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Are Happiness and Productivity Lower among University Students
with Newly-Divorced Parents? An Experimental Approach

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Abstract

We live in a high-divorce age. Parents worry about the possibility of negative effects upon their children. This paper tests whether recent parental-divorce has deleterious consequences for grown children. Under controlled conditions, it measures students' happiness with life, and their productivity in a standardized laboratory task. No negative effects from divorce can be detected. If anything, happiness and productivity are greater, particularly among males, if they have experienced parental divorce. Using longitudinal BHPS data -- to control for fixed effects -- we cross-check this result on happiness. Again, the evidence suggests that young people's mental well-being improves after parental divorce.

1. Introduction

One of the major social-science phenomena of the last 50 years has been the rise in the rates of divorce and marital dissolution. In the United States, about 50% of children now experience parental divorce (National Center for Health Statistics, 2008). In the UK, over the period 1997-2007, parental divorces each year affected about 1 percent of the average population of young people aged between 16 and 23.[1] The long-run consequences of this phenomenon, especially upon the next generation, are not yet fully known.

This paper is a study of divorce and its consequences for grown children. It builds on, and is complementary to, a branch of modern work such as Collishaw et al (2007), that suggests smaller negative effects than used to be believed in an earlier era; and Gardner and Oswald (2005) and Stevenson and Wolfers (2006) who emphasize the potential positive effects of parental divorce, albeit not directly linked to the children of divorcees. Our analysis appears to be the first of its kind: it uses an experimental setup to try to understand the influence of parental divorce on university students.

From an economist's perspective, it is natural to be interested in whether:

(i)   parental divorce has a negative impact on children's ability to perform well in education,

(ii)   there are potential effects upon children's eventual productivity in the workplace,

(iii)   there are implications for those children's long-run earnings.

At the macroeconomic level, more speculatively, this translates into a desire to understand what high divorce rates could mean for economic growth through the potential effect on the children of divorced parents.

We attempt to probe these issues in a new way. The study constructs a laboratory experiment in which we can directly observe performance in a paid task and relate this to each subject's recent experience (or not) of parental divorce. While our

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[1] Our own elaboration based on the British Household Panel Survey.

methodology differs from that of previous scholars, our results are in alignment with some recent econometric work in indicating a less worrying impact, than might traditionally have been expected, of parental divorce on children's outcomes.

In a UK university, we designed and conducted a laboratory experiment in which subjects -- all of whom were students -- were asked to carry out *a task designed to measure their productivity and their ability to concentrate*. Afterwards, the subjects revealed if and when their parents were divorced.

For the study, subjects are college students. This is a group of particular interest given their age (almost all are 18-23) and thus proximity to full-time work, and because for many in the sample the experience of parental divorce is fairly recent (1-5 years).[2]

As a complement to the laboratory test, a second form of econometric evidence is described. This follows a group of individuals longitudinally. The paper provides an analysis of the British Household Panel Survey (BHPS). We examine the reported happiness levels of a sample of individuals aged between 16 and 30 (the BHPS has no productivity data, unlike our experiment). The use of a panel allows us to control for individuals' and households' characteristics, which is not fully possible in a laboratory setting.

Contrary to the fears of some parents and commentators, both forms of analysis -- laboratory and survey -- suggest that divorce has no negative consequences. The data are consistent with, if anything, a slight positive effect of parental divorce on children's reported happiness. Nor does the laboratory experiment uncover negative effects on productivity. In fact, there is evidence consistent with a small positive impact on the productivity of males.

In the psychology literature, there exists controversy -- and also considerable uncertainty -- about the impact of divorce on children. An early literature was unambiguous in finding a correlation between lower academic achievement (and a

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[2] In a related paper, we find that other bad life events, such as family illness and bereavement, do have a negative effect on subjects' happiness and productivity, both measured in the same general way as here (Oswald, Proto and Sgroi, 2010). Hence it is not simply that the nature of the test is intrinsically one of low power.

reduced ability to internalize problems) and divorce – described in a literature such as Amato (2001). However, the most recent contributions suggest a more complex picture, with an effect that is likely to be negative, but moderately small, and one generally less important for children of older age. Moreover, the need to control for socio-economic status argues that the lack of controls may be overstating the negative tone of the conclusions prevalent in the psychology literature (see Lansford 2009 for a survey).[3]

In recent years, some economists have added to the broader social-science literature -- sometimes finding that divorce does not have the scale of impact indicated within much of the psychology literature. Gruber (2004) employs cross-country data to assess the impact of the change of US divorce regulation on children's long-term achievement, and González and Viitanen (2008) test the difference in regulation for EU countries. Both find some negative impact of divorce on young people. Sanz-de-Galdeano and Vuri (2007) draw upon data from the National Education Longitudinal Study. The authors control for the potential endogeneity of parental divorce by employing double and triple difference models that rely on observing teenagers from intact and divorced backgrounds before and after the occurrence of parental divorce. The authors conclude that parental divorce does not negatively affect teenagers' cognitive skills. They also suggest that cross-sectional estimates overstate the detrimental effect of parental divorce. This conclusion is in line with our later analysis of the BHPS where controlling for family background actually leads the estimated effect of parental divorce on happiness to become moderately positive. Our later results are also broadly consistent with Liu (2007) and Piketty (2003), who use individual data to test the relationship between divorce and children's education attainments; both conclude that it is not the divorce per se that generates lower

