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Adolescent Time and Risk Preferences: Measurement, Determinants and Field Consequences

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Abstract

We use experimental and survey measures to evaluate the time and risk preferences of nearly 500 adolescents aged 16-19 years old. We find that survey questions about time and risk preferences are weakly correlated with corresponding experiments in which participants trade-off monetary rewards. We also find interesting heterogeneities: girls are less risk seeking and more patient than boys when risk and time preferences are measured via surveys, and black adolescents are less risk seeking and more impatient than white or Hispanic adolescents on some measures. Parent time and risk preferences are strongly predictive of adolescent preferences for both survey and experimental measures. Interestingly, the survey measures have more predictive power for field outcomes than the experimental measures. Higher patience as measured by the survey is significantly associated with lower body mass index (BMI), less time spent on sedentary activities, more time spent on physical activity and lower consumption of fast food and sweets.

JEL Classifications: C72, C91
Keywords: field experiment, adolescent, time preferences, risk preferences, measurement, parents

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1. Introduction

The literature eliciting economic preferences of children and adolescents has exploded in the last decade (List et al., 2019). This literature provides a deeper understanding of the development of economic preferences, and on the correlates associated with this development. There are now some stylized facts regarding the roles that gender, age, and race play in the development of economic preferences (Sutter et al., 2019). However, the literature is still in its infancy in that we have limited knowledge of the best methods to elicit economic preferences of young people.

In this paper, we aim to contribute to the literature on the development of economic preferences by conducting both incentivized experiments and surveys in which we elicit time and risk preferences of nearly 500 adolescents aged 16-19. The adolescents in our study are part of the Military Teenagers Environment Exercise and Nutrition Study (M-TEENS) and come from diverse demographic backgrounds across the United States. Since the participants are dispersed geographically, our experiments and surveys were conducted through the internet. To elicit time preferences, we asked the adolescents to respond to general and domain-specific questions about willingness to tradeoff immediate and long-term rewards. We further presented adolescents with a multiple price list (MPL) in which they were asked to make incentivized decisions about receiving a smaller, earlier monetary payoff versus a larger, later monetary payoff. To elicit risk preferences, we included survey questions about general and domain-specific risk attitudes. Next, we used an incentivized MPL in which adolescents were asked to choose between sure payments and risky payments.

Our first contribution is related to measurement: we used both incentivized experiment and survey measures of time and risk preferences in a sample of adolescents, allowing us to compare

these two methodologies. Related work found a correlation between experimental measures and survey measures of time and risk preferences in German adults (Falk et al. 2016; Vischer et al. 2013; Dohmen et al. 2011a), but as far as we are aware, similar work has not been done with a U.S. sample, nor with children or adolescents. In this paper, we find a weak correlation between experimental and survey measures of time and risk preferences among adolescents, which is consistent with the prior work with German adults. While some studies with adults have used out-of-sample experiments to validate survey measures, in our study both measures are available for our full sample.

Our second contribution is to understand the heterogeneity in time and risk preferences in our sample of adolescents. We find that according to the survey measures, girls are less risk seeking and more patient than boys. In contrast, we do not find gender differences in preferences when using the experimental measures. While some related work on adolescent risk preferences using experimental measures finds gender differences in risk preferences (e.g., Andreoni et al., 2019a), the broader literature on adults has found mixed evidence of a gender difference in risk preferences (see Holt and Laury [2014] for a review). We also elicited the time and risk preferences of one parent from each household. Hence, we are able to speak to the literature on the intergenerational transfer of time and risk preferences, which has found mixed results to date.[1] We find that parent preferences are strongly predictive of adolescent preferences, and this is true for both time and risk using either survey or experimental measures.

Our final contribution is to investigate whether (and which) of our measures of time and risk preferences predict body mass index (BMI) and related behaviors, including time spent on

[1] Kosse and Pfeiffer (2012, 2013) find associations between time preferences of children and parents, while Bettinger and Slonim (2007) and Andreoni et al. (2019b) do not find such associations. Alan et al. (2017) and Chowdhury et al. (2018) find a correlation between mothers and children for risk.

sedentary activities, time spent on physical activity, and consumption of fast food and sweets. We chose these measures for two reasons. First, they were the key measures used in the M-TEENS study. Second, related work has associated BMI with time preferences of children and adolescents (Seeyave et al. 2009; Sutter et al. 2013; Golsteyn et al., 2014) and adults (Courtemanche et al. 2015; Ikeda et al. 2010). A few related papers have also explored time and risk preferences in relation to physical activity and food intake (Leonard et al., 2013 Sirois et al., 2004; Joireman et al., 2012).

We find that survey measures of time preferences – but not experimental measures – are strong predictors of BMI and obesogenic behaviors. Adolescents who state in surveys that they are willing to forego immediate gratification for long-term gain have significantly lower BMI, spend less time playing video games or watching television, spend more time engaging in physical activity, and consume fewer servings of fast food, soda and sweets.

In summary, the survey measures we employed are weakly correlated with incentivized experimental measures, show similar patterns by gender, age and race as related literature that uses experimental measures, and have predictive power for relevant field outcomes. Our experimental measures were less predictive of field outcomes. Traditionally, experimental measures have been fielded in a laboratory setting with undergraduate student participants. It is possible that context and population matters for preference elicitation, and that experimental measures work better for some subgroups, but not others. Additionally, most laboratory experiments are conducted face-to-face where experimenters can explain concepts in person and answer questions. The online implementation of our study precluded such detailed explanation, which could affect responses. On the upside, the survey measures were straightforward to implement online and had good predictive power. This may mean that our survey measures are more generalizable than

experimental measures for our population and context. We conclude that researchers wishing to elicit the time and risk preferences of adolescents through the internet would do well to employ stated-preference surveys like the ones we report on here.

In what follows, Section 2 provides a review of the literature. Section 3 explains the procedures and details of our experiments and surveys. Section 4 summarizes our results. Section 5 concludes.

2. Literature Review

2.1 Experimental versus Survey Measures of Time and Risk Preferences

While incentivized experiments are considered the standard in economics for measuring time and risk preferences, they can be impractical to administer in field settings. Incentivized experimental elicitations are often complicated to explain and require numeracy skills that adolescents may not have. This can lead to noisy data and choice patterns that look "irrational" (Andreoni et al. 2017).

Survey measures of time and risk preferences have been suggested as a cost-effective alternative to experimental measures in field settings (Eckel, 2019). An example is a Likert scale question asking about a subject's preferences in a domain-neutral (e.g., "how patient are you?") or domain specific (e.g., "how patient are you when it comes to your finances?") way.[2] A number of studies have sought to validate such measures. The most well-known of these use the German

[2] Another example of a survey measure often used is a hypothetical question about monetary tradeoffs, where a subject may choose between hypothetical gambles or between earlier and later amounts with no real payout. These measures often resemble experimental tasks, just without real incentives. In some cases, these non-incentivized experimental measures have performed similarly to incentivized experimental measures (Johnson and Bickel 2002; Madden et al. 2003; Kühberger et al. 2002). The evidence however is mixed, and some studies report significant differences in decision making under hypothetical and real payouts (Holt and Laury 2008; Coller and Williams 1999).

Socio-Economic Panel that uses in-person interviews (Vischer et al., 2013; Dohmen et al., 2011a). Dohmen et al. (2011a) find a correlation between general willingness to take risks and a risk preference elicitation task and Vischer et al. (2013) find a correlation between self-reported patience and experimentally elicited time preferences. Dohmen et al. (2011a) also report that their survey measure predicts risky behaviors such as smoking or holding stocks. In a different study, Falk et al. (2016) describe and validate a new survey module with six economic preferences – including time and risk – using a laboratory experiment with German undergraduate students. Vieder et al. (2015) conduct laboratory experiments across 30 countries, showing correlations between risk preferences measured using surveys and risk preferences using experimental tasks. The raw correlations found between survey and experimental measures are highly variable across prior studies. Low correlations are found in several studies – 0.15 for time (Vischer, 2013) and 0.1-0.26 for risk (Dohmen, 2011a; Vieder, 2015).[3] Falk (2016) finds high correlations in his laboratory experiment – 0.59 for time preferences and 0.41 for risk preferences. To the best of our knowledge, studies have not been conducted to validate survey measures with experiments for adolescents, or to validate these measures for online administration.

Related studies have also compared the power of experimental and survey measures to explain field outcomes, finding mixed evidence for which is best. Burks et al. (2012) use truck driver trainees in the U.S. to conduct a horse-race between four different measures of time preferences, including experimental measures and a survey measure of impatience using a large non-student sample of adults. The authors find that all four measures have some predictive power, but that the quasi-hyperbolic β, δ formulation is most predictive of smoking, credit score and BMI.

[3] It is worth noting that correlations comparing experimental tasks to each other are similarly low for time preferences (Freeman et al. 2016) and risk preferences (Holt and Laury 2014; Deck et al. 2010; Gerhardt et al. 2017; Frey et al. 2017; Mata et al. 2018).

Sanou et al. (2018) conduct a similar investigation in a sample of farmers in Niger, finding that incentivized experimental measures of risk preferences are superior predictors of fertilizer adoption than the non-incentivized survey measure.[4] On the other hand, Dohmen et al. (2011a) find that their general survey question for risk-taking predicts risky behaviors such as smoking and investing in stocks more consistently than a hypothetical lottery question. We haven't seen a similar study for adolescents, or for studies conducted over the internet.

The above-mentioned studies provide evidence that there is an interest in understanding the associations between experimental and survey measures. They also demonstrate the appropriateness of using survey measures as a proxy for experimental measures for adult subjects. However, these are a limited number of studies, and their findings about which measure is most appropriate are mixed. The contribution of our study is to expand our understanding of which methods are most predictive for field outcomes and to provide similar evidence for adolescent subjects. This is important given the recent interest in conducting experiments with young populations. Further, it appears we are the first to investigate the appropriateness of these measures in an online rather than face-to-face study. Face-to-face studies are not always feasible in geographically distributed samples like ours, hence understanding how to conduct studies online is useful for future work.

2.2 Associations of Time and Risk Preferences with Demographics, Socio-Economic Status and Parent Time Preferences in Children and Adolescents

The large increase in interest in experiments with children and adolescents in recent years has allowed researchers to generate stylized facts about the relationship between economic

[4] Relatedly, Anderson and Mellor (2009) find limited correlation between a lottery choice experiment and survey-based hypothetical gambles for measuring risk aversion.

preferences and demographic factors such as age, gender, race, and socio-economic status (SES) (for a review, see Sutter et al., 2019). With respect to age, research shows that children become more patient as they get older (Bettinger and Slonim, 2007; Angerer et al., 2015; Deckers et al., 2015; Sutter et al., 2013; Andreoni et al., 2019b). Research on the association of risk preferences with age is more mixed, though some studies find that adolescent males become more risk seeking with age (Khachatryan 2015; Burnett et al., 2010), and a broader literature in developmental psychology provides evidence that adolescents are especially risk taking relative to the rest of the population (Arnett et al. 1992; Gullone et al. 2000). Our study cannot speak to the evolution of time and risk preferences by age, since we focus on a fairly narrow age range (ages 16-19). However, we think adolescence is an important period to study given that many decisions that adolescents make – such as choice of continuing in school, choice to engage in healthy behaviors and choice to engage in risky behaviors – can have lasting consequences.

