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ABSTRACT

Parents' Marital Status, Psychological Counseling and Dishonest Kindergarten Children: An Experimental Study*

The present paper reports the results of an experiment which studied the effects of parents' marital status (divorced or non-divorced) and psychological counseling (administered or not) on the honesty level of kindergarten children. Data on marital status and psychological counseling was anonymously provided by the kindergarten teachers and children's level of honesty was assessed by a flip-coin task which rewarded a self-reported favorable outcome. The experiment gave rise to two major results: first, children of divorced parents are less honest than children of non-divorced parents and second, psychological counseling helps improve honesty among children of divorced parents but fails to do so among children of non-divorced parents. No gender effect was found.

JEL Classification: C91, C92, K42

Keywords: kindergarten children, dishonest behavior, flip coin task, psychological counseling

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1. Introduction

Dishonesty is abundant in modern economic life. Taxpayers cheat the government (Cowell, 1990), employees cheat their employers (Shapiro and Stiglitz, 1984) and producers systematically exploit consumers' psychological weaknesses and ignorance through manipulation and deception (Akerlof and Shiller, 2015). Over the past two decades, behavioral economists and social psychologists have been designing numerous lab and field experiments with the purpose of deriving insights on people's tendency to cheat.[1] A few experimental studies have focused on the determinants of dishonest behavior among children, inquiring, in particular, how dishonest behavior varies with childrens' age. Bucciol and Piovesan (2011) asked children between the ages of 5 and 15 to privately flip a fair coin, white on one side and black on the other, and to report the result on a sheet of paper, promising a reward for a white outcome. Since the coin was flipped in private, subjects had an incentive to report white irrespective of the true outcome of the toss. While it was impossible to detect dishonesty on the individual level, the researchers were able to elucidate the aggregate level of dishonesty among subjects as a group by comparing the observed fraction of reported white outcomes with the 50 percent expectation. They concluded that many children cheated (about 85 percent reported the white outcome) and that the tendency to cheat was uniform by age. In contrast, running a sender-receiver experiment with children aged 10-11 and 15-16, Glätzle-Rützler and Lergetporer (2015) found that children's tendency to cheat decreased significantly with age. Maggian and Villerval (2016), using a simplified Dictator game in which the cheating behavior of children aged between 7 and 14 was observed along with their social preferences, concluded that cheating behavior did not increase or decrease linearly with age, but rather followed a hump-shaped time path from middle childhood to early adolescence.

[1] For detailed reviews of the experimental literature on cheating see Rosenbaum *et al* (2014), Jacobsen *et al* (2018) and Abeler *et al* (2019).

An extensive psychological literature has investigated the development of lying behavior in children [e.g., Shepherd *et al* (1971), Stouthamer-Loeber (1986), Chandler *et al* (1989), Lewis *et al* (1989), Bussey (1999), Broomfield *et al* (2002], suggesting that children start lying as early as 2-3 years of age with the purpose of pursuing personal interest or to avoid punishment. Leading experts on children's lying behavior maintain that it is parents who teach children to lie, not necessarily by explicitly telling them to do so, but by lying to each other or to relatives and friends in the presence of their children [Talwar *et al* (2007), Xu *et al* (2010), Talwar and Crossman (2011), Lee and Talwar (2012)].[2] By seeing their parents lie, children learn that honesty only creates conflict and dishonesty is an easy way to avoid conflict. This insight is particularly enrooted in children of divorced or separated parents who tend to comply with a parent's demand to keep secrets or to withhold information from the other parent. Lying in childhood is also claimed to be positively related to a broad range of other problematic behaviors such as conduct disorders, disruptive behavior, aggression, or stealing [Stewart and DeBlois (1985), Stouthamer-Loeber and Loeber (1986), Gravis *et al* (2000), Glätzle-Rützler and Lergetporer (2015)] for which psychological counseling is advised. Children of divorced or separated parents exhibit more behavioral problems than do children from intact families [Morrison and Coiro (1999), Wood *et al* (2004), Weaver and Schofield (2015)] and are more likely to undergo psychological counseling.