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[3] In this respect, as Stevenson and Wolfers (2007) notice: "while children from divorced households fare worse along a range of outcomes than those from intact households, this observation does not speak to the policy-relevant question of whether those children would have been better off if their parents had not divorced. The conflict in these households may be so severe that children are actually better served by their parents divorcing. Thus comparisons of the "happily married" with the "unhappily divorced" are likely irrelevant for those choosing between an unhappy marriage and an unhappy divorce".

attainments but rather the environment before the divorce. Similar conclusions are reached by Hoekstra (2009).

In the next two sections we describe the laboratory experiment and present its results; section 4 presents the BHPS-based analysis; tables and questionnaires related to the laboratory experiment are given at the end of the paper.

2. Experimental Methodology

We designed and conducted a laboratory experiment in which subjects -- all of whom were students at the University of Warwick -- were asked to carry out a task designed to measure their productivity and their ability to concentrate. Afterwards, the subjects revealed if and when their parents were divorced.

The full set of experimental instructions is provided in an Appendix. To summarize the design of the experiment: we first asked subjects to enter their reported happiness using a seven-point scale into a spreadsheet (a copy of the precise question is found in the Appendix). It seems particularly important here to avoid 'priming', namely, to avoid reminding students of recent and significant positive or negative life shocks just prior to asking for reported happiness.[4]

The subjects were then asked to carry out two paid piece-rate tasks. They had 10 minutes to add as many sets of numbers together as they could. Each set of numbers consisted of 5 two-digit numbers; for example, one such problem might have been:

51	14	74	33	85	

They were paid 25p (about one third of a US dollar) for each correct addition. Hence they had a monetary incentive to correctly do as many as they could within the 10 minutes. This task also allowed us potentially to distinguish between the raw number of attempts and the percentage that are calculated correctly (which will both matter in terms of payment). The second task was a short GMAT-style test designed to help control for intelligence, a copy of which is provided in the Appendix. Finally, subjects completed a long questionnaire, which included questions about parental divorce in the last 5 years, and gathered information on other useful variables (designed to

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[4] For more on the role of priming in surveys, see Sgroi, Oswald, Proto and Dobson (2010).

generate socio-economic data, and further background data about each subject). A copy of the questionnaire is provided in the Appendix.

We carried out the experiment over 3 days, with 12 sessions and 269 subjects. No subject was allowed to participate more than once and no subject was allowed to have taken part in a similar experiment before.

3. Results and Discussion

Table 1 presents a description of the data. While the great majority of subjects completed the questionnaire in full, we could not coerce them into doing so. Therefore we do not have a full set of 269 observations for every questionnaire answer, although we always have more than 250.[5]

Data -- among those with divorced parents -- on the share of parental divorces in each year (from 0 to 5 years earlier) are presented in Table 1. We aggregated these into the following dummies:

- *Divorce3* if the divorce took place less than 3 years ago
- *Divorce5* if the divorce took place in the last 5 years
- *Divorce3** represents the subjects whose parents had divorced in the 3 years before they began university.

There is overlap between *Divorce3, Divorce5* and *Divorce3**.

- *Happybefore* is the level of happiness reported by the subjects at the beginning of the experiment (it lies on a 7-point scale). They declared this number prior to undertaking the piece-rate tasks or answering the questionnaire.
- *High School Grades* is the ratio of top grades to the total of school-level subjects studied, so is a control for overall ability.
- *Gmat* is the result from a short GMAT-style test performed as the second task, and is a further control for innate ability.

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[5] For two subjects we dropped data on additions' score. One in session 9, ID04, who was severely disabled could not cope with the task (correct additions=1) and another in session 12, ID12, who suffered from a severe misunderstanding of the task, attempting to add the number vertically rather than horizontally (correct additions=0).

- *Additions* is the number of correct additions performed in 10 minutes during the piece-rate task.

Finally, the variables *Age* and *Year study* depict individuals' age and university year.

Table 2 gives the first regression-equation results. 'Happiness' is the ordinal dependent variable and is measured on a 7-point scale, we estimate the model by using ordered probit estimator (using instead a simple OLS led to the same results).

As is visible in Table 2, the association between parental divorce and subjects' happiness is not negative. If we consider the variable for parental divorce in the last 3 years (Divorce3), this variable enters with a coefficient that is positive and significantly different from zero at the 5% level in columns 1 and 2. The dummy for divorce in the last 5 years, in columns 3 and 4 of Table 2, is positive but not statistically significant. The value of the coefficient of Divorce5 in regression 1 is about half the value of the coefficient in Divorce3 in regression 2. This is consistent with the (perhaps somewhat natural) hypothesis that any effects from parental divorce tend to fade away over time as the child ages. The further back the divorce, the smaller the measured consequences.