With respect to gender, prior research generally finds that adolescent girls are more risk averse than adolescent boys (Borghans et al., 2009; Booth and Nolen, 2012; Eckel et al., 2012; Sutter et al., 2013; Khachatryan et al., 2015; Andreoni et al., 2019a). The results related to gender and time preferences are more mixed, with some studies showing that adolescent girls are more patient than adolescent boys (Bettinger and Slonim, 2007; Castillo et al., 2011;) and other studies showing the opposite (Sutter et al., 2013; Golsteyn et al., 2014). A possible reason why the literature is mixed on the relationship between time preferences and gender is that these studies used different methods and contexts (List et al., 2019). Our paper allows us to contribute to our understanding of gender differences in economic preferences, since it includes nearly 500 adolescent participants, about half of whom are female. Our study also uses a U.S. sample with

diverse SES, whereas related work has been done either outside the U.S.[5] or using a low SES sample (Andreoni et al., 2019a; Eckel et al., 2012; Bettinger and Slonim, 2007; Castillo et al., 2011; Castillo et al., 2018a). Collecting data from adolescents from a variety of backgrounds and cultures can help shed light on some of the mixed results in related work.

With respect to race-ethnicity, research finds that black children and adolescents are less patient than their white or Hispanic counterparts (Castillo et al., 2011; Andreoni et al., 2019b). Research also finds associations of SES with time and risk preference: children from low SES households are less patient and more risk seeking (Deckers et al., 2015; Deckers et al., 2017). Risk preferences also vary by cognitive ability and height (Eckel et al. 2012; Sutter et al. 2013; Benjamin et al. 2013). Given the observed heterogeneities in related work, our sample is important since it has large numbers of white (38%), black (23%) and Hispanic (25%) participants from a wide range of SES backgrounds in the U.S. For example, the sample is distributed about equally across 6 income categories from "Less than $40,000 annually" to "$85,000 or more annually."[6] The related work studying heterogeneities by race-ethnicity and SES either tends to recruit low-income populations (Castillo et al., 2011; Andreoni et al., 2019b; Eckel et al. 2012) or is conducted in countries outside of the U.S. (Sutter et al. 2013; Benjamin et al. 2013; Deckers et al., 2015; Deckers et al., 2017).[7]

Economic theory suggests that parents and parenting practices are an important channel through which the time and risk preferences of children are shaped (Bisin and Verdier et al., 2001). A strand of research investigates this hypothesis empirically through experiments or surveys with

[5] For example, Borghans et al. (2009) conduct their study in the Netherland, Booth and Nolen (2012) in the UK, Sutter et al. (2013) in Austria, Golsteyn et al. (2014) in Sweden and Khachtaryan et al.(2015) in Armenia.
[6] Note that although our sample is from a more heterogeneous population than a standard laboratory experiment sample or a sample that is recruited from one geographic area, it is a more homogeneous sample relative to the general US population since it consists of adolescents from military families.
[7] Benjamin et al. (2013) conducted their study in Chile. Deckers et al., (2015, 2017) conducted their study in Germany.

both children and their parents. Brown & Van der Pol (2015), Dohmen et al. (2011b), Kimball et al. (2009) and Webley and Nyhus (2006) find a strong correlation between parents and adolescent children in survey measures of patience and risk aversion. The association of parent with child preferences in experimental research is more mixed. Alan et al. (2017) find a strong parent-child correlation using an experimental measure of risk preferences in a sample of mothers and young daughters in Turkey. Kosse and Pfeiffer (2012; 2013) use experimental measures of time discounting and show a correlation in preferences between mothers and young children in Germany. However, Andreoni et al. (2019b) and Bettinger and Slonim (2007) find no correlation in time preferences between parents and children in disadvantaged U.S. samples using an experimental measure. It is unclear why this mixed evidence is observed, but potential reasons are differences in methods and in the background of the participants. In general, more work is needed to come to a conclusion about which differences in methods or background matter in this setting.

Our paper adds to the above by providing an investigation of the association of time and risk preferences with demographic background and SES. Given that stylized facts already exist, we explore whether our survey measure or our experimental measure give results that are aligned with these facts. Finally, our separate elicitation and evaluation of parent preferences add to our understanding of the inter-generational transfer of time and risk preferences.

2.3 Associations of Time and Risk Preferences with Field Consequences

For economic preference elicitations to be useful, they should have predictive power over relevant field outcomes. A related strand of literature explores correlations of time and risk preferences with field consequences. Related to our paper, several studies have found an association between time preferences and BMI and health-related behaviors.

Time preferences may affect BMI since more patient individuals may care more about their future health outcomes, and may therefore make healthier food and physical activity decisions. This is what the literature finds. A higher level of impatience - as measured by incentivized experiments - is associated with higher BMI among adults (Ikeda et al. 2010) and children and adolescents (Sutter et al. 2013; Golsteyn et al., 2014; Weller et al. 2008). Several studies have found the same association using survey-based hypothetical questions about monetary tradeoffs among adults (Courtemanche et al. 2015; Borghans and Golsteyn, 2006) and adolescents (Seeyave et al. 2009).[8] No studies that we are aware of have explored the relationship between survey-measured time preferences and BMI.

The association between risk preferences and BMI is less well documented. One possibility is that the decision to eat unhealthy or not to exercise is associated with risk loving preferences. In line with this, two papers using adult subjects (de Oliveira et al., 2016; Anderson and Mellor, 2009) and one using adolescents (Sutter et al. 2013) found a positive association between risk-taking measured by incentivized experiments and the likelihood of being overweight or obese.

Several studies have also evaluated the association of time and risk preferences with health-related behaviors like smoking, drinking, diet and physical activity. Sutter et al. (2013) found that children and adolescents who are more impatient in experimental elicitations are more likely to spend money on alcohol and cigarettes. Among adults, time preferences as measured using experiments (i.e., low discount rates) also predict smoking, drinking and drug abuse behaviors (Bradford et al., 2010; Chabris et al., 2008; Harrison et al., 2010; Khwaja et al., 2007; Kirby et al., 1999; Weller et al., 2008), as well as demand for medical screening tests, vaccines (Picone et al., 2004; Chapman and Coups, 1999) and physical activity (Leonard et al., 2013). Risk tolerance as

[8] A different study finds a correlation between teacher-ratings of self-control in Kindergarten and obesity in adolescence (Datar and Chung, 2018).

measured by incentivized experiments has been linked to increased smoking and drinking (Anderson and Mellor 2009).[9] In terms of survey measures, some studies using the same survey measure for time preferences used in our paper, but conducted in predominantly white samples, find a positive relationship between patience and healthy eating and exercise (Sirois et al., 2004; Joireman et al., 2012). Our study allows us to assess these relationships in an ethnically diverse sample and provide additional evidence for the association of time preferences with time spent on sedentary activities, time spent on physical activity and consumption of fast food and sweets.

Based on the evidence for a link between time preferences and field consequences discussed above, in this paper we will validate our time preferences measures by evaluating how well they predict BMI and health-related behaviors. Given the limited evidence for the predictive power of risk preferences in the health domain, we consider the evaluation of the predictive power of our risk preference measures as more exploratory.

3. Experimental Setup

3.1 Procedures

Our study was conducted with adolescents and their parents from M-TEENS, which is a longitudinal study of families of Army-enlisted personnel located at Army installations distributed across the continental U.S. (Datar and Nicosia, 2018). Initial recruitment for the study was conducted in 2013 at 12 installations selected to represent a majority of Army active duty enlisted population with adolescents around ages 12-14. Our experiment and survey questions were part of the third wave of data collection, which occurred in 2017-18 when the adolescents were 16-19

[9] Outside of the health domain, impatience is positively associated with higher school drop-out rates (Castillo et al., 2018b) and school disciplinary referrals (Castillo et al., 2011). Among adults, time preferences also predict take-up of financial education programs (Meier and Sprenger, 2013) and credit card debt (Meier and Sprenger, 2010).

years old. All M-TEENS families were recruited for this wave, even if they had moved away from their original installation.

The time and risk preference data were collected using an online survey. M-TEENS parents (N=1,519) were e-mailed an invitation that invited both them and their child to participate in separate 1-hour online surveys and a follow-up online video-based interview. The surveys included incentivized time and risk preference experiments and time and risk survey questions (described in Sections 3.2 and 3.3). The surveys also included items related to demographic and socio-economic background, diet, physical activity, sedentary behaviors and BMI, which we can use to evaluate the ability of our data to predict these field consequences. Parents and adolescents were asked to complete their own surveys separately and in private. The online video-based interview was completed by a sub-set of the subjects (N=220) that included guided height and weight measurement for both parent and adolescent using standard equipment that was mailed to them. Direct measurement data on BMI for this subsample was used to correct for bias in self-reported BMI data for the entire sample using regression calibration (see Ghosh-Dastidar et al., 2016 for details).

Participants received $20-$30 for completing their survey, plus an additional $9-$37 depending on their choices in the experiments and on chance. Families who agreed to the BMI measurements via video-conference got an additional $50 for this part (see Appendix C.2 for a full description of how BMI was collected). All payouts were in the form of Amazon gift cards sent to the parent and adolescent's email addresses.

3.2 Time Preference Elicitation

The incentivized time preference experiments followed a multiple price list (MPL) format and were identical for the adolescents and their parents. In the first five questions, participants chose between a payment of $10 the "same day" (described as within the next 24 hours) or a payment of $9, $11, $13, $15 or $17 in one week. The next five questions were the same but had a one-week front end delay, such that participants faced the same monetary trade-offs, but between a payment in one week and a payment in two weeks. Only one payment was ultimately randomly selected to be paid out. Appendix B provides the instructions and questions.

For the stated-preference survey questions, we used the 12-item Consideration of Future Consequences (CFC) scale (Strathman et al., 1994), which was the same for the adolescents and their parents. Participants rated how characteristic each statement was of them on a 5-point Likert scale, including statements such as "*Often I engage in a particular behavior in order to achieve outcomes that may not result for many years*" and *"I only act to satisfy immediate concerns, figuring the future will take care of itself.*" The responses were averaged over the 12 questions (with higher numbers generally indicating more patience, but reverse-coding statements like *"I only act to satisfy immediate concerns.*") These statements are re-printed in Appendix B. The CFC Scale has been widely used in the psychological literature to study self-regulating behaviors in health and finance, and has been shown to be correlated with personality traits associated with self-control (Joireman et al. 2003, 2006, 2008).

3.3 Risk Preference Elicitation

The incentivized risk preference experiments also followed an MPL format. Here, we adapted the risk elicitation task used by Benjamin et al. (2013) in a sample of Chilean adolescents. In 5 questions, we asked participants to choose between a $5.00 sure payment and a 50/50 chance

of no payment, or a payment of $8.00, $11.00, $14.00, $17.00 and $20.00. Again, only one question was ultimately randomly selected to be paid out.