The present paper reports the results of an experiment which studied the effects of parents' marital status (divorced or non-divorced) and psychological counseling (administered or not) on the honesty level of kindergarten children. Data on marital status and psychological counseling was anonymously provided by the kindergarten

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[2] In an experiment that involved both parents and their young children as subjects, Houser *et a*l (2016) have recently found that parents, being aware of the role they play in their children moral development and seeking to transmit positive attitudes towards honesty, cheat less in the presence of daughters than in the presence of sons. This suggests that gender differences in dishonesty observed among adults, i.e., that adult females lie less often than adult males, could be driven by differences in the way girls and boys are socialized by parents at early ages.

teachers and children's level of honesty was assessed by a flip coin task along the lines of Bucciol and Piovesan (2011) described above. The results reveal that children of divorced parents are significantly less honest than children of non-divorced parents and that psychological counseling helps improve honesty among children of divorced parents but fails to do so among children of non-divorced families. No gender effect was found.

2. The experiment

The experiment involved 10 public kindergarten clusters located in urban central Israel, each of which included up to four kindergartens. A total of 793 children in 27 kindergartens participated in the experiment. All children were Jewish and secular, belonging to medium to upper-class parents and aged between five years and eight months to six years and seven months. Sessions were carried out during the months of April and May 2017 between 10:00 AM and 12:00 noon. A week prior to each session, notices were posted at the kindergarten center, as well as sent to the parents in the form of SMS/WhatsApp messages, asking parents' permission for their children's participation in an experiment with prizes to be conducted in the following week on a voluntary basis. While most of the parents were glad to allow their children to participate, a small minority of them objected and even attempted to dissuade other parents from allowing their children to join. A few parents who refused to participate objected to the experiment taking place altogether in their children's kindergarten and their children were therefore transferred to an adjoining kindergarten on the day of the experiment. On average, about 10% of the parents refused to participate and an additional 5% of the children were absent when the experiment took place. It should be noted that the kindergarten teachers were enthusiastic about the experiment and saw it as an enjoyable activity for the children which also included prizes. They even suggested that other kindergartens run by their colleagues also conduct such experiments.

At the time of the experiment, all participating children were first called from the yard into the kindergarten main hall, where they waited for their turn to perform the task, while

the non-participating children remained in the yard. Each participating child was then invited in turn by a research assistant to accompany him or her to another room which contained a small area enclosed by a curtain. The research assistant read the child the rules of the task from a script, repeated them orally, and verified that the child understood what he or she was expected to do. Specifically, the child was asked to go behind the curtain, flip a coin, which was black on one side and white on the other, and then come out of the enclosed area and report the outcome (black or white) to the research assistant. The child was told that if the outcome happened to be white, he or she would receive sweets as a reward, but if the outcome happened to be black no sweets would be rewarded. To make the promised reward more concrete, a menu of sweets was shown (a big bar of chocolate, 8 candies, or an ice-cream) from which the child would be able to choose if obtaining a white outcome. The research assistant further verified that the child was cognizant of the fact that other than himself or herself nobody could possibly see the flipped coin's outcome. It took a participating child three minutes, on average, to complete the task. Thereafter, he or she rejoined the non-participating children in the yard. When all participating children completed the task, the experiment ended. Children who reported white received their chosen kind of sweets. To prevent jealousy, all children in the kindergarten ended up receiving sweets.

To maintain maximum privacy for the children and their families, experiment numbers were distributed to the children and pasted on their shirts. Only the teachers knew the identity of each child based on the experiment number. The research assistants did not know any of the identity details of the children other than their experiment number and gender. When each session was finished, a file with the experiment numbers, gender and reported outcomes was forwarded to the kindergarten teacher who typed in the data on parents' marital status (divorced or non-divorced),[3] number of siblings and psychological

[3] Separated parents or parents in the process of getting divorced were considered divorced; One-family parents were considered non-divorced. Most of the divorced parents whose children participated in the experiment were freshly divorced (within one year) or still in the process of getting divorced.

counseling (administered or not),[4] erased the experiment numbers and forwarded the modified file to us.[5]

3. Results

Table 1 summarizes the experiment's results, overall and stratified by parents' marital status (divorced or non-divorced) and psychological counseling (administered or not). The first row presents the proportions of reported white outcome within each category and the second row calculates the proportions of dishonest reporting among the expected recipients of black outcomes (50%). The proportions of reported white outcome in all categories exceed the statistically-expected frequency of a white outcome (50%) at the 1% significance level. The excess reporting of white outcomes is presumably due to dishonest reporting of recipients of black outcomes. Dividing the excess white outcome reports by the expected frequency of black outcomes yields the proportions of dishonest reporting of subjects who had the opportunity to cheat.[6] Figure 1 illustrates these results.