Table 3 gives separate results for males (columns 1-3) and females (columns 4 and 5). For male subjects, there appears to be a fairly large and positive effect from parental divorce; the coefficient of 1.003 corresponds to an extra one happiness point on the seven-point cardinal scale. In this case, the coefficient on Divorce5 (in column 2 of Table 3) is about half in magnitude of the coefficient on Divorce3 (in column 1). The estimated positive and declining effect of parental divorce with respect of the year of the divorce is consistent with the regression presented in column 3; here we use a years-since-divorce variable *Ydiv*, set to the year of the divorce if *divorce 5*= 1, and N=6 otherwise.[6] This variable's coefficient, although not statistically significantly different from zero, has a negative sign. That provides some support for the idea of a positive effect of parental divorce on self-reported happiness and one that diminishes over time. In the last two columns of Table 3, divorce does not have significant

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[6] This is not a crucial issue, but literally implies that we think the effect of the divorce completed faded away after 6 years, so individuals whose parents have divorced more than 5 years ago are not distinguishable from all individuals who did not experienced this event. We also note that setting N equal to 10 makes the coefficient of *Ydiv* more significant.

effects among the sub-sample of female subjects. The coefficients of Divorce3 and Divorce5 are statistically indistinguishable from zero.

Tables 2 and 3 include a variable for High School Grades. This is done partly to control for the possibility of an omitted variable linked to the personal qualities of divorced parents, which might also be reflected in their children.

Nevertheless, necessarily, given the nature of these data, students from the divorced and non-divorced families might differ in subtle unobservable ways. In order to cope more formally with this potential problem -- namely, the potential heterogeneity of individuals and family background -- we show later in the paper that the positive statistical effect of parental divorce on happiness holds even when we base our analysis on the British Household Panel Survey. Panel data then allow us to introduce a control for individuals' characteristics, courtesy of the use of individual fixed effects.

Table 4 examines the determinants of productivity in the laboratory. It sets out regression equations in which the number of correct additions under timed pressure in the laboratory, *Additions*, is the dependent variable. The spirit of the results is similar to those in Tables 2 and 3. Divorce seems to have no discernible deleterious effect on subjects and their ability to perform. Interestingly, the sign seems, if anything, positive, and -- once again -- the coefficient is slightly larger when the regressor is divorce in the last 3 years (column 1) than when the regressor is divorce in the last 5 years (column 2).

From columns 3 and 4 of Table 4, for the subsample of males, the key coefficient is certainly not negative, even if, in this case, the coefficient of Divorce5 now becomes larger than the coefficient of Divorce3. None of the coefficients are statistically significantly different from zero at the 5 percent level. As in the happiness regression presented in Table 3, the sign of the number of years elapsed since the divorce -- the variable *Ydiv* defined as above -- is negative but not statistically significant. From columns 6 and 7 of Table 4, female subjects' productivity is apparently untouched by parental divorce; this, once more, is broadly in line with the spirit of the happiness regressions of Table 3.

Evidence of a beneficial effect (though only at the 90% confidence level) on productivity associated with parental divorce for the male subjects can be observed in Figure 1. Here we plot the cumulative distributions of the correct additions for men who experienced a parental divorce in the last 5 years (denoted in the legend CDFPdiv) and those who do not (denoted in the legend CDFnonPdiv).
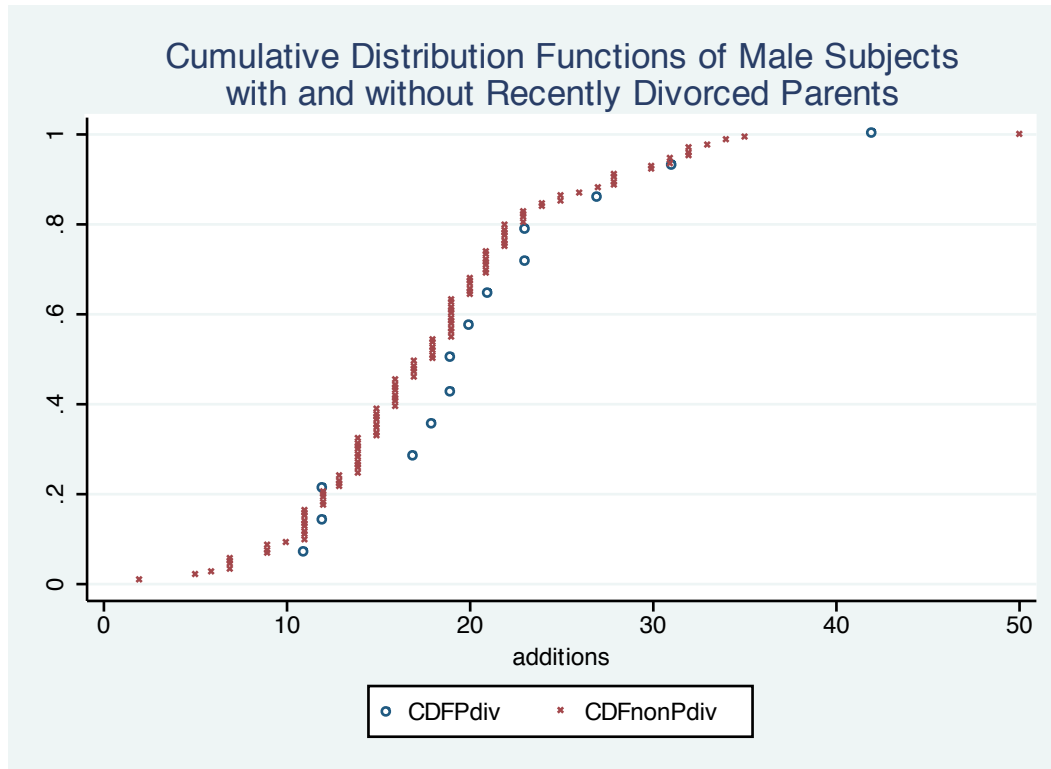
Figure 1