For the risk survey questions, we included a general question asking the participant about how willing he/she is to take risk generally on a scale from 1-10, where higher numbers indicate greater willingness to take risks. This question was previously validated against an incentivized experimental measure in Falk et al. (2016). We also included 6 domain-specific questions, which were also asked on a 10-point scale. Five of our domain-specific questions, and the general risk question, also appear in the German Socio-Economic Panel (SOEP) (Dohmen et al., 2011a). Our domain specific questions are similar to the Domain-Specific Risk Taking Scale or DOSPERT (Johnson et al. 2004; Blais and Weber 2006). Parents were asked about willingness to take risks while driving, in finances, during sport and leisure, in their occupation, in health, and in their faith in other people. We revised a few of these questions for adolescents – for example, we changed "driving" to "driving, riding in a car or commuting," "financial matters" to "matters related to money" and "occupation" to "school."

4. Results

4.1 Summary of the Data

A total of 484 adolescents and 614 parents participated in the study. Our analysis sample includes 468 adolescents (97%) for whom we have all four measures (survey and experimental time and risk). The analysis with the parent/household data further includes only 420 (87%) adolescents, as we restrict our sample to households who have survey and experimental measures for both parent and child. We exclude cases where the responding parent is a stepparent (N=50) or another relative (N=4) in the parent/household analysis (stepparents are included in Appendix table

A.5). Appendix C.1 provides a flow chart explaining the sample selection, including the full sample and the sub-sample with parent data.

Table 1 provides summary statistics for the adolescents in our sample. The average age of our participants was 17.65 (SD=0.59). 46% of the adolescents were female. 38% were white, 25% Hispanic, 23% black and 14% were another race (multi-ethnic, Asian, Native American/Alaska Native or Native Hawaiian/Pacific Islander). Of the parent sample, 56% were the biological mother of the child and 35% were the biological father. 88% of the parents in the sample were married. The sample is diverse with respect to SES. 28% of surveyed parents did not have a college degree,[10] 23% had an associate's degree, 28% had a bachelor's degree and 21% had completed graduate education.

[TABLE 1 HERE]

In the main analysis of the experimental measures, we use the standardized value of the number of times (out of 10) that a subject chose the delayed payment to measure time preferences, and number of times (out of 6) that a subject chose the risky payment over the sure payment to measure risk preferences. Figure 1 (top two panels) provides a histogram of the experimentally measured time and risk preferences.[11]

[FIGURE 1 HERE]

Our results for the risk experimental task resemble those found in Benjamin et al. (2013), with the majority of subjects (67%) choosing 3 or more risky decisions, though there is substantial heterogeneity, with some subjects choosing all sure options (12%). In contrast, the experimental measure of time preferences is less heterogeneous. The large mass at "8" in the top left panel of Figure 1 represents subjects (44%) who always chose the later payment when the later payment

[10] Only 1.5% of parents did not have a high school diploma, because it is a requirement for military enlistment.
[11] Appendix A Figure A.1 provides similar data for the parents.

was larger than the earlier payment. A possible reason for this pattern is that we chose to make the delay window rather short (1 week) instead of what is typical in related work with adults (5 weeks). We chose this short window since prior work with children found considerable heterogeneity with even shorter delay periods of 1 day (Andreoni et al., 2019b), and we were worried that a 5-week delay would be too long for our sample of adolescents.

The outcome that we use for the survey measures is the averaged responses on the 5-point Likert scale (time) and the 10-point Likert scale (risk). The domain specific questions are included with the general question and given equal weight. Figure 1 (bottom two panels) shows the average decisions in these measures. Higher numbers indicate greater patience in the time preference survey (bottom left panel) and higher numbers indicate greater willingness to take risks in the risk preference survey (bottom right panel). The averaged survey measures are standardized in the regressions we report on later.

MPLs are a widespread elicitation technique in experimental economics in which the "well behaved" subject should start by choosing the sure or immediate option, and then switch over to the risky or delayed option at some point in the list when the latter option becomes more appealing. Because the risky or delayed option becomes monotonically better as one goes down the list, the well-behaved subject should only switch over from the sure or immediate option to the risky or delayed option once. However, in practice, the data uncovers that some individuals make multiple switches. These subjects are considered internally inconsistent. This is a drawback of MPLs, since there is no clear way to analyze such data from a theoretical perspective.[12]

In our data, we observe some inconsistency in responses, with 11% of adolescents switching from the sure option to the risky option more than once and 5% of adolescents switching

[12] For this reason, some research "forces" subjects to make only one switch (e.g., Andersen et al., 2006). But such elicitation techniques also have drawbacks, namely introducing noise into the data.

from the earlier to the later option more than once. These numbers are small compared to related literature using MPLs with adolescents. For example, Bettinger and Slonim (2007) and Castillo et al. (2011) find rates of inconsistency of 34% and 31%, respectively, in adolescents aged 13-16. In their sample of Chilean high school students, Benjamin et al. (2013) find levels of inconsistency ranging from 5%-24%, depending on the task. However, we also observe the odd result in our study that when faced with a choice between more money earlier and less money later, 23% prefer less money later. Taken together, these patterns suggest that subjects do seem to understand the task, but some still have some confusion. We re-run the analysis discussed here dropping the subjects making inconsistent and "irrational" choices and find similar results (see Appendix tables A.9 and A.10).

4.2 Correlations of Experimental and Survey Data

We next evaluate the correlations between the experimentally elicited and surveyed preferences for time and then risk. The Spearman's correlation coefficient for time preferences is 0.09 with a *p*-value = 0.05 and for risk preferences is 0.11 with a *p*-value=0.02. This suggests that the survey measures are weak proxies for the experimental measures. Figure 2 provides scatterplots comparing the two methods.[13] Compared with prior work with non-student adults, which find correlation coefficients between an MPL and survey measure of 0.15 for time (Vischer et al. 2013), and 0.26 for risk (Dohmen et al. 2011a), our correlations are somewhat lower.[14] Our result expands the methodological literature of survey validations to a sample of U.S. adolescents

[13] Figure A.2 in the Appendix provides scatterplots for the risk survey measure disaggregated into the components of the DOSPERT battery. The general risk survey question has a correlation of 0.13 (p=0.006). Correlations among the DOSPERT domains range from 0.05 to 0.09 (all p-values > 0.05).

[14] Our correlations are also lower than similar work using laboratory experiments with university students, which find a correlation between experimental and survey measures of 0.58 for time (Falk et al. 2016) and 0.2 and 0.41 for risk (Vieder et al. 2015; Falk et al. 2016).

and parents from diverse demographic and SES backgrounds. The result suggests that these correlations are highly sensitive to the population surveyed and the mode of survey (i.e., face-to-face versus online).

[FIGURE 2]

4.3 Associations of Adolescent Time and Risk Preferences with Demographics, Socio-Economic Status and Parental Preferences

We next turn to associations of adolescent preferences with individual and family characteristics. Table 2 provides Ordinary Least Squares (OLS) regressions of risk and time preferences with background characteristics including the adolescents' age, gender and race, household income, highest parent educational attainment in the household and parental marital status.[15]

[TABLE 2]

With respect to risk preferences, some of the prior literature suggests that girls tend to be more risk averse than boys. Indeed, we see this to be the case for the risk preference survey measure, where the coefficient on *Female* is -0.25 with a p-value=0.001 (see Specification (4)). However, we do not see the same result for the risk preference experimental measure, since the coefficient on *Female* is 0.001 with *p*-value=0.99 (see Specification (3)). When we look at the risk survey measure disaggregated into the various components of the DOSPERT scale, we find that the coefficient on *Female* is negative for each component, but is largest in the areas of driving, financial, and sport risks (all p-values <0.01, see Appendix table A.13).

[15] Table A.1 in Appendix A does the same for the parents.

With respect to time preferences, the prior literature is more mixed on whether girls or boys show more patience (Sutter et al., 2019 provide a summary). In our study, the survey shows that girls are more patient, with a coefficient on *Female* of 0.18 with a p-value=0.02 (see Specification (2)). We do not find a similar result for the experimental measure of time preferences, with a coefficient on *Female* of -0.04 that is statistically insignificant (*p*-value=0.73, see Specification (1)).

Prior literature also provides some direction for the expected results by race. For example, Andreoni et al. (2019b) and Castillo et al. (2011) find that black children, relative to white children, are less patient. We observe this same pattern weakly in the experimental measure (Coefficient on *Black* -0.17 with *p*-value=0.21, see Specification (1)) and strongly in the survey measure (Coefficient on *Black* -0.31 with *p*-value=0.02, see Specification (2)). Black adolescents are also significantly less patient than Hispanic adolescents in the survey measure (post-estimation test comparing *Black* and *Hispanic/Latino* produces a *p*-value=0.002).[16]

Table 3 presents OLS regressions of adolescent risk and time preferences on parent time and risk preferences one at a time for each measure, including demographic and SES controls. We see strong correlations between parents and adolescents across all four measures. An increase in 1 standard deviation in parent risk preferences is associated with a 0.30 and 0.32 of a standard deviation increase in adolescent risk preferences (*p*-values<0.01), using the experimental and survey measures, respectively (see Specifications (3) and (4)). For the risk preference survey

16 Related work suggests that children and adolescents from higher SES backgrounds, measured by family education and household income, should be more patient (Deckers et al. 2015; Deckers et al. 2017). We do not observe this to be the case since most coefficients on household income and parent's educational attainment are not statistically significant in any of the specifications in Table 2. This may not be surprising, since this is a sample of military families, all of whom therefore have steady employment. Prior literature has not found race-related differences for risk preferences. We find that black adolescents appear less risk seeking than white adolescents (Coefficient on *Black* -0.11 in Specifications (3) and (4)), but this result is not statistically significant (*p*-values=0.4 and 0.2 respectively).

measure, this correlation is robust when we disaggregate the measure into the separate DOSPERT scale domains (see Appendix table A.14). Similarly, an increase in 1 standard deviation in parent time preferences is associated with a 0.38 and 0.11 of a standard deviation increase in adolescent time preferences (p-values<0.01), using the experimental and survey measures, respectively (see Specifications (1) and (2)).

[TABLE 3]

These results add to previous literature on the transmission of preferences by providing evidence that the parent-child correlation persists into young adulthood, and is robust to the method of measurement. Unlike Kimball et al. (2009), we find little evidence that the mothers' preferences are more strongly associated with child preferences than fathers' preferences (see Table A.8, which shows the same results with mother-daughter, father-son and father-daughter interaction terms and mother-son as the baseline group).

We asked parents and adolescents to complete the surveys on their own and in private. However, because these surveys were conducted online without a researcher present, we could not verify that this is what happened. Hence, one potential limitation of our study is that parents and adolescents could have taken their surveys together, or that a parent filled out both surveys, generating an artificial correlation in preferences. We address this in two robustness checks. First, we exploit the fact that the parent survey asked both for a self-report of height and weight, as well as the height and weight of the surveyed child. If a parent completed both surveys, we'd expect the child's self-reported height and weight to be identical to the parent's report of the child's height and weight. We rerun the parent-child analysis dropping all cases of equal height/weight reports, and our results remain statistically significant (see Table A.6 in the appendix). Second, we exploit the fact that parents and adolescents could have completed the surveys at different times. If surveys

were completed around the same time, then it may be more likely that parents and their children participated together, or that the parent completed the survey for their child. In Table A.7 in the appendix, we provide regressions in which we drop all cases where the surveys were completed within 60 minutes of each other. Both robustness checks continue to yield statistically significant correlations of parents and their children.

