.052)	(0.049)
Costs and Returns × African American	0.229*	0.199*	-0.046	-0.040
	(0.095)	(0.089)	(0.097)	(0.091)
Panel C: Cost Only				
Cost Treatment	0.046	0.048$^+$	0.045$^+$	0.044$^+$
	(0.028)	(0.027)	(0.027)	(0.024)
Costs × Hispanic	-0.065	-0.051	-0.063	-0.027
	(0.062)	(0.059)	(0.050)	(0.048)
Costs × African American	0.068	0.064	-0.012	-0.013
	(0.102)	(0.097)	(0.097)	(0.091)
Panel D: Returns Only				
Returns Treatment	-0.108**	-0.118**	0.050$^+$	0.045$^+$
	(0.033)	(0.031)	(0.027)	(0.025)
Returns × Hispanic	0.002	0.030	-0.116*	-0.088
	(0.071)	(0.067)	(0.057)	(0.054)
Returns × African American	-0.014	-0.020	0.019	0.049
	(0.132)	(0.121)	(0.092)	(0.079)
Includes Controls		x		x

Notes: N = 4,204; 810 Hispanics, 261 African Americans; 2,892 Whites. Marginal effects shown. Omitted outcome category is preference for four-year university. Sampling weights included. Heteroskedastic robust standard errors used. **, *, and $^+$ indicate the coefficient is statistically distinguishable from zero at the 0.01, 0.05, and 0.1 levels, respectively. Superscript letters a, b, and c indicate that the treatment effect for Hispanics or African Americans is statistically distinguishable from zero at the 0.01, 0.05, and 0.1 levels, respectively

Table C5: Multinomial Logit Estimates of Information Effects by Political Affiliation

	Outcome Category			
	Two Year Community College		No Postsecondary Education	
Panel A: Subgroup Difference				
Republican	0.129**	0.097**	0.037	0.057+
	(0.036)	(0.035)	(0.033)	(0.030)
Panel B: Cost and Returns				
Costs and Returns Treatment	0.025	0.022	0.069*	0.063*
	(0.037)	(0.036)	(0.034)	(0.030)
Costs and Returns × Republican	-0.077	-0.062	-0.091+	-0.088*
	(0.051)	(0.049)	(0.047)	(0.043)
Panel B: Returns Only				
Cost Treatment	0.101*	0.093*	0.021	0.032
	(0.040)	(0.038)	(0.029)	(0.028)
Costs × Republican	-0.121*	-0.095*	0.007	-0.005
	(0.050)	(0.048)	(0.048)	(0.042)
Panel D: Returns Only				
Returns Treatment	-0.062+	-0.077*	0.020	0.022
	(0.034)	(0.033)	(0.032)	(0.029)
Returns × Republican	-0.074	-0.051	-0.013	0.008
	(0.059)	(0.056)	(0.045)	(0.044)
Includes Controls		x		x

Notes: N = 4,204; 1,900 Republicans; 2,145 Democrats. Marginal effects shown. Omitted outcome category is preference for four-year university. Sampling weights included. Heteroskedastic robust standard errors used. **, *, and + indicate the coefficient is statistically distinguishable from zero at the 0.01, 0.05, and 0.1 levels, respectively. Superscript letters a, b, and c indicate that the treatment effect for Republicans is statistically distinguishable from zero at the 0.01, 0.05, and 0.1 levels, respectively.