Received: 28 October 2021 | Revised: 20 February 2022 | Accepted: 22 March 2022

DOI: 10.1111/kykl.12305

ORIGINAL ARTICLE

KYKLOS WILEY

Gender and deception: Evidence from survey data among adolescent gamblers

Alice Guerra | Emanuela Randon | Antonello E. Scorcu

Department of Economics, University of Bologna, Bologna, Italy

Correspondence
Alice Guerra, Department of Economics, University of Bologna Rimini Campus, Via Angherà 22, Rimini 47921, Italy.
Email: alice.guerra3@unibo.it

Abstract

We examine gender differences in adolescent gamblers' deception behavior towards their parents. The analysis is based on a unique cross-sectional survey conducted in 2014 in Italy including high school students aged 13 to 22 years old. We consider a subset of adolescents who actively played gambling games in 2013 (5,435 observations). We find that females are less likely to deceive than males, but they do so to a greater extent, i.e., they are more likely to use full—rather than partial—deception than males. This result is robust to controlling over an extended set of personal and parental characteristics, including the frequencies of play of different gambling games, monetary expenditure, age, school performance, place of residence, living with parents, parents' education and occupational status. Further analyses reveal that gender differences are particularly pronounced for good school performance, at 15 and 18 years or older, in areas where gambling is not as widespread, and for certain types of games such as on-site entertainment machines and luck games. Our findings reveal that females are not univocally more honest than males, and stress the importance of considering gender differences in deception for effective gambling prevention policies.

1 | INTRODUCTION

Adolescents' deception is a crucial problem of growing concern for parents, teachers, and clinicians (Brocas & Carrillo, 2020, 2021; Engels et al., 2006). Indeed, deceiving behavior during adolescence—even if occasional—has been shown to turn into a persistent personality trait (Gervais et al., 2000; Halpert, 2000; Stouthamer-Loeber, 1986), and it is an early indicator of antisocial behaviors such as aggression, delinquency, and classroom disruptive behavior (Gervais et al., 1998; Mitchell & Rosa, 1981; Stewart & de Blois, 1985), as well as depressive symptoms (Dykstra et al., 2020). Analyzing deception about gambling accrues further relevance, mainly for two reasons: first, gambling tends to develop into an addiction with negative consequences for the health and wellbeing of adolescents; and second, gambling is not allowed under a certain "legal age" (18 years old in Italy, like in many other countries). For respondents under the age of 18, the mere admission of a gambling activity implies an infringement of the law. If detected, deception about gambling has negative consequences in the family environment (undermining the parent-adolescent relationships), and formal and informal social sanctions. Hence, identifying the drivers of gambling deception among adolescents and the socioeconomic characteristics of deceivers has important implications for designing effective policy for addiction prevention, as well as providing support for families and adolescent gamblers.

The question that has not yet been clearly answered is whether, how much, and when (i.e., under which conditions) adolescents deceive their parents about their gambling habits. In this paper, we precisely address this issue by looking at gender differences in reporting gambling practices to parents. For this purpose, we use data from De Luigi et al. (2018), a large-scale survey conducted in 2014 in Italy involving high school students aged 13 to 22 years old. Here, we focus on a subsample of the dataset, namely adolescents who actively played gambling games in the year preceding the administration of the survey (5,435 out of 11,414 observations). Drawing on Sobel's (2020) definition of deception, we measure deception in its two key dimensions: the extensive margin (whether to deceive or not) and the intensive margin (how much to deceive). The novel, rich set of personal and parental background factors available in De Luigi et al.'s (2018) dataset further allows us to analyze whether and which of those factors affect gender differences in deception.

Our results reveal that females have a more polarized deceiving tendency than males: they are less likely to deceive than males, but—if they deceive—they tend to do so to a full extent. Instead, males are more likely to "fudge," namely deceiving just what is needed. These gender differences are robust to controls over an extended set of personal and parental background factors, including the frequency of playing gambling games, age, school performance, geographical area, expenditure on gambling games, parental environment, parents' level of education and occupational status. Crucially, our findings are also robust to controlling for different types of gambling games, including online skill games (e.g., online poker, online betting), offline skill games and on-site entertainment machines (e.g., sports betting, slot machines), lotteries and other luck games (e.g., scratch cards, lotto). Additional analyses reveal that females are more likely to fully deceive their parents than males when frequently playing offline skill games (slot machines) and luck games (SuperEnalotto, lotto, bingo).

This study links for the first time two strands of work that have hitherto developed independently: the experimental literature on gender differences in deception with research on adolescent gambling behaviors from social psychology and economics. To our knowledge, no study in the literature thus far has analyzed gender differences in deceiving at both margins using survey data, nor whether those differences vary with other personal and contextual factors. Indeed, most prior contributions on gender differences in deception have focused on the extensive margin (i.e., to deceive or not), and are based upon experimental data gathered through laboratory games (e.g., Capraro, 2018). We extend this line of work by (i) distinguishing between the two dimensions of deception, both extensive and intensive margins; and (ii) exploring deception in a natural context between adolescents and their parents by analyzing a novel, wide set of individuals' and parents' characteristics. In doing so, our study also contributes to the literature on adolescent gambling behaviors, which has thus far strongly been male-biased despite the growing "feminization" of gambling (Abbott et al., 2018; McCarthy et al., 2019; Wardle, 2017), and has recently

called for more research about the specific Italian context, characterized by a significant percentage of adolescent gamblers (Calado et al., 2017; De Luigi et al., 2018; Tani et al., 2021).