4.4 Predictive Power of Measures

Next, we look at the predictive power of our measures on BMI and health-related behaviors. (see Appendix C.2 for details on how BMI was collected). Table 4 shows OLS regressions of standardized BMI on time and risk preferences, controlling for demographics and SES, for this sub-sample.[17] Specifications 1-4 uses measured BMI as the outcome, which is only available for a subsample. Specifications 5-8 use the "corrected" BMI as the outcome, which is available for the full sample.[18]

[TABLE 4]

Based on prior literature (Sutter et al. 2013; Golsteyn et al., 2014; Weller et al. 2008; Seeyave et al. 2009), we expected adolescents who are more patient to also have a lower BMI. We find that this result holds true for the survey measure of time preferences, whereby a 1 standard deviation increase in patience is associated with a 0.16 of a standard deviation decrease in BMI (p-value<0.01), see Specification (2). We do not observe the same result for the experimental measure of time preferences, whereby a 1 standard deviation increase in patience is associated with 0.01 of a standard deviation increase in BMI (p-value=0.88), see Specification (1). We did not observe a statistically significant association of measured BMI with risk preferences in this

[17] Appendix table A.11 presents the same analysis using an indicator variable for obesity/overweight instead of the standardized BMI measure. A.12 does the same for parent data.
[18] Appendix table A.2 runs the same analysis for parent data.

study for either the experimental elicitation or the survey (both coefficients small and insignificant, see Specifications (3) and (4)). However, when using the corrected BMI score for the full sample, we see that a 1 standard deviation increase in risk loving is weakly associated with a 0.09 increase in BMI, as measured by the survey battery (*p*-value=0.07, see Specification (8)). This result is consistent with evidence in Sutter et al. (2013) and de Oliveira et al. (2016) linking high risk tolerance with higher BMI.

In Table 5, we next explore the relationship between adolescent measures of patience and other health-related behaviors that may contribute to or mediate adolescent BMI.[19] We find our survey measure of patience is predictive of several behaviors that may be inputs to BMI. More patient subjects identified by the survey measure spent less time on video games, TV and the internet, exercised more, and reported eating less unhealthy foods and beverages. These results provide supporting evidence that an individual's level of patience affects BMI through health-related behaviors that require self-control like diet and exercise. However, these results are not replicated when using the experimental measure of patience (see Appendix Table A.4).

[TABLE 5]

5. Discussion and Conclusion

We collected time and risk preferences on a diverse sample of adolescents and their parents using both experimental and survey measures commonly used in the literature. Our first contribution was related to measurement. We found that the experimental and survey based measures of time and risk preferences were weakly correlated. This suggests that perhaps experimental and survey measures elicit somewhat different constructs. The size of the relationship

[19] We run the same analysis for surveyed risk preference on behavior in Table A.3, and find no strong associations.

between survey and experimental measures in related work varied significantly, potentially due to differences in elicitation methods and in the background of participants. Our study adds to this literature by using adolescents from an online panel of military families distributed across the U.S. Our study is novel since rather than using a face-to-face laboratory experiment with university students as is done in most studies, we use an online study with a geographically distributed non-student sample.

Our second contribution was to evaluate heterogeneity of time and risk preferences with respect to gender and race in our diverse sample, and to understand the association of parent preferences with the preferences of their children. We found that girls were more risk averse and more patient than the boys, but this result was only true for the survey measure. We also found that black adolescents, relative to white or Hispanic adolescents, were less patient in the survey measure. We did not find any additional differences by SES. Importantly, we found evidence for inter-generational transmission of time and risk preferences, since according to both measures, the preferences of parents were correlated with those of their children.

Our third contribution was to validate our time preference measure using data on BMI and health-related behaviors. We found that our survey measure of time preferences was predictive of BMI and health-related behaviors: adolescents who had greater patience also had lower BMI; spent less time playing video games, watching TV, or using the internet; spent more time exercising; and consumed less fast food, soda and sweets. In contrast, we did not find a similar result for the experimental measure of time preferences. We also found some evidence of a relationship between risk preferences and BMI, but not of a relationship between risk preferences and health-related behaviors.

We found that the survey based measures performed "better" than the experimental measures on several dimensions. First, the survey based measures more consistently replicated the patterns of heterogeneity in time and risk preferences observed in related work that used experimental data. Second, the survey based time preference measure was correlated with BMI and health-related behaviors similar to prior work using experimental data, while the experimental time preference measure was not. Potential reasons why the experimental measure was less predictive include low incentives or delay length being too short. While the delay length in our study was indeed shorter than related studies with adults, we think the incentive amounts were relatively high and were sufficient for our age group. We also conducted the study over the internet, and the experimental tasks may be more challenging for subjects to understand without more face-to-face training, which was used in related studies in the laboratory. However, our rates of inconsistency in the MPL were similar (and often lower) to inconsistency rates found in prior work. In addition, we use adolescent subjects rather than adults. Despite potential issues with the experimental measure, we believe that a positive aspect of our study is that our results offer evidence that simple survey elicitations can be good measures of similar constructs measured by experimental methods, especially when the researcher wishes to conduct experiments over the internet or is concerned about comprehension. There are a number of reasons why one might want to conduct studies over the internet. The most prominent of these is the possibility of conducting studies with geographically dispersed samples, such as in representative online panels.

Our findings should be interpreted in light of the fact that M-TEENS is a sample of military families who have unique experiences such as periodic relocations and deployments. This military lifestyle may attract individuals with certain preferences or may influence preference formation differently than in the general population. Nevertheless, the racial-ethnic diversity of the sample

combined with well-documented evidence that military families exhibit similar obesity related risk factors and obesity rates as their civilian counterparts (Datar and Nicosia, 2018; Tanofsky-Kraff et al., 2013; Hruby et al., 2015) reduce concerns about generalizability. Moreover, military families are increasingly living in off-base civilian communities and the vast majority of their children attend public schools, exposing them to similar external environments as their civilian counterparts.

In conclusion, our findings suggest that stated-preference measures can be equally or more valuable for understanding health behaviors. Moreover, the weak correlation between stated-preference measures and experimental measures in our study and in prior work suggest there is a need to better understand the underlying construct(s) that they capture. It would be prudent for future studies to include multiple measures so that more evidence can be gathered for understanding how the predictive power of the different measures varies across contexts, populations, and study designs.

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APPENDIX B

B.1 Time Preference Experiments

Here, you will be asked to choose between money at an earlier time versus money at a later time. You can earn an additional $9 to $17 depending on your choices.

There will be 10 choices, but only one of them will be the "choice-that-counts" i.e. the one we will pay out. To determine the choice-that-counts, the computer will select a random number 1-10 at the end of the survey. Since you do not know which decision will be the choice-that-counts, you should pay close attention to each decision.

In questions 1-5, the choices are between RIGHT NOW and IN ONE WEEK FROM NOW. If you choose right now, you will get your e-gift card with the additional earnings within the next 24 hours. If you choose in one week, you will get your e-gift card with the additional earnings in one week from today. Note that you will receive an e-gift card for completing the survey within 24 hours regardless of when you will receive the additional earnings.

1. Please make one choice below

(A) You get **$10.00** right now.
(B) You get **$9.00** in one week from now.

2. Please make one choice below

(A) You get **$10.00** right now.
(B) You get **$11.00** in one week from now.

3. Please make one choice below

(A) You get **$10.00** right now.
(B) You get **$13.00** in one week from now.

4. Please make one choice below

(A) You get **$10.00** right now.
(B) You get **$15.00** in one week from now.

5. Please make one choice below

(A) You get **$10.00** right now.
(B) You get **$17.00** in one week from now.

In questions 6-10, the choices are between ONE WEEK FROM TODAY and TWO WEEKS FROM TODAY.

6. Please make one choice below

(C) You get **$10.00** in one week from now.
(D) You get **$9.00** in two weeks from now.

7. Please make one choice below

(C) You get **$10.00** in one week from now.
(D) You get **$11.00** in two weeks from now.

8. Please make one choice below

(C) You get **$10.00** in one week from now.
(D) You get **$13.00** in two weeks from now.

9. Please make one choice below

(C) You get **$10.00** in one week from now.
(D) You get **$15.00** in two weeks from now.

10. Please make one choice below
(C) You get **$10.00** in one week from now.
(D) You get **$17.00** in two weeks from now.

B.2 Risk Preference Experiments

Now, you will be asked to choose between LESS MONEY FOR SURE versus MORE MONEY WITH KNOWN CHANCE. You can earn an additional $5-$20 depending on your choices.

At the end of this survey, the computer will randomly choose one of the 5 questions below as the "question-that-counts." If you chose (A) in the "question-that-counts" you will get $5.00 for sure. If you chose (B) in the "question-that-counts" the computer will then toss an imaginary coin. If the coin shows heads (50% chance) you get the money described in that question. If the coin shows tails you do not get any money for this part.

1. Please make one choice below.

(A) You get **$5.00** for sure
(B) If the coin comes up heads you get **$8.00**. If the coin comes up tails you get nothing.

2. Please make one choice below.

(A) You get **$5.00** for sure
(B) If the coin comes up heads you get **$11.00**. If the coin comes up tails you get nothing.

3. Please make one choice below.

(A) You get **$5.00** for sure
(B) If the coin comes up heads you get **$14.00**. If the coin comes up tails you get nothing.

4. Please make one choice below.

(A) You get **$5.00** for sure
(B) If the coin comes up heads you get **$17.00**. If the coin comes up tails you get nothing.

5. Please make one choice below.

(A) You get **$5.00** for sure
(B) If the coin comes up heads you get **$20.00**. If the coin comes up tails you get nothing.

B.3. Time Preference Questions

Reprinted from Consideration of Future Consequences Scale (Strathman et al., 1994)

For each of the statements below, please indicate whether or not the statement is characteristic of you, from "extremely uncharacteristic" to "extremely characteristic."

Survey responses are: Extremely uncharacteristic, somewhat uncharacteristic, uncharacteristic, somewhat characteristic, and exteremly characteristic.

I consider how things might be in the future, and try to influence those things with my day to day behavior.
Often I engage in a particular behavior in order to achieve outcomes that may not result for many years.
I only act to satisfy immediate concerns, figuring the future will take care of itself.

My behavior is only influenced by the immediate (i.e., a matter of days or weeks) outcomes of my actions.
My convenience is a big factor in the decisions I make or the actions I take.
I am willing to sacrifice my immediate happiness or well-being in order to achieve future outcomes.
I think it is important to take warnings about negative outcomes seriously even if the negative outcome will not occur for many years.
I think it is more important to perform a behavior with important distant consequences than a behavior with less-important immediate consequences.
I generally ignore warnings about possible future problems because I think the problems will be resolved before they reach crisis level.
I think that sacrificing now is usually unnecessary since future outcomes can be dealt with at a later time.
I only act to satisfy immediate concerns, figuring that I will take care of future problems that may occur at a later date.
Since my day to day work has specific outcomes, it is more important to me than behavior that has distant outcomes.

B.4 Risk Questions

All responses on a 1-10 slider from very unwilling to take risks to very willing to take risks).

General (from Falk et al., 2016)

How do you see yourself: are you generally a person who is very willing to take risks, or do you try to avoid taking risks?

Domain Specific (Adolescents)

People can behave differently in different situations. How would you rate your willingness to take risks in the following areas? How is it….

while driving, riding in a car or other commuting?
in matters related to money?
during leisure and sport?
in school?
with your health?
your faith in other people?