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[4] Only children who had undergone psychological counseling for at least four months were considered as having undergone counseling. In Israel, psychological intervention in children is usually administered once or twice a week, depending on the child's condition and the initial diagnosis of the psychologist. Counseling is provided at the psychologist's clinic (not in the kindergarten) and, in most of cases. is subsidized by the state.

[5] Kindergarten teachers have knowledge of parents' marital status because at the beginning of the school year all parents are summoned to personal meetings with the teacher at which they must formally answer questions relevant to the kindergarten crew, including detailed information on childcare arrangements if being divorced, as the teacher must be aware of whom to call in case some problem arises. As regards psychological counseling, parents are not required to disclose this information to the teacher but usually wish to do so because (a) the teacher spends most of the day with the child and as such is a key figure in following up on the succession of the counseling, (b) The psychologist usually wishes to converse with the teacher and advise her on how to cope with the child's condition, (c) The teacher notices exceptional behaviors and parents seek to gain her empathy and help.

[6] This calculation of the proportion of dishonest reporting has recently been used by Schindler and Pfattheicher (2017), following outlines suggested by Moshagan and Hilbig (2017). Formally, denoting the baseline probability of obtaining a white outcome by p and the proportion of reported white outcome by q, the proportion of dishonest reporting is given by $(q-p)/(1-p)$. The standard error is calculated by $[q(1-q)/N(1-p)^2]^{0.5}$.

Table 1: Proportions of reported white outcome and dishonest reporting by parents' marital status and psychological counseling (PC)

	All			Non-Divorced Parents			Divorced Parents		
	All	Without PC	With PC	All	Without PC	With PC	All	Without PC	With PC
Reported white outcome	0.68 (0.016)	0.68 (0.018)	0.66 (0.044)	0.66 (0.018)	0.66 (0.018)	0.64 (0.061)	0.78 (0.036)	0.86 (0.052)	0.67 (0.061)
Dishonest reporting	0.36 (0.035)	0.36 (0.036)	0.32 (0.088)	0.32 (0.036)	0.32 (0.037)	0.28 (0.122)	0.56 (0.085)	0.72 (0.104)	0.34 (0.122)
N	793	681	112	659	607	52	134	74	60

** Standard errors of the mean appear in parentheses.*

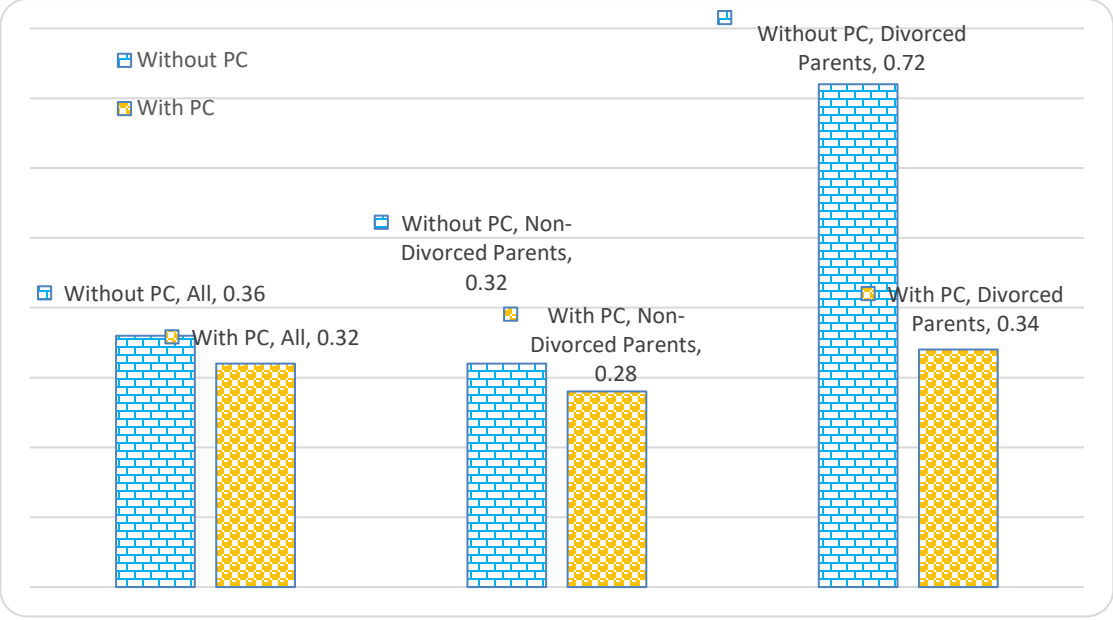

Figure 1: Proportions of dishonest reporting by parents' marital status and psychological counseling (PC)