The cumulative distribution of correct additions for the Male subject with divorced parents (CDFPdiv) nearly first-order dominates the one with subjects whose parents have not recently divorced (CDVnonPdiv). In particular, there is no almost no difference between low and high performers: the medium performers with divorced parents are the ones doing better than the rest.

Table 5 switches to High School Grades, the ratio of top grades over the total school-level subjects studied, as a dependent variable. We regress this variable against Divorce3* -- representing the subjects whose parents have divorced in the 3 years before their first year of university. In that way, we try to assess the effect of parental divorce during the high-school years up to the final school level exam used in the UK

for entry to university (A-levels). The variable Divorce3* enters with a coefficient that is insignificantly different from zero in all specifications of the model.

We conclude this section by one further observation. As is clear from the paper's tables, the finding of no damaging effect from parental divorce is not simply because of Type II errors or any repeated failure to reject the null of zero on a negative coefficient. The estimated coefficients are typically positive rather than negative. It is not merely that there are large standard errors around negative coefficients.

4. A Cross-Check: Testing for the Effects of Parental Divorce on Happiness using the British Household Panel Survey

Our laboratory setting has the advantage of measuring the student productivity in a controlled environment. But it has an important drawback, namely, that of not being able to fully control for possible household effects. Divorce is not randomly assigned in the world. Hence the necessary maintained assumption in our experiment -- as in Corak 2001 and much of the literature -- is that what happens to the parent is not innately passed on, through genes or some other mechanism, to the child's happiness and productivity.

Using a subset of individuals from the British Household Panel, it is possible to control more fully for individuals' heterogeneity. Given the panel characteristics of the BHPS, we introduce a control for individuals (then households) through fixed effects estimation. BHPS data identify those individuals who experienced a parental divorce.

Therefore, we construct a sample of all people with an age equal to or below 30 who appear in the BHPS data with at least one parent, and we study the effect on those young people of a parental divorce in that year and in the years immediately prior, controlling for other factors such as income, age, employment, student status and disability.

Our data come from the first 17 waves of the BHPS. This is a nationally representative sample of more than 5000 British households, containing over 10000 adult individuals, conducted between September and Christmas of each year from 1991. Respondents are interviewed in successive waves; households who move to new residences are interviewed at their new location; if an individual splits off from

the original household, all adult members of their new household are also interviewed. Children are interviewed from 16 years of age. The sample has remained broadly representative of the British population.[7] The people we refer to are the children, aged between 16 and 30, of the couple who appears to be legally married in 1991 or in subsequent waves.

Table 6 presents a summary of the raw data. It is useful to emphasize that the happiness variable, measured using a 4 point-scale, is reversed in this case, and it goes from 1 (much happier than usual) to 4 (much less happy than usual). It is drawn from a sub-question of the so-called GHQ section of the British Household Panel data. In Table 7, we show the number of students aged between 16 and 30 who have experienced a parental divorce across the different waves -- corresponding to the period 1990-2007.

Table 8 reports a set of BHPS 'unhappiness' regression equations. These are the results from OLS estimation with individual (and wave) fixed effects.

The results of this check are thus consistent with our earlier laboratory findings. Subjects are apparently not only unscathed by parental divorce but in some specifications they report a statistically significant rise in personal happiness.

From column 1 of Table 8, for example, where we use the entire sample, the parental divorce variable is estimated to have a negative effect on unhappiness in the year their parents divorce (coefficient -0.09); this effect is not generally significantly different from zero in the second period, or in the year before the divorce.[8] Comparing columns 2 and 3 of Table 8, the beneficial consequences of the divorce are evident for both females (column 2) and males (column 3); but for males the positive and significant effect appears one year later than for females.

Column 4 of Table 8 provides one further specification check. The findings are the same.

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[7] To examine how the well-being of children changes over time, in response to parental dissolution, we would ideally know the date at which individuals felt that their marriage ended, as opposed to the legal date of divorce. The approach that is taken in the paper, as in Gardener and Oswald (2005), is thus to define 'divorce' (marital termination) as being *either a legal divorce or a marital separation*. Our data record formal marital breakdown; they do not cover the dissolution of cohabiting relationships.

[8] None of the preceding years are significant when we include them in the regression model.