Domain Specific (Parents)

People can behave differently in different situations. How would you rate your willingness to take risks in the following areas? How is it….

while driving?
in financial matters?
during leisure and sport?
in your occupation?
with your health?
your faith in other people?

APPENDIX C

C.1 Flow Chart

C.2 BMI Data Collection Description

Videoconference measure
Families who agreed to the BMI measurements via video-conference got an additional $50 for this part. Study staff mailed a box containing a stadiometer, a Tanita scale, and a tape measure to the family before the scheduled video-conference guided measurement. Parent and child were asked to assemble the equipment during the video-appointment and measure each other while the study staff were guiding them and recording data. This procedure was pilot tested and validated before administering to the participants and yielded highly accurate measures of BMI (paper in preparation). BMI is computed as the ratio of measured weight to height. For adolescents under 18, age and gender were used to calculate BMI percentile using the 2000 Centers for Disease Control BMI-for-age growth charts.

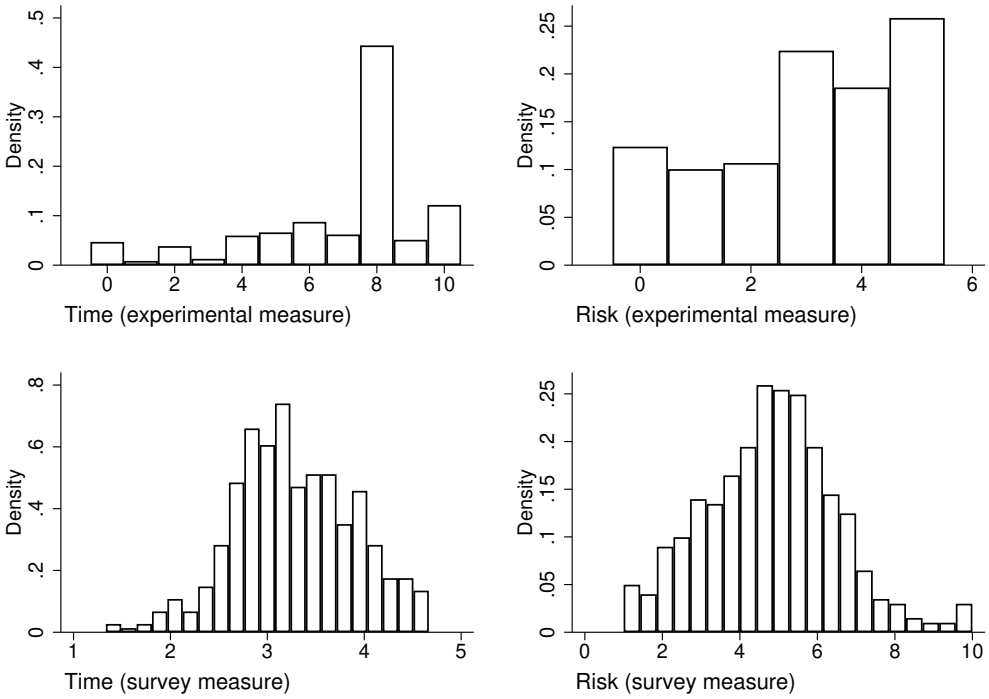
Self-reported measure correction
All subjects were asked to self-report their weight and height during the survey, and parents were asked to report their child's height and weight. BMI is computed as the ratio of reported weight to height. For adolescents under 18, age and gender were used to calculate BMI percentile using the 2000 Centers for Disease Control BMI-for-age growth charts. Using the subsample of subjects who have both self-reported and measured height and weight, we estimate a linear regression model using measured BMI as the dependent variable, and both child and parent reports of child BMI as the key independent variables. The regression coefficients from this model were then used to correct BMI for cases where only self-reported height and weight were collected.

Table 1: Summary Statistics

	Mean	Std. Dev.
Subject Demographics		
Age	17.65	0.59
Female	0.46	0.50
White	0.38	0.48
Black	0.23	0.42
Hispanic/Latino	0.25	0.43
Other Race	0.14	0.35
Survey Parent Variables		
Parent age	40.59	4.56
Parent Female	0.57	0.49
Household Income: 40k or less	0.16	0.37
Household Income: 40k-50k	0.14	0.34
Household Income: 50k-60k	0.18	0.38
Household Income: 60k-70k	0.16	0.37
Household Income: 70k-85k	0.16	0.36
Household Income: 85k+	0.20	0.40
Parent is Mother	0.56	0.50
Parent is Father	0.35	0.48
Married	0.88	0.32
Highest Education: less than College	0.28	0.45
Highest Education: Associate's	0.23	0.42
Highest Education: Bachelor's	0.28	0.45
Highest Education: Graduate	0.21	0.41
N (adolescents)	468	

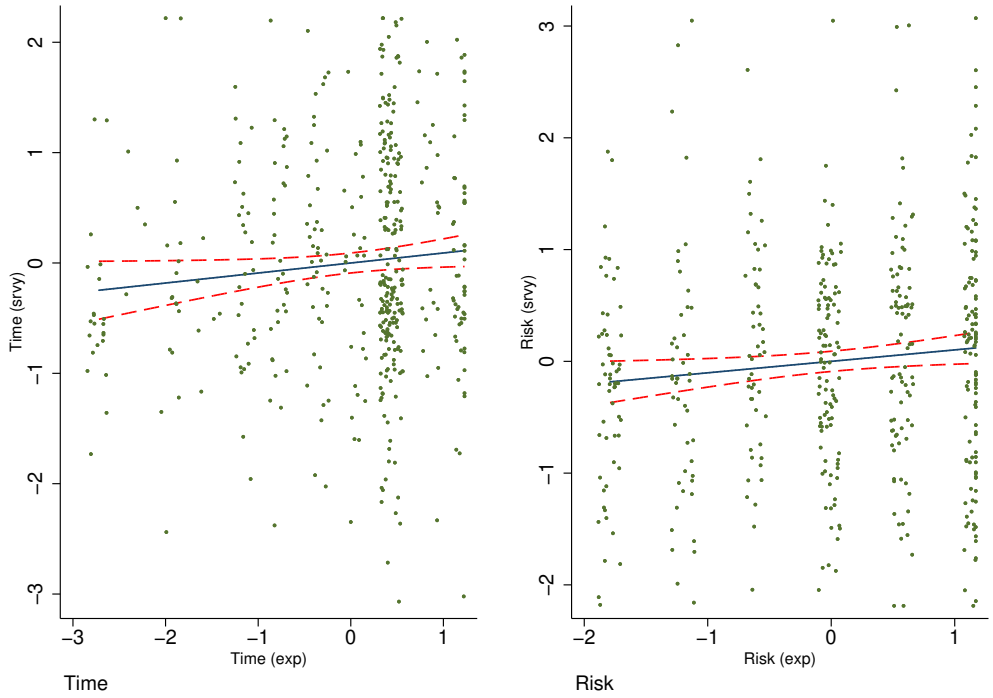
Notes: This table shows summary statistics for demographics and socioeconomic (SES) variables included in the analysis.

Figure 1: Histograms of Adolescent Preferences



Notes: This figure shows histograms of our four preference measures. For the experimental measures (the top two panels) we use the number of times (out of 10) that a subject chose the delayed payment to measure time preferences, and the number of times (out of 5) that a subject chose the risky payment over the sure payment to measure risk preferences. For our survey measures (bottom two panels) we use the averaged responses on the 5-point Likert scale (time) and the 10-point Likert scale (risk). All measures are standardized in the regressions.

Figure 2: Adolescent Survey-Experiment Correlation



Notes: This figure shows correlations of the standardized survey measures of adolescent time and risk preferences on the experimental measures of time and risk preferences. Our experimental measures are discrete, but our points are jittered around their values to show their distribution. The red dashed lines represent 95% confidence intervals around the best linear fit.

Table 2: Adolescent Time and Risk Preferences

	(1) Time (exp)	(2) Time (srvy)	(3) Risk (exp)	(4) Risk (srvy)
Age	-0.17**	0.00	0.05	-0.06
	(0.08)	(0.07)	(0.07)	(0.07)
Female	-0.04	0.18**	0.00	-0.25***
	(0.12)	(0.08)	(0.09)	(0.08)
Black	-0.17	-0.31**	-0.11	-0.11
	(0.13)	(0.13)	(0.13)	(0.09)
Hispanic/Latino	0.05	0.07	-0.07	0.06
	(0.12)	(0.11)	(0.13)	(0.12)
Other Race	0.14	-0.10	-0.03	-0.18*
	(0.12)	(0.14)	(0.18)	(0.10)
Household Income: 40k-50k	0.09	-0.15	0.08	-0.19
	(0.20)	(0.14)	(0.16)	(0.15)
Household Income: 50k-60k	-0.03	-0.06	-0.20	-0.07
	(0.14)	(0.16)	(0.16)	(0.17)
Household Income: 60k-70k	0.03	-0.15	0.04	-0.00
	(0.17)	(0.14)	(0.18)	(0.15)
Household Income: 70k-85k	0.11	-0.06	0.04	0.14
	(0.17)	(0.18)	(0.20)	(0.15)
Household Income: 85k+	0.02	0.01	0.11	0.15
	(0.14)	(0.18)	(0.19)	(0.16)
Highest Education: Associate's	-0.06	0.00	-0.25*	0.09
	(0.14)	(0.11)	(0.14)	(0.12)
Highest Education: Bachelor's	-0.02	0.09	-0.18	0.07
	(0.12)	(0.11)	(0.14)	(0.13)
Highest Education: Graduate	0.08	0.32**	-0.19	0.17
	(0.11)	(0.14)	(0.14)	(0.14)
Married	0.03	0.16	0.14	0.11
	(0.14)	(0.15)	(0.12)	(0.15)
Constant	2.91**	-0.24	-0.86	0.99
	(1.42)	(1.22)	(1.19)	(1.27)
R2	0.02	0.05	0.02	0.05
N	463	463	463	463

Notes: This table shows OLS regressions of time and risk preferences on demographics and SES. Time (exp) is the standardized experimental time measure, representing the number of patient choices out of 10. Risk (exp) is the standardized experimental risk measure, representing the number of risk-loving choices out of 5. Time (srvy) is a survey measure of patience representing the standardized average of a series of questions about planning for the future from the consideration of future consequences scale (CFC). Risk (srvy) is the standardized average of 6 domain-specific risk attitude questions and the general risk-attitude question "are you generally a person who is very willing to take risks?", all answered on a 1-10 scale. In all cases a higher number represents more risk-loving or more patient. Excluded categories include "White" for race, "income under $40k" for income, and "less than College" for highest parent education. Standard errors are clustered by the parent's military base assignment.
* p<0.10 **p<0.05 ***p<0.01

Table 3: Association between Adolescent and Parent Time and Risk Preferences

	(1) Time (exp)	(2) Time (srvy)	(3) Risk (exp)	(4) Risk (srvy)
Parent Time (exp)	0.38***			
	(0.07)			
Parent Time (srvy)		0.11**		
		(0.05)		
Parent Risk (exp)			0.30***	
			(0.06)	
Parent Risk (srvy)				0.32***
				(0.04)
Demographic Controls	✓	✓	✓	✓
SES Controls	✓	✓	✓	✓
R2	0.17	0.06	0.11	0.16
N	420	420	420	420