While the *overall* proportions of reported white outcome are about the same with and without psychological counseling, they disguise significant differences in the honesty level of children of divorced and non-divorced parents, whether undergoing counseling or not. First, children of divorced parents are less honest than children of non-divorced parents: while 66 percent of children of non-divorced parents reported a white outcome, 78 percent of children of divorced parents did so, the difference being statistically significant ($t = 2.87$, $p < 0.01$). Consequently, only 32 percent of children of non-divorced parents who had an opportunity to cheat took advantage of it as compared to 56 percent of children of divorced parents. Second, children of divorced parents who undergo psychological counseling are more honest than their counterparts who do not: while 86 percent of children of divorced parents who did not undergo psychological counseling reported a white outcome, 67 percent of children of divorced parents who underwent counseling did so, the difference being statistically significant ($t = 2.56$, $p < 0.01$). Consequently, only 34 percent of children of divorced parents who underwent psychological counseling took advantage of the opportunity to cheat as compared to 72 percent of children of divorced parents who did not undergo counseling. Third, psychological counseling raises the level of honesty among children of divorced parents to that of children of non-divorced parents: 67 percent of children of divorced parents who underwent counseling reported a white outcome as compared to 64 percent of children of non-divorced parents who underwent counseling, the difference being statistically insignificant ($t = 0.35$, $p = 0.36$). About 30 percent of children who underwent psychological counseling, whether of divorced or non-divorced parents, took advantage of the opportunity to cheat. Fourth, psychological counseling does not help improving the level of honesty of children of non-divorced parents: 64 percent of children of non-divorced parents who underwent counseling reported a white outcome as compared to 66 percent of those who did not, the difference being statistically insignificant ($t = 0.33$, $p = 0.37$). About 30 percent of children of non-divorced parents, whether undergoing counseling or not, took advantage of the opportunity to cheat.

Table 2 presents the results of regressing the reported outcome (equals 1 if white and 0 if black) on psychological counseling and some demographic explanatory variables (marital status, gender, siblings) for the overall sample and within the alternative marital status categories. Also, because kindergarten teachers may affect the way children morally behave in the kindergarten, we ran four regression models on the entire sample with controls at the kindergarten and the cluster levels, attaching a dummy variable to each kindergarten and each cluster of kindergartens. As can be seen, *DivPar* (which equals 1 for divorced parents and 0 otherwise) exhibits a statistically-significant positive effect on the tendency to report a white outcome in all four models. Replacing, for example, a child of non-divorced parents with a child of divorced parents would, by model (I), raise the probability of reporting a white outcome by 0.227, on average. While *PsychCoun* (which equals 1 if psychological counseling is administered and 0 if not) fails to have a statistically-significant effect on reporting a white outcome when considering all participating children or just the children of non-divorced parents, it exhibits a statistically-significant negative effect on the tendency to report white among children of divorced parents. Administering psychological counseling to an additional child of divorced parents would reduce the probability of reporting a white outcome by 0.269, on average. Children of divorced parents who undergo psychological counseling also have a statistically-significant negative effect on the probability of reporting a white outcome in the entire sample, as revealed by the negative coefficients of the interactive variable *PsychCoun*$^{\times}$*DivPars*. Siblings appear to negatively affect the tendency to report white, both overall and within each marital status, whereas no gender effect is found. Lastly, the effect of a specific kindergarten or cluster of kindergarten on reporting a white outcome is found, by the *F-wald* test, to be statistically insignificant.