5. Conclusions

This study is an attempt to explore the effects of divorce upon grown children. The area is an emotive, but potentially important, one. We began the study expecting to discover some harmful consequences from recent parental divorce. We have been unable to find such evidence.

First, in a laboratory setting with controlled conditions, there is evidence that students' productivity and happiness levels are largely unaffected, and never negatively affected, by whether they have recently experienced a parental divorce. Moreover, there is some evidence -- as in column 1 of Table 3 -- that reported happiness and productivity are greater among male students whose parents have divorced.

There is an important potential objection to this laboratory finding. It is that, for some unobservable reason, the university students in our sample from families in which there has been a divorce may be intrinsically different from (perhaps more productive than) those students who come from families in which there was no divorce. This is not an entirely persuasive objection -- a critic who believed that divorce is bad for offspring would have to argue that the stay-together parents have children who in our data are inherently less happy than others -- but it is an important possibility and deserves to be considered.

Second, therefore, the last part of the paper performs a further exercise. We address the same set of intellectual issues but in a different, complementary way. By using data on young people from the British Household Panel Survey, we are able to estimate fixed effects models in which (un)happiness -- among a random sample of young adults -- is the dependent variable. Again, no evidence is found for the existence of deleterious effects from the dissolution of parents' marriages. As in the laboratory experiment, there is, instead, some evidence consistent with the idea that grown children may actually gain from a parental divorce.

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Table 1

Descriptive Statistics for the Sample of 269 Laboratory Subjects

VARIABLES	Full #obs	Mean	Std. Dev.	Min	Max
Happybefore[9]	269	4.843	0.941	2	7
No Divorce	269	0.918	0.274	0	1
Divorce less than 1 year ago	269	0.007	0.086	0	1
Divorce 1 year ago	269	0.015	0.121	0	1
Divorce 2 years ago	269	0.022	0.148	0	1
Divorce 3 years ago	269	0.018	0.135	0	1
Divorce 4 years ago	269	0.007	0.086	0	1
Divorce 5 years ago	269	0.018	0.135	0	1
Divorce 3 last 3 years	269	0.055	0.275	0	1
Divorce 5 last 5 years	269	0.082	0.230	0	1
Divorce 3* 3 years before A-levels	269	.0483	.2148	0	1
Ydiv	269	5.702	1.061	0	6
Age	259	19.610	1.547	18	30
Male	261	0.521	0.500	0	1
High School Grades	255	0.535	0.256	0	1
Gmat score	269	3.610	1.466	0	5
Additions[10]	267	18.097	6.864	2	50

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[9] 'Happybefore' is the student's reported happiness (on a scale from 1 to 7) at the start of the whole experiment.

[10] 'Additions' is the number of correct numerical additions in the timed productivity task in the laboratory.

Tale 2

Regression Equations in which Students' Happiness is the Dependent Variable – with a Variable for Parental Divorce in the Last 3 Years and 5 Years

VARIABLES	(1) Happybefore Probit	(2) Happybefore Probit	(3) Happybefore Probit	(4) Happybefore Probit
Divorce3	0.658**	0.697**		
	(0.305)	(0.303)		
Divorce5			0.318	0.340
			(0.250)	(0.248)
Male	0.0303		0.0418	
	(0.144)		(0.144)	
Year study	0.160		0.153	
	(0.0992)		(0.0990)	
HS Grades	0.0754		0.102	
	(0.280)		(0.280)	
Age	-0.989*		-0.937*	
	(0.568)		(0.567)	
Age2	0.0197		0.0186	
	(0.0129)		(0.0129)	
Session Dummy	Yes	Yes	Yes	Yes
Observations	254	269	254	269

Here, and in later tables, the numbers in parentheses are standard errors. * is significance at 10%; ** at 5%; *** at 1%.

Table 3

Regression Equations in which Students' Happiness is the Dependent Variable – with a Variable for Parental Divorce in the Last 3 Years and 5 Years

	(1) Probit Happybefore Only Male	(2) Probit Happybefore Only Male	(3) Probit Happybefore Only Male	(4) Probit Happybefore Only Female	(5) Probit Happybefore Only Female
Divorce3	1.003** (0.404)			-0.111 (0.532)	
Divorce5		0.531 (0.331)			0.0396 (0.429)
Ydiv			-0.135 (0.0923)		
Year of study	0.442*** (0.159)	0.443*** (0.159)	0.440*** (0.158)	0.0154 (0.137)	0.0187 (0.136)
HS Grades	-0.470 (0.412)	-0.424 (0.411)	-0.461 (0.411)	0.301 (0.410)	0.304 (0.410)
Age	-0.919 (1.576)	-0.639 (1.573)	-0.770 (1.572)	-0.522 (0.709)	-0.512 (0.710)
Age2	0.0119 (0.0385)	0.00505 (0.0384)	0.00862 (0.0384)	0.0116 (0.0156)	0.0114 (0.0156)
Session Dummy	Yes	Yes	Yes	Yes	Yes
Observations	134	134	134	120	120

Ydiv =# years since parental divorce

Table 4

Regression Equations in which Students' Productivity in a Laboratory Task is the Dependent Variable – with a Variable for Parental Divorce in the Last 3 or 5 Years