Notes: This table shows OLS regressions of risk and time preferences (experimental and survey) on parent risk and time preferences. Demographic controls include adolescent age, gender and race. SES controls include household income, highest parent education and whether parents are married. Standard errors are clustered by the parent's military base assignment.
* p<0.10 **p<0.05 ***p<0.01

Table 4: Adolescent Preferences and BMI

	(1) BMI	(2) BMI	(3) BMI	(4) BMI	(5) BMI	(6) BMI	(7) BMI	(8) BMI
Time (exp)	0.01				-0.02			
	(0.08)				(0.04)			
Time (srvy)		-0.16***				-0.13***		
		(0.05)				(0.04)		
Risk (exp)			0.03				0.01	
			(0.08)				(0.06)	
Risk (srvy)				0.00				0.09*
				(0.07)				(0.05)
Corrected BMI	×	×	×	×	✓	✓	✓	✓
Demographic Controls	✓	✓	✓	✓	✓	✓	✓	✓
SES Controls	✓	✓	✓	✓	✓	✓	✓	✓
R2	0.06	0.09	0.06	0.06	0.03	0.04	0.03	0.03
N	208	208	208	208	460	460	460	460

Notes: This table shows results of an OLS regression of adolescent BMI (z-score) on time and risk preferences (both experimental and survey measures). Columns 1-4 use only the subsample for whom we have measured BMI by videoconference. Columns 5-8 use the full sample and the corrected self-report BMI measure. Demographic controls include adolescent age, gender and race. SES controls include household income, highest parent education and whether parents are married. Standard errors are clustered by the parent's military base assignment.
* p<0.10 **p<0.05 ***p<0.01

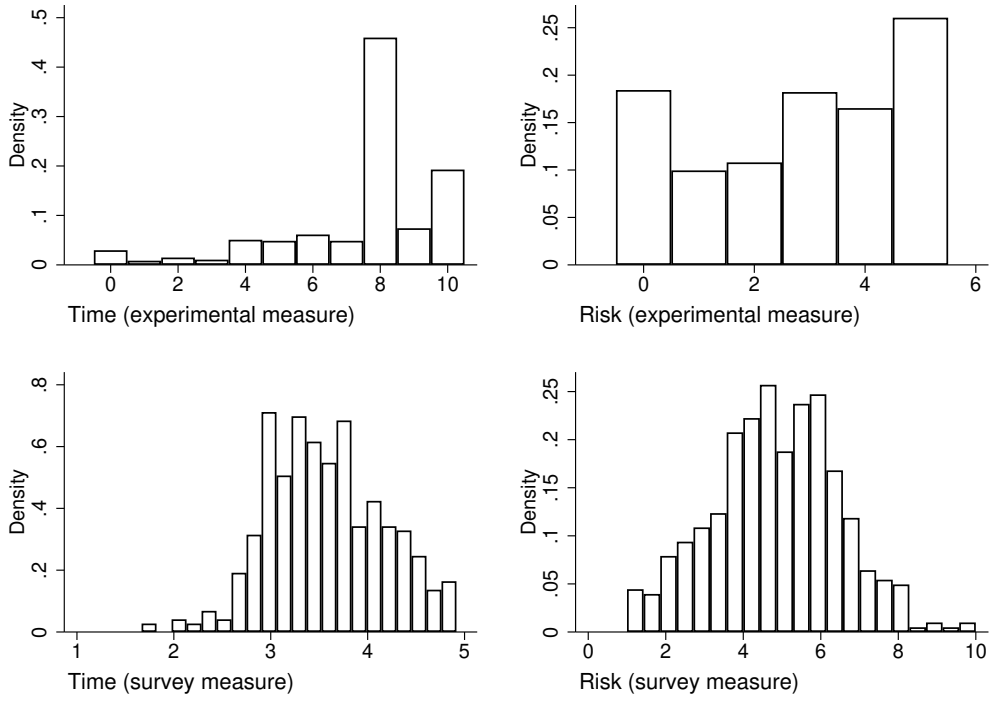
Table 5: Adolescent Patience and Health-related Behaviors

	(1) Video Games	(2) TV	(3) Internet	(4) Exercise	(5) Fast Food	(6) Soda	(7) Sweets
Time (srvy)	-0.28***	-0.32***	-0.18***	0.05**	-0.29***	-1.12***	-1.16*
	(0.05)	(0.06)	(0.07)	(0.02)	(0.09)	(0.33)	(0.67)
Risk (srvy)	-0.01	0.10	0.09	0.01	0.08	-0.28	0.24
	(0.06)	(0.08)	(0.07)	(0.02)	(0.13)	(0.36)	(0.79)
Age	0.17*	0.17	0.11	-0.01	0.45**	0.72	0.99
	(0.10)	(0.10)	(0.14)	(0.03)	(0.22)	(0.47)	(0.83)
Female	-1.62***	0.17	0.47***	-0.11**	0.22	-1.32**	-1.32
	(0.16)	(0.13)	(0.14)	(0.04)	(0.23)	(0.61)	(1.00)
Black	-0.06	0.29*	0.40**	0.10*	0.70**	-0.48	3.81**
	(0.16)	(0.16)	(0.19)	(0.05)	(0.31)	(1.12)	(1.79)
Hispanic/Latino	-0.28**	0.04	0.21	-0.04	0.01	-0.31	-0.63
	(0.11)	(0.15)	(0.17)	(0.05)	(0.26)	(0.79)	(1.44)
Other Race	0.17	0.02	0.25	-0.00	0.29	0.63	-1.67
	(0.20)	(0.17)	(0.17)	(0.05)	(0.31)	(1.16)	(1.44)
SES Controls	✓	✓	✓	✓	✓	✓	✓
R2	0.34	0.08	0.08	0.06	0.07	0.08	0.06
N	463	463	463	462	463	462	462

Notes: This table shows results of an OLS regression of adolescent time preferences (survey) on self-reported behaviors. The dependent variables video games, TV and internet all represent the average daily consumption/screen time over the past 30 days (in hours). The variable for exercise is measured as a binary 1/0 if the adolescent meets the weekly recommended physical activity of 420 minutes. The fast food, soda and sweets variables measure the number of times the adolescent consumed fast food, soda or sweets in the past week. SES controls include household income, highest parent education and whether parents are married. Standard errors are clustered by the parent's military base assignment.
* p<0.10 **p<0.05 ***p<0.01

A Appendix

Figure A.1: Parent Preferences



Notes: This figure shows histograms of our four outcome variables for parents. For the experimental measures (the top two panels) we use the number of times (out of 10) that a subject chose the delayed payment to measure time preferences, and the number of times (out of 5) that a subject chose the risky payment over the sure payment to measure risk preferences. For our survey measures (bottom two panels) we use the averaged responses on the 5-point Likert scale (time) and the 10-point Likert scale (risk).

Table A.1: Parent Time and Risk Preferences

	(1) Time (exp)	(2) Time (srvy)	(3) Risk (exp)	(4) Risk (srvy)
Parent age	0.01	-0.01	0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)
Parent Female	-0.07	0.09	-0.06	-0.48***
	(0.08)	(0.11)	(0.08)	(0.08)
Parent Black	-0.33***	-0.18*	-0.04	-0.25**
	(0.10)	(0.10)	(0.13)	(0.11)
Parent Hispanic/Latino	0.03	-0.17	0.06	-0.05
	(0.12)	(0.13)	(0.11)	(0.13)
Parent Other Race	-0.14	0.00	0.02	0.04
	(0.17)	(0.14)	(0.17)	(0.15)
Household Income: 40k-50k	0.06	-0.18	-0.21	-0.03
	(0.27)	(0.16)	(0.21)	(0.16)
Household Income: 50k-60k	-0.06	0.02	-0.16	-0.03
	(0.15)	(0.14)	(0.19)	(0.21)
Household Income: 60k-70k	-0.05	0.29**	-0.11	0.02
	(0.21)	(0.14)	(0.16)	(0.21)
Household Income: 70k-85k	-0.12	0.09	0.16	0.10
	(0.21)	(0.16)	(0.17)	(0.15)
Household Income: 85k+	-0.08	0.34**	-0.02	0.00
	(0.20)	(0.15)	(0.14)	(0.15)
Associate's Degree	0.19**	0.33***	0.02	0.12
	(0.09)	(0.09)	(0.12)	(0.10)
Bachelor's	0.08	0.36***	0.08	-0.07
	(0.15)	(0.09)	(0.13)	(0.10)
Graduate education	0.16	0.63***	-0.04	0.18
	(0.14)	(0.11)	(0.15)	(0.13)
Married	0.19	-0.05	0.01	0.16
	(0.16)	(0.15)	(0.14)	(0.10)
Constant	-0.47	0.01	-0.15	0.64
	(0.50)	(0.45)	(0.43)	(0.47)
R2	0.03	0.11	0.02	0.08
N	472	472	472	472

Notes: This table shows OLS regressions of parent time and risk preferences (experimental and survey) on demographics and SES. Excluded categories include "White" for race, "income under $40k" for income, and "less than College" for highest parent education. Standard errors are clustered by the parent's military base assignment.
* p<0.10 **p<0.05 ***p<0.01

Table A.2: Parent Preferences and BMI

	(1) BMI	(2) BMI	(3) BMI	(4) BMI	(5) BMI	(6) BMI	(7) BMI	(8) BMI
Parent Time (exp)	0.11*				0.03			
	(0.06)				(0.03)			
Parent Time (srvy)		-0.18**				-0.04		
		(0.07)				(0.05)		
Parent Risk (exp)			0.06				0.07**	
			(0.07)				(0.04)	
Parent Risk (srvy)				0.06				0.05
				(0.07)				(0.05)
Corrected BMI	×	×	×	×	✓	✓	✓	✓
Demographic Controls	✓	✓	✓	✓	✓	✓	✓	✓
SES Controls	✓	✓	✓	✓	✓	✓	✓	✓
R2	0.09	0.11	0.08	0.08	0.03	0.03	0.04	0.03
N	204	204	204	204	472	472	472	472

Notes: This table shows results of an OLS regression of parent BMI (z-score) on time preferences (both experimental and survey). Columns 1-4 use only the subsample for whom we have measured BMI by videoconference. Columns 5-8 use the full sample and the corrected self-report BMI measure. Demographic controls include adolescent age, gender and race. SES controls include household income, responding parent's education and whether parents are married. Standard errors are clustered by the parent's military base assignment.
* p<0.10 **p<0.05 ***p<0.01

Table A.3: Adolescent Risk Aversion and Health-related Behaviors: Survey Measure

	(1) Video Games	(2) TV	(3) Internet	(4) Exercise	(5) Fast Food	(6) Soda	(7) Sweets
Risk (srvy)	0.00	0.11	0.10	0.01	0.09	-0.24	0.28
	(0.07)	(0.09)	(0.08)	(0.02)	(0.13)	(0.36)	(0.78)
Age	0.17*	0.17	0.11	-0.01	0.45**	0.72	0.99
	(0.10)	(0.11)	(0.14)	(0.03)	(0.22)	(0.48)	(0.84)
Female	-1.67***	0.12	0.44***	-0.11**	0.17	-1.51**	-1.51
	(0.17)	(0.13)	(0.15)	(0.04)	(0.22)	(0.62)	(1.02)
Black	0.03	0.39***	0.46**	0.09	0.79**	-0.13	4.17**
	(0.15)	(0.15)	(0.19)	(0.05)	(0.31)	(1.16)	(1.84)
Hispanic/Latino	-0.31***	0.02	0.20	-0.03	-0.01	-0.40	-0.72
	(0.11)	(0.14)	(0.17)	(0.05)	(0.26)	(0.79)	(1.43)
Other Race	0.20	0.05	0.26	-0.01	0.32	0.72	-1.55
	(0.20)	(0.18)	(0.18)	(0.05)	(0.30)	(1.16)	(1.47)
SES Controls	✓	✓	✓	✓	✓	✓	✓
R2	0.31	0.04	0.07	0.05	0.06	0.06	0.05
N	463	463	463	462	463	462	462