4. Concluding remarks

Two major conclusions emerge from our experiment: first, children of divorced parents are less honest than children of non-divorced parents and second, psychological

Table 2: Linear probability regressions of the reported outcome on psychological counseling and demographic characteristics

	All (I)	All (II)	All (III)	All (IV)	Divorced Parents	Non-Divorced Parents
PsychCoun	0.014	0.053	0.031	0.038	– 0.269*	0.016
	(0.965)	(0.068)	(0.067)	(0.068)	(0.075)	(0.067)
DivPars	0.227*	0.166*	0.178*	0.156*	–	–
	(0.055)	(0.064)	(0.064)	(0.065)	–	–
PsychCoun x DivPars	– 0.283*	– 0.274*	– 0.261*	– 0.270*	–	–
	(0.102)	(0.110)	(0.108)	(0.110)	–	–
Female	– 0.004	– 0.022	– 0.015	– 0.020	– 0.093	0.015
	(0.032)	(0.035)	(0.034)	(0.035)	(0.069)	(0.037)
Siblings	– 0.095*	– 0.094*	– 0.095*	– 0.095*	– 0.094*	– 0.097*
	(0.013)	(0.014)	(0.014)	(0.014)	(0.013)	(0.015)
Constant	0.816*	0.849*	0.847*	0.848*	1.000*	0.808*
	(0.033)	(0.091)	(0.051)	(0.093)	(0.091)	(0.035)
Observations	793	793	793	793	134	659
R-squared	0.074	0.093	0.071	0.090	0.111	0.061
F-Statistic	12.51	9.09	4.52	2.26	5.48	14.10
Controls	No	Kindergartens	Clusters	Kindergartens and Clusters	No	No
F-Wald Test	No	0.57	0.44	0.37	No	No

** Statistically significant at the 1% level.*

Notes: The dependent variable is binary, equals 1 if the reported outcome is white and 0 if it is black. The first three independent variables are also binary: ***PsycCoun*** *equals 1 if the child is undergoing psychological counseling and 0 if not,* ***DivPars*** *equals 1 if the child's parents are divorced and 0 if not,* ***PsychCoun x MaritStat*** *is an interaction variable and* ***Female*** *equals 1 if the child is female and 0 if male.* ***Siblings*** *is a non-binary discrete variable. Standard errors appear in parentheses.*

counseling positively affect honesty among children of divorced parents but fails to do so among children of non-divorced parents. The first conclusion is relatively easy to explain: children of divorced parents are more likely to be exposed to manipulative behavior of one parent towards the other and to internalize that lying is acceptable if it helps promote their interests. Also, children of divorced parents often feel hurt and guilty in causing their parents' separation and lying helps them run away from the bitterness of reality to a less-painful imaginary world. They may also feel they deserve a compensation for their misfortune, such as the promised sweets in our experiment, which, if not honestly achieved, can be recuperated by lying.

Our second conclusion is more difficult to explain, mainly because we do not know the reasons for which psychological counseling was administered to children in our experiment. While the kindergarten teachers were willing to anonymously mark children who were undergoing counseling, they refused to share with us the children's emotional and/or behavioral problems which deemed counseling appropriate or necessary. It seems reasonable to assume that children were not referred to counseling just because of exhibiting a tendency to lie, as lying in early ages is usually perceived as developmentally normal and often goes away on its own without treatment or intervention. Thus, our results do not imply that psychological counseling is effective for children of divorced parents nor that it is ineffective for children of non-divorced parents. Rather, we suggest that the beneficial effect on honesty we observed among children of divorced parents was a by-product of counseling aimed at coping with some other, more acute, problems. Children of divorced parents experience, on average, more major psychological and behavioral problems than children of non-divorced parents due to the trauma of divorce which might engender emotional reactions such as self-blame, fear of abandonment, low self-esteem and anger. They may resort to lying to themselves, as well as to their friends and parents, in order to maintain some semblance of self-control. For this reason, psychological counseling administered to children of divorced parents usually include a supportive phase which focuses on fostering positive self-esteem, reassuring children that

the divorce is not their fault and that they will always be loved by both their parents. Supportive counseling, which by its nature is not offered to children of non-divorced parents, may mitigate lying and help explain the differential effect on dishonesty that counseling had on children of divorced and non-divorced parents.

Our differential result may be viewed as evidence that supportive counseling effectively treats the causes of lying in children of divorced parents, restoring their self-esteem and alleviates their fear of abandonment. It should be noted though that this conclusion ignores a potential selection bias that might have occurred due to the refusal of some parents to let their children participate in the experiment. It could be that divorced parents were less likely to let their children participate (e.g., if they wanted to avoid discussion with their partners) or that parents of children undergoing psychological counseling were less inclined to do so (e.g., if they feared that the experiment might trigger some embarrassing behavior on the part of their children). Still, since parents' refusal rate was quite small (10 percent, on average, in kindergartens with allowed capacity of 35 children), it seems that a self-selection bias, if occurring, was very limited.

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