	(1) OLS Additions All	(2) OLS Additions All	(3) OLS Additions Male	(4) OLS Additions Male	(5) OLS Additions Male	(6) OLS Additions Female	(7) OLS Additions Female
Divorce3	1.941		3.632			1.610	
	(1.749)		(2.539)			(2.547)	
Divorce5		1.365		3.864*			-1.269
		(1.443)		(2.104)			(2.021)
Ydiv					-0.720		
					(0.590)		
Year study	-0.500	-0.518	0.160	0.171	0.176	-1.138*	-1.188*
	(0.576)	(0.576)	(1.003)	(0.997)	(1.005)	(0.646)	(0.644)
HS Grades	2.257	2.337	2.491	2.591	2.447	1.666	1.553
	(1.656)	(1.658)	(2.704)	(2.689)	(2.712)	(1.958)	(1.961)
GMAT	1.225***	1.237***	1.359**	1.436***	1.371**	0.987***	0.978***
	(0.296)	(0.297)	(0.534)	(0.531)	(0.535)	(0.319)	(0.319)
Age	1.795	1.937	-8.491	-6.990	-7.931	5.703*	5.481
	(3.255)	(3.254)	(10.10)	(10.05)	(10.12)	(3.321)	(3.325)
Age2	-0.0391	-0.0422	0.208	0.171	0.195	-0.125*	-0.120
	(0.0738)	(0.0737)	(0.247)	(0.246)	(0.247)	(0.0728)	(0.0729)
Male	-0.337	-0.322					
	(0.870)	(0.870)					
Session Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-10.15	-11.73	94.63	79.25	92.94	-52.43	-49.32
	(35.28)	(35.28)	(102.6)	(102.2)	(102.8)	(36.97)	(37.03)
Obs.	252	252	134	134	134	118	118
R-squared	0.176	0.175	0.189	0.198	0.185	0.318	0.318

Ydiv =# years since parental divorce

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Table 5

Regression Equations in which Students' High School Performance is the Dependent Variable – with a Variable for Parental Divorce in the 3 Years before University

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	OLS	OLS
	High School Grades	High School Grades	High School Grades	High School Grades	High School Grades
				Male	Female
Divorce3*	-0.0048	-0.0093	-0.0039	-0.0020	-0.0223
	(0.0737)	(0.0727)	(0.0711)	(0.0928)	(0.1260)
Age		-0.0336***	-0.0273**	-0.0259	-0.0267*
		(0.0107)	(0.0106)	(0.0163)	(0.0152)
Gmat score			0.0392***	0.0445**	0.0304*
			(0.0113)	(0.0176)	(0.0156)
Male		-0.0199	-0.0514		
		(0.0332)	(0.0337)		
Session Dummies	Yes	Yes	Yes	Yes	Yes
Constant	0.510***	1.194***	0.933***	0.915**	0.914***
	(0.0587)	(0.225)	(0.232)	(0.356)	(0.330)
Observations	255	254	254	134	120
R-squared	0.065	0.103	0.146	0.189	0.164

Table 6

Descriptive Statistics for the Sample in the British Household Panel Study (BHPS)

Variable	Observations	Mean	Std. Dev.	Min	Max
Happiness	30263	1.917027	.6337045	1	4
Par. Divorce	32393	.0118853	.1083715	0	1
Age	32393	21.67706	4.160363	15	30
Male	32187	.5071302	.4999569	0	1
Income	30493	7.86653	8.577413	0	400.4861
Student	32393	.2747507	.4463955	0	1
Unemployed	32393	.0742753	.2622224	0	1
Disabled	32393	.0123483	.1104366	0	1
Still with Parents	32393	.6503566	.4768647	0	1
Married	32393	.0868706	.2816497	0	1
Cohabiting	32393	.1311086	.3375243	0	1

Table 7

Cross-waves Breakdown of Individuals Aged Between 16 and 30: BHPS

Wave	Parental Divorce		Total
	0	1	
2	1,269	25	1,294
3	1,286	27	1,313
4	1,395	13	1,408
5	1,427	18	1,445
6	1,567	19	1,586
7	1,607	43	1,650
8	1,797	27	1,824
9	1,840	15	1,855
10	2,276	28	2,304
11	2,359	20	2,379
12	2,469	36	2,505
13	2,503	20	2,523
14	2,494	21	2,515
15	2,576	23	2,599
16	2,583	19	2,602
17	2,560	31	2,591
Total	32,008	385	32,393

Table 8

Fixed-Effect Estimation of Parental Divorce in Year T on the Unhappiness of Individuals Aged Between 18 and 30 (BHPS Data)