Notes: This table shows results of an OLS regression of adolescent risk preferences (survey) on self-reported health-related behaviors. The dependent variables video games, TV and internet all represent the average daily consumption/screen time over the past 30 days (in hours). The variable for exercise is measured as a binary 1/0 if the adolescent meets the weekly recommended physical activity of 420 minutes. The fast food, soda and sweets variables measure the number of times the adolescent consumed fast food, soda or sweets in the past week. All regressions control for SES. Standard errors are clustered by the parent's military base assignment.
* p<0.10 **p<0.05 ***p<0.01

Table A.4: Adolescent Patience and Health-related Behaviors: Experimental Measure

	(1) Video Games	(2) TV	(3) Internet	(4) Exercise	(5) Fast Food	(6) Soda	(7) Sweets
Time (exp)	-0.01	-0.07	-0.05	0.01	-0.07	-0.88*	-1.79
	(0.06)	(0.07)	(0.06)	(0.02)	(0.09)	(0.51)	(1.12)
Risk (srvy)	0.00	0.11	0.10	0.01	0.09	-0.27	0.22
	(0.07)	(0.09)	(0.08)	(0.02)	(0.13)	(0.37)	(0.82)
Age	0.17*	0.15	0.10	-0.01	0.44*	0.57	0.69
	(0.10)	(0.11)	(0.14)	(0.03)	(0.23)	(0.52)	(0.94)
Female	-1.67***	0.11	0.44***	-0.11**	0.17	-1.56**	-1.61
	(0.17)	(0.13)	(0.15)	(0.04)	(0.22)	(0.64)	(1.06)
Black	0.03	0.37**	0.45**	0.09	0.77**	-0.28	3.87**
	(0.15)	(0.14)	(0.19)	(0.05)	(0.31)	(1.12)	(1.75)
Hispanic/Latino	-0.30***	0.02	0.20	-0.03	-0.01	-0.36	-0.64
	(0.11)	(0.14)	(0.17)	(0.05)	(0.27)	(0.82)	(1.47)
Other Race	0.20	0.06	0.27	-0.01	0.33	0.84	-1.34
	(0.21)	(0.18)	(0.18)	(0.05)	(0.30)	(1.18)	(1.40)
SES Controls	✓	✓	✓	✓	✓	✓	✓
R2	0.31	0.04	0.07	0.05	0.06	0.07	0.07
N	463	463	463	462	463	462	462

Notes: This table shows results of an OLS regression of adolescent time preferences (experimental) on self-reported behaviors. The dependent variables video games, TV and internet all represent the average daily consumption/screen time over the past 30 days (in hours). The variable for exercise is measured as a binary 1/0 if the adolescent meets the weekly recommended physical activity of 420 minutes. The fast food, soda and sweets variables measure the number of times the adolescent consumed fast food, soda or sweets in the past week. All regressions control for SES. Standard errors are clustered by the parent's military base assignment.
* p<0.10 **p<0.05 ***p<0.01

Table A.5: Association between Adolescent and Parent Time and Risk Preferences: Robustness Check 1

	(1) Time (exp)	(2) Time (srvy)	(3) Risk (exp)	(4) Risk (srvy)
Parent Time (exp)	0.36***			
	(0.05)			
Parent Time (srvy)		0.11**		
		(0.05)		
Parent Risk (exp)			0.28***	
			(0.05)	
Parent Risk (srvy)				0.31***
				(0.04)
Demographic Controls	✓	✓	✓	✓
SES Controls	✓	✓	✓	✓
R2	0.15	0.05	0.09	0.15
N	460	460	460	460

Notes: This table shows OLS regressions of child risk and time preferences (experimental and survey) on parent risk and time preferences, now including step parents. Demographic controls include adolescent age, gender and race. SES controls include household income, responding parent's education and whether parents are married. Standard errors are clustered by the parent's military base assignment.
* p<0.10 **p<0.05 ***p<0.01

Table A.6: Association between Adolescent and Parent Time and Risk Preferences: Robustness Check 2

	(1) Time (exp)	(2) Time (srvy)	(3) Risk (exp)	(4) Risk (srvy)
Parent Time (exp)	0.33***			
	(0.09)			
Parent Time (srvy)		0.11*		
		(0.06)		
Parent Risk (exp)			0.31***	
			(0.07)	
Parent Risk (srvy)				0.26***
				(0.05)
Demographic Controls	✓	✓	✓	✓
SES Controls	✓	✓	✓	✓
R2	0.14	0.09	0.15	0.14
N	249	249	249	249

Notes: This table shows OLS regressions of child risk and time preferences (experimental and survey) on parent risk and time preferences, dropping all cases where parents and children may have taken the surveys together. We define potential collaborations as all observations where the parent report for child weight/height is identical to the child's self report of weight/height. Demographic controls include adolescent age, gender and race. SES controls include household income, responding parent's education and whether parents are married. Standard errors are clustered by the parent's military base assignment.
* p<0.10 **p<0.05 ***p<0.01

Table A.7: Association between Adolescent and Parent Time and Risk Preferences: Robustness Check 3

	(1) Time (exp)	(2) Time (srvy)	(3) Risk (exp)	(4) Risk (srvy)
Parent Time (exp)	0.40***			
	(0.09)			
Parent Time (srvy)		0.10		
		(0.07)		
Parent Risk (exp)			0.26***	
			(0.07)	
Parent Risk (srvy)				0.27***
				(0.05)
Demographic Controls	✓	✓	✓	✓
SES Controls	✓	✓	✓	✓
R2	0.19	0.09	0.11	0.18
N	257	257	257	257

Notes: This table shows OLS regressions of child risk and time preferences (experimental and survey) on parent risk and time preferences, dropping all cases where parents and children took their respective surveys within 1 hour of each other. Demographic controls include adolescent age, gender and race. SES controls include household income, responding parent's education and whether parents are married. Standard errors are clustered by the parent's military base assignment.
* p<0.10 **p<0.05 ***p<0.01

Table A.8: Association between Adolescent and Parent Time and Risk Preferences: Parent-Child Interactions

	(1) Time (exp)	(2) Time (srvy)	(3) Risk (exp)	(4) Risk (srvy)
Mother-Daughter	0.00	0.16	-0.11	-0.28**
	(0.12)	(0.11)	(0.12)	(0.11)
Father-Son	-0.09	-0.04	-0.02	-0.17
	(0.10)	(0.10)	(0.10)	(0.15)
Father-Daughter	-0.14	0.08	0.11	-0.42***
	(0.16)	(0.14)	(0.13)	(0.12)
Parent Time (exp)	0.35***			
	(0.08)			
Mother-Daughter * Time(exp)	0.06			
	(0.13)			
Father-Son * Time(exp)	0.05			
	(0.14)			
Father-Daughter * Time(exp)	0.03			
	(0.17)			
Parent Time (srvy)		0.01		
		(0.09)		
Mother-Daughter * Time(srvy)		0.19		
		(0.12)		
Father-Son * Time(srvy)		0.03		
		(0.16)		
Father-Daughter * Time(srvy)		0.15		
		(0.15)		
Parent Risk (exp)			0.17	
			(0.10)	
Mother-Daughter * Risk(exp)			0.22	
			(0.16)	
Father-Son * Risk(exp)			0.28**	
			(0.13)	
Father-Daughter * Risk(exp)			-0.01	
			(0.17)	
Parent Risk (srvy)				0.44***
				(0.08)
Mother-Daughter * Risk(srvy)				-0.16
				(0.14)
Father-Son * Risk(srvy)				-0.21
				(0.14)
Father-Daughter * Risk(srvy)				-0.05
				(0.15)
Constant	2.60*	-0.31	0.04	-0.02
	(1.36)	(1.45)	(1.25)	(1.17)
R2	0.17	0.06	0.13	0.17
N	420	420	420	420

Notes: This table shows OLS regressions of child risk and time preferences (experimental and survey) on parent risk and time preferences, including dummies for whether the parent-child pair is mother-daughter, father-son or father-daughter. This table also includes interactions between the dummies and the parent preference variables. SES controls include household income, responding parent's education and whether parents are married. Standard errors are clustered by the parent's military base assignment.

* p<0.10 **p<0.05 ***p<0.01

Table A.9: Adolescent Time and Risk Preferences: Excluding Non-Monotonic Responses

	(1) Time (exp)	(2) Time (srvy)	(3) Risk (exp)	(4) Risk (srvy)
Age	-0.17**	-0.06	0.04	-0.02
	(0.08)	(0.08)	(0.08)	(0.09)
Female	-0.07	0.12	0.01	-0.16
	(0.12)	(0.10)	(0.12)	(0.10)
Black	-0.25	-0.31*	-0.15	-0.06
	(0.17)	(0.16)	(0.16)	(0.11)
Hispanic/Latino	-0.02	-0.06	-0.09	0.08
	(0.14)	(0.14)	(0.16)	(0.15)
Other Race	0.11	-0.09	-0.25	-0.23
	(0.14)	(0.18)	(0.19)	(0.15)
Household Income: 40k-50k	0.09	-0.17	0.12	-0.18
	(0.19)	(0.16)	(0.23)	(0.18)
Household Income: 50k-60k	0.12	-0.02	-0.10	-0.03
	(0.17)	(0.18)	(0.19)	(0.20)
Household Income: 60k-70k	0.17	-0.05	0.05	0.13
	(0.20)	(0.17)	(0.21)	(0.16)
Household Income: 70k-85k	0.18	-0.03	0.15	0.38*
	(0.19)	(0.19)	(0.23)	(0.20)
Household Income: 85k+	0.17	0.04	0.24	0.13
	(0.15)	(0.15)	(0.22)	(0.16)
Highest Education: Associate's	-0.07	-0.03	-0.17	0.09
	(0.16)	(0.12)	(0.18)	(0.15)
Highest Education: Bachelor's	-0.12	0.21	-0.23	0.14
	(0.14)	(0.13)	(0.17)	(0.16)
Highest Education: Graduate	0.22	0.40**	-0.09	0.32*
	(0.15)	(0.15)	(0.13)	(0.17)
Married	0.02	0.07	0.12	0.11
	(0.15)	(0.16)	(0.15)	(0.18)
Constant	2.78*	0.87	-0.77	0.09
	(1.40)	(1.39)	(1.49)	(1.76)
R2	0.05	0.05	0.03	0.07
N	353	353	353	353

Notes: This table shows OLS regressions of time and risk preferences (experimental and survey) on demographics and SES. Standard errors are clustered by the parent's military base assignment.
* p<0.10 **p<0.05 ***p<0.01

Table A.10: Adolescent Preferences and BMI: Excluding Non-Monotonic Responses

	(1) BMI	(2) BMI	(3) BMI	(4) BMI	(5) BMI	(6) BMI	(7) BMI	(8) BMI
Time (exp)	-0.00				-0.01			
	(0.12)				(0.06)			
Time (srvy)		-0.22***				-0.17***		
		(0.06)				(0.05)		
Risk (exp)			0.02				-0.01	
			(0.13)				(0.10)	
Risk (srvy)				-0.01				0.05
				(0.06)				(0.06)
Corrected BMI	×	×	×	×	✓	✓	✓	✓
Demographic Controls	✓	✓	✓	✓	✓	✓	✓	✓
SES Controls	✓	✓	✓	✓	✓	✓	✓	✓
R2	0.07	0.12	0.07	0.07	0.03	0.05	0.03	0.03
N	149	149	149	149	337	337	337	337

Notes: This table shows results of an OLS regression of adolescent BMI (z-score) on time preferences (both experimental and survey), controlling for demographics and SES. Standard errors are clustered by the parent's military base assignment.
* p<0.10 **p<0.05 ***p<0.01

Table A.11: Adolescent Preferences and Overweight/Obese

	(1) Obese	(2) Obese	(3) Obese	(4) Obese	(5) Obese	(6) Obese	(7) Obese	(8) Obese
Time (exp)	-0.01				0.02			
	(0.04)				(0.02)			
Time (srvy)		-0.06**				-0.05**		
		(0.03)				(0.02)		
Risk (exp)			0.00				0.00	
			(0.03)				(0.02)	
Risk (srvy)				0.02				0.02
				(0.03)				(0.02)
Corrected BMI	×	×	×	×	✓	✓	✓	✓
Demographic Controls	✓	✓	✓	✓	✓	✓	✓	✓
SES Controls	✓	✓	✓	✓	✓	✓	✓	✓
R2	0.08	0.10	0.08	0.08	0.03	0.04	0.03	0.03
N	209	209	209	209	461	461	461	461

Notes: This table shows results of an OLS regression of a dummy for overweight/obese on time and risk preferences (both experimental and survey). Columns 1-4 use only the subsample for whom we have measured BMI by videoconference. Columns 5-8 add in observations for whom we only have self-reported height and weight. Demographic controls include adolescent age, gender and race. SES controls include household income, highest parent education and whether parents are married. Standard errors are clustered by the parent's military base assignment.
* p<0.10 **p<0.05 ***p<0.01

Table A.12: Parent Preferences and Overweight/Obese

	(1) Obese	(2) Obese	(3) Obese	(4) Obese	(5) Obese	(6) Obese	(7) Obese	(8) Obese
Parent Time (exp)	0.03				-0.00			
	(0.03)				(0.02)			
Parent Time (srvy)		-0.04				0.00		
		(0.03)				(0.02)		
Parent Risk (exp)			0.03				0.02	
			(0.02)				(0.01)	
Parent Risk (srvy)				0.01				-0.00
				(0.03)				(0.02)
Corrected BMI	×	×	×	×	✓	✓	✓	✓
Demographic Controls	✓	✓	✓	✓	✓	✓	✓	✓
SES Controls	✓	✓	✓	✓	✓	✓	✓	✓
R2	0.14	0.14	0.14	0.13	0.09	0.09	0.09	0.09
N	204	204	204	204	472	472	472	472

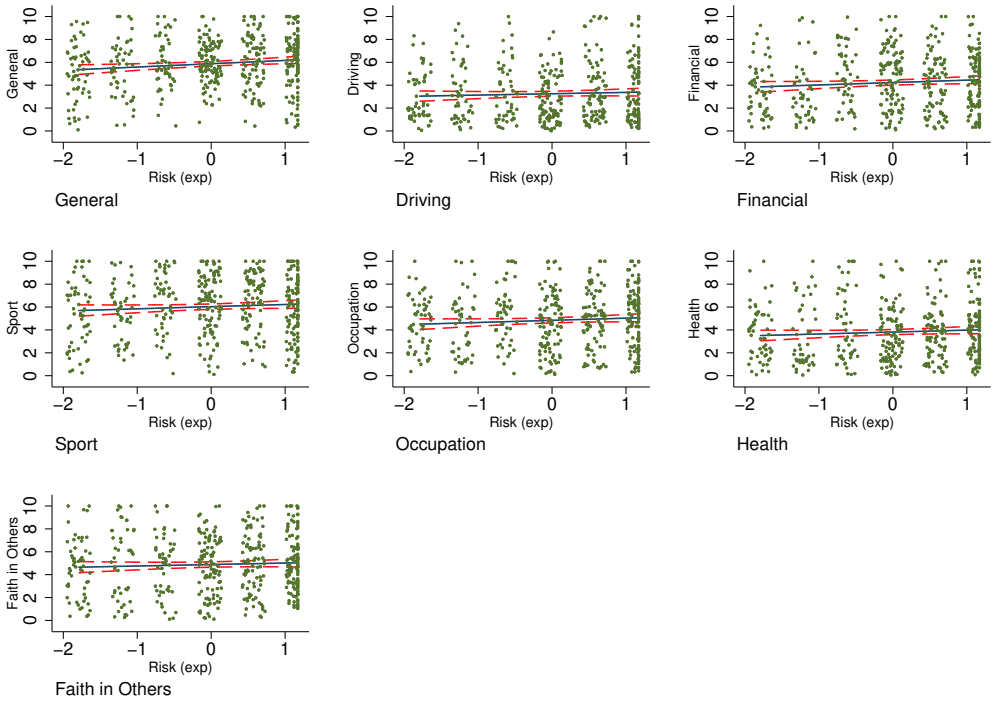
Notes: This table shows results of an OLS regression of a dummy for overweight/obese on time and risk preferences (both experimental and survey). Columns 1-4 use only the subsample for whom we have measured BMI by videoconference. Columns 5-8 add in observations for whom we only have self-reported height and weight. Demographic controls include adolescent age, gender and race. SES controls include household income, responding parent's education and whether parents are married. Standard errors are clustered by the parent's military base assignment.
* p<0.10 **p<0.05 ***p<0.01

Table A.13: Adolescent DOSPERT Risk Preferences

	(1) General Risk	(2) Driving	(3) Financial	(4) Sport	(5) Occupation	(6) Health	(7) Faith in Others
Age	-0.03	-0.16	-0.22	-0.34*	-0.11	0.19	0.03
	(0.07)	(0.19)	(0.20)	(0.20)	(0.20)	(0.21)	(0.22)
Female	-0.15**	-0.65***	-0.69***	-1.00***	-0.15	-0.11	-0.14
	(0.07)	(0.20)	(0.19)	(0.24)	(0.24)	(0.18)	(0.26)
Black	-0.09	0.03	0.35	-0.28	0.03	-0.54**	-0.60**
	(0.12)	(0.23)	(0.33)	(0.30)	(0.24)	(0.24)	(0.28)
Hispanic/Latino	0.15	0.35	0.03	0.02	0.09	0.04	-0.73*
	(0.13)	(0.24)	(0.23)	(0.28)	(0.34)	(0.32)	(0.38)
Other Race	-0.17	-0.24	-0.40	-0.03	-0.25	-0.44	-0.30
	(0.15)	(0.27)	(0.33)	(0.33)	(0.31)	(0.28)	(0.41)
Household Income: 40k-50k	-0.11	-0.20	-0.45	-0.37	0.16	-0.06	-0.60
	(0.15)	(0.36)	(0.30)	(0.46)	(0.48)	(0.41)	(0.45)
Household Income: 50k-60k	-0.32*	-0.00	0.07	-0.23	0.01	0.07	0.08
	(0.17)	(0.40)	(0.37)	(0.35)	(0.41)	(0.38)	(0.42)
Household Income: 60k-70k	0.05	-0.28	-0.27	-0.11	0.34	0.34	0.28
	(0.13)	(0.40)	(0.42)	(0.38)	(0.36)	(0.35)	(0.39)
Household Income: 70k-85k	0.12	0.24	0.61*	0.23	0.70*	0.38	0.09
	(0.14)	(0.49)	(0.34)	(0.50)	(0.39)	(0.47)	(0.43)
Household Income: 85k+	0.10	0.72	0.31	0.34	0.51	0.41	-0.17
	(0.16)	(0.52)	(0.44)	(0.42)	(0.46)	(0.33)	(0.36)
Highest Education: Associate's	0.04	-0.01	0.18	0.42	0.38	-0.02	0.38
	(0.13)	(0.26)	(0.29)	(0.38)	(0.32)	(0.29)	(0.30)
Highest Education: Bachelor's	0.01	0.13	0.19	0.36	-0.17	0.03	0.28
	(0.12)	(0.33)	(0.29)	(0.38)	(0.32)	(0.37)	(0.31)
Highest Education: Graduate	0.03	-0.31	0.31	1.06**	0.43	0.13	0.14
	(0.13)	(0.42)	(0.36)	(0.43)	(0.31)	(0.26)	(0.42)
Married	0.09	-0.14	0.29	0.34	-0.02	0.17	0.20
	(0.13)	(0.37)	(0.40)	(0.35)	(0.38)	(0.47)	(0.30)
Constant	0.57	6.35*	7.98**	11.77***	6.40*	0.36	4.45
	(1.23)	(3.42)	(3.56)	(3.43)	(3.75)	(3.52)	(3.92)
R2	0.04	0.05	0.06	0.08	0.03	0.02	0.03
N	465	455	454	454	454	454	454

Notes: This table shows OLS regressions of disaggregated DOSPERT scale risk preferences on demographics and SES. Standard errors are clustered by the parent's military base assignment.
* p<0.10 **p<0.05 ***p<0.01

Figure A.2: Adolescent DOSPERT Survey-Experiment Correlation



Notes: This figure shows correlations of the survey measure of adolescent risk preferences disaggregated into DOSPERT domains on the experimental measure of risk preferences. Our experimental measures are discrete, but our points are jittered around their values to show their distribution. The red dashed lines represent 95% confidence intervals around the best linear fit.

Table A.14: Association between Adolescent and Parent DOSPERT Risk Preferences

	(1) General Risk	(2) Driving	(3) Financial	(4) Sport	(5) Occupation	(6) Health	(7) Faith in Others
Parent General Risk	0.19***						
	(0.05)						
Parent Driving		0.20***					
		(0.06)					
Parent Financial			0.16***				
			(0.05)				
Parent Sport				0.24***			
				(0.06)			
Parent Occupation					0.25***		
					(0.04)		
Parent Health						0.24***	
						(0.05)	
Parent Faith in Others							0.22***
							(0.05)
R2	0.08	0.08	0.09	0.13	0.11	0.08	0.09
N	423	402	402	402	402	402	402

Notes: This table shows OLS regressions of child disaggregated DOSPERT scale risk preferences on parent disaggregated risk preferences. Demographic controls include adolescent age, gender and race. SES controls include household income, responding parent's education and whether parents are married. Standard errors are clustered by the parent's military base assignment.

* p<0.10 **p<0.05 ***p<0.01

Table A.15: Flow Chart

	Adolescents	Parents	Both
Recruited	484	614	478
Has Experimental and Suvey Measures	468	536	462
Has Demographic and SES data	463	536	462
Parent is Biological Mother/Father		484	420