VARIABLES	(1) OLS Unhappiness *All*	(2) OLS Unhappiness *Female*	(3) OLS Unhappiness *Male*	(4) OLS Unhappiness *Male*
Parent Divorce t+1	0.0374	0.0873	-0.0254	-0.0432
	(0.0415)	(0.0613)	(0.0557)	(0.0591)
Parent Divorce t	-0.0942**	-0.172***	-0.0161	0.0353
	(0.0420)	(0.0618)	(0.0568)	(0.0634)
Parent Divorce t-1	-0.0444	0.0126	-0.110*	-0.143**
	(0.0412)	(0.0599)	(0.0563)	(0.0631)
Parent Divorce t-2				-0.0283
				(0.0651)
Age	-0.0270	-0.0402	-0.0144	-0.0185
	(0.0239)	(0.0360)	(0.0315)	(0.0374)
Age2	0.000365	0.00110**	-0.000320	-0.000559
	(0.000355)	(0.000536)	(0.000473)	(0.000588)
Income	0.00220*	-0.00239	0.00688***	0.00563**
	(0.00124)	(0.00189)	(0.00201)	(0.00219)
Income sq.	-2.42e-06	1.91e-05	-5.07e-05	-2.69e-05
	(1.33e-05)	(1.57e-05)	(3.42e-05)	(3.57e-05)
Student	0.0153	-0.0101	0.0372	0.0490*
	(0.0170)	(0.0248)	(0.0233)	(0.0273)
Unemployed	0.182***	0.152***	0.208***	0.216***
	(0.0209)	(0.0332)	(0.0264)	(0.0305)
Disable	0.401***	0.332***	0.461***	0.452***
	(0.0578)	(0.0906)	(0.0734)	(0.0818)
Still with Parents	-0.0262	-0.00441	-0.0545**	-0.0626***
	(0.0161)	(0.0239)	(0.0217)	(0.0239)
Married	-0.0376	-0.0316	-0.0494	-0.0625*
	(0.0244)	(0.0347)	(0.0346)	(0.0372)
Cohabiting	-0.0570***	-0.0292	-0.0919***	-0.106***
	(0.0182)	(0.0258)	(0.0257)	(0.0276)
Constant	2.390***	2.296***	2.133***	2.262***
	(0.538)	(0.490)	(0.436)	(0.539)
Individual Fix Eff.	**Yes**	**Yes**	**Yes**	**Yes**
Wave Fix Effects	**Yes**	**Yes**	**Yes**	**Yes**
Observations	20933	10416	10517	8487
Number of Indivs.	4083	2002	2081	1736
R-squared	0.009	0.009	0.017	0.019

The dependent variable here is calculated using the question: 'Have you been feeling reasonably happy, all things considered?' where the possible responses are:

More so than usual 1; About same as usual 2; Less so than usual 3; Much less than usual 4.

Subject Instructions

[Subjects are invited to enter the lab]

Welcome to the session. You will be asked to perform a small number of tasks and will be paid both a show-up fee (of £5) and an amount based on how you perform. Please do not talk to each other at any stage in the session. If you have any questions please raise your hands, but avoid distracting the others in the room.

You will now receive ID cards and you are asked to sit at the computer corresponding to the ID number. Everything is done anonymously – your performance will simply be recorded based on the ID card, and not your names. You will find some paper and a pen next to your computer – use them if you wish. Please do not use calculators for any of today's tasks as this will be classified as cheating. If we observe cheating it will invalidate your answers and you will be disqualified resulting in no payment being made.

First of all please maximize the file called "Intro" and complete the question as indicated. Once you have done this, please save and close the file.

[This is not timed, but typically takes 1-2 minutes]

Look away from your screens for a moment. You will next have 10 minutes to add a sequence of numbers together and enter your answers in a column labelled "answer". You will be paid based on the number of correct answers that you produce at a rate of 25p per correct answer. When the ten minutes are up I will ask you to stop what you are doing. When asked to stop please leave the software open on you screens as we will need to visit your computers to save your work and prepare your next task. Now look at your screens. You will find that a file called "Number Additions" is open but minimized on your screen. Please now open the file by clicking on the tab. You have ten minutes!

[10 minutes]

Please stop what you are doing. We will now visit your computers and save your work. We will also place a sheet faced down next to your keyboards. Please do not turn over the sheet until I ask.

[Move to consoles, save work and distribute GMAT-style test sheets]

For the second task we would like you answer a small number of questions. You will see that the file in front of you allows you to enter a letter from "a" to "e", corresponding to a multiple-choice answer. Your payment depends upon how many you get correct at a rate of 50p per correct answer. Please turn over the sheets and begin. You have 5 minutes to attempt these questions.

[5 minutes]

Please stop what you are doing. We will once again visit your computers and save your work and prepare a questionnaire for you to answer.

[Move to consoles, save work and open the questionnaire]

I would now like to ask you complete the questionnaire which should be open in front of you on your allocated computer. It is vital for our research that you answer as honestly as you can, and I would like to stress to you that as with the rest of your input today, your questionnaire answers are entirely anonymous: we will only link your answers to the specific computer ID which you were randomly allocated at the start of today's proceedings. I would also like to stress that your payment does not depend upon your questionnaire answers. Completing the questionnaire is not a timed event, so please do not feel the need to rush. If you have any questions concerning the questionnaire or if anything is not clear please raise your hands and someone will come over and attempt to deal with your question. When you are done please save the questionnaire and then close Excel and wait a moment for the others to finish and to await further instructions.

[This is not timed, but typically takes 10 minutes or so]

Hopefully you have all had a chance to complete the questionnaire. If you need more time, then please raise your hand. If everyone has completed their questionnaires, please make sure it is saved and close Excel.

Now please leave the pen on your desk but bring all of the paper which was distributed with you (the test paper and the scrap paper) which we will destroy. It is essential that you bring your computer ID card when you come up for payment as it is only through this card that we can administer payment. You will also need to sign a receipt. Please now form an orderly queue to the side of the room and keep some distance from the person at the front while they are being paid.

Many thanks for taking part in today's session!

[Payments handed out and receipts signed]

[This is the second paid task, undertaken after the numerical additions]

Please answer these by inserting the multiple choice answer a, b, c, d or e into the GMAT MATH spreadsheet on your computer.

1. Harriet wants to put up fencing around three sides of her rectangular yard and leave a side of 20 feet unfenced. If the yard has an area of 680 square feet, how many feet of fencing does she need?

a) 34

b) 40

c) 68

d) 88

e) 102

2. If $x + 5y = 16$ and $x = -3y$, then $y =$

a) -24

b) -8

c) -2

d) 2

e) 8

3. If "basis points" are defined so that 1 percent is equal to 100 basis points, then 82.5 percent is how many basis points greater than 62.5 percent?

a) .02

b) .2

c) 20

d) 200

e) 2,000

4. Which of the following best completes the passage below?

In a survey of job applicants, two-fifths admitted to being at least a little dishonest. However, the survey may underestimate the proportion of job applicants who are dishonest,

because——.

a) some dishonest people taking the survey might have claimed on the survey to be honest.

b) some generally honest people taking the survey might have claimed on the survey to be dishonest.

c) some people who claimed on the survey to be at least a little dishonest may be very dishonest.

d) some people who claimed on the survey to be dishonest may have been answering honestly.

e) some people who are not job applicants are probably at least a little dishonest.

5.People buy prestige when they buy a premium product. They want to be associated with something special. Mass-marketing techniques and price-reduction strategies should not be used because ——.

a) affluent purchasers currently represent a shrinking portion of the population of all purchasers.

b) continued sales depend directly on the maintenance of an aura of exclusivity.

c) purchasers of premium products are concerned with the quality as well as with the price of the products.

d) expansion of the market niche to include a broader spectrum of consumers will increase profits.

e) manufacturing a premium brand is not necessarily more costly than manufacturing a standard brand of the same product.

Happiness Question

[Subjects answered this question prior to undertaking any of the paid tasks]

Happiness

How would you rate your happiness at the moment? (1-7)

Note: 1 is completely sad, 2 is very sad, 3 is fairly sad, 4 is neither happy nor sad, 5 is fairly happy, 6 is very happy, 7 is completely happy

Questionnaire

[Subjects completed this at the end of the experiment, after completing the two paid tasks]

Please insert your answers into the shaded boxes to the right: please scroll down until you have reached the end of the questionnaire as indicated.

Details

What is your age?

Are you a 1st year, 2nd year, 3rd year, graduate student, or other? (1/2/3/G/O)

What is your gender? (M/F)

School Record

Have you taken GSCE or equivalent in maths? (yes/no)

IF SO:

What was the highest grade possible for this course? (A/A*/etc.)

What was your grade?

Give a percentage if you know it

Have you taken A-level or equivalent in maths? (yes/no)

IF SO:

What was the highest grade possible for this course?

What was your grade?

Give a percentage if you know it

How many school level qualifications have you taken (including GCSEs, A-levels and equivalent)?

How many of these qualifications were at the best grade possible? (eg A* in GCSE, A is A-level, etc.)

University Record

Are you currently or have you ever been a student (yes/no)

If yes, which degree course(s)?

IF you are a second or third year student what class best describes your overall performance to date? (1/2.1/2.2/3/Fail)

IF you are a third year AND took part in the room ballot, were you allocated a room on campus?

General Questions

Life has its ups and downs. During the last 5 years, have you experienced any of the following events (yes/no*).*
If yes, please could you indicate how many years ago in the second column to the right.
For example, if this happened this year enter 0, for a year ago enter 1, etc. up to 5 years ago.

	yes/no	number of years ago
A bereavement in your close family? (e.g. parent/guardian, sibling)		
A bereavement in your extended family? (e.g. close grandparent, close aunt/uncle, close cousin, close friend)		
A parental divorce?		
A serious (potentially life-changing or life-threatening) illness in your close family?		

	yes/just averagely good/no	number of years ago
Has anyone close to you had anything really good happen to them within the last 5 years? (yes/just averagely good/no)		

On a five point scale, how competitive or cooperative do you consider yourself with regard to others,
where '1' is 'Predominantly competitive' and '5' is 'Predominantly cooperative'?

How often do you think you make comparisons between yourself and others? (often/sometimes/never/don't know)

On a five point scale, how important do you consider social status, where '1' is 'Not at all important' and '5' is 'Very important'?"

All things considered, how satisfied are you with your life as a whole these days?
where 1 means you are "completely dissatisfied" and 10 means you are "completely satisfied".