Our findings speak to both researchers and policymakers by showing the relevance of (i) analyzing not predominantly the extensive but also the intensive margin of deception, wherein gender differences are more pronounced and consistently significant across a rich set of background variables; (ii) examining not predominantly males' but also females' gambling patterns and motivations, since although they play less than males on average, they tend to hide it to the full extent; and (iii) considering gender differences in deception to effectively design gambling prevention policies.

The remainder of the paper is organized as follows. In the next section, we review the related literature. In Section 2, we describe the survey, the variables used in our analysis, and sample summary statistics. Section 3 reports the results. In Section 4, we summarize and discuss our findings. In Section 5, we provide research and practical implications, together with ideas for future research.

1.1 | Literature Review

In the literature, lying and deception are often considered synonymous and used interchangeably (e.g., Childs, 2012, 2013; Dreber & Johannesson, 2008; Dugar et al., 2019; Erat, 2013; Gneezy, 2005; Gylfason et al., 2013), with a slight predominance of the former term (e.g., in lab experiments; Gneezy et al., 2018; Ben-Ner & Hu, 2021). However, recent contributions have defined and proven a clean difference between the two terms (e.g., Charness et al., 2021; Sobel, 2020). Sobel (2020) defines a lie as a statement that the sender knows to be false, and no evaluation of the implications of the lie—the motivation of the sender, the consequences for the receiver—is considered. Deception instead requires a message or action by the sender that influences the behavior of the receiver, through the inducement of erroneous beliefs about the true state of the world. Deception therefore requires that the sender ascertains the beliefs of the receiver. Deception could be the consequence of a direct and plain lie, but it could also be the outcome of other actions, messages, or announcements (e.g., hiding the truth, Serra-Garcia et al., 2011). Following Sobel's (2020) definitions, we broadly frame this paper within the literature on deception.

Gender differences in deception have been carefully investigated in recent decades, although the evidence produced thus far provides an unclear and even contradictory picture (for reviews, see, e.g., Capraro, 2018, and Lohse & Qari, 2021).[1] The majority of studies show that females are more likely to tell the truth than their male counterparts (e.g., Abeler et al., 2019; Cappelen et al., 2013; Conrads et al., 2014; Fries et al., 2021; Grosch & Rau, 2017; Houser et al., 2012; Houser et al., 2016; Rosenbaum et al., 2014). Several—mainly sociological and psychological—explanations have been advanced to explain this gender difference: women have a higher degree of self-control and hence less frequently disobey rules (Burton et al., 1998; Higgins, 2004), they have a higher social value orientation (Grosch & Rau, 2017), and a stronger tendency to feel shame about what society considers a dishonest action (Rebellon et al., 2015). Women are also less likely to behave with immoral intent than men (Ward & King, 2018), and conform to gender stereotypes (Shurchkov & van Geen, 2019).

Nonetheless, other studies have cast doubts about females' higher degree of truthfulness. Various contributions show no differences in deceptive attitudes between genders (e.g., Abeler et al., 2014; Bucciol et al., 2013; Childs, 2012; Djawadi & Fahr, 2015; Erat & Gneezy, 2012; Ezquerra et al., 2018; Gylfason et al., 2013; Holm & Kawagoe, 2010; Lundquist et al., 2009). Others report mixed results (Chowdhury et al., 2021; Jung & Vranceanu, 2017), revealing that gender differences vary based on contextual and personal factors (e.g., Capraro, 2018; DePaulo et al., 1996; Guerra & Zhuravleva, 2022), and could even be reversed, with women

[1]For a review of gender differences in behavior, see Croson and Gneezy (2009). For a survey of recent evidence on the determinants of lying, cheating, and stealing, see, e.g., Irlenbusch and Villeval (2015); Shalvi et al. (2015); Gerlach et al. (2019).

behaving more dishonestly than men (Ruffle & Tobol, 2017). Overall, this unclear picture means that gender differences in deceiving are "still relatively unexplored" (Kajackaite & Gneezy, 2017, p. 440).

There are relatively few contributions on lying to parents among adolescents (for a review, see, e.g., Engels et al., 2006). Using survey-based data,[2] a strand of research in the social psychology literature shows that males lie more than females (Keltikangas-Järvinen & Lindeman, 1997; Stouthamer-Loeber, 1986). Males also tend to be more tolerant towards other transgressions such as academic cheating and sexual betrayal (Cauffman et al., 2007; Feldman et al., 2000; Jensen et al., 2002; Keltikangas-Järvinen & Lindeman, 1997).[3]

Deceptive actions are notoriously difficult to observe and measure using field data (Zitzewitz, 2012). Unsurprisingly, most empirical evidence on gender differences in deceiving comes from controlled laboratory experiments (for reviews, see Capraro, 2018; Sobel, 2013, 2020), mainly in the form of cheap-talk games à la Crawford and Sobel (1982), or sender-receiver games as in Gylfason et al. (2013).

Those laboratory experiments mostly focus on lying and share the following features:

1. Gender differences are generally analyzed in terms of the *frequency* of lying (extensive margin) while omitting the *size* of the lie (intensive margin).[4] Nonetheless, any deceiving decision entails *both* dimensions, namely whether to deceive *and* to what extent (Duncan & Li, 2018; Fries et al., 2021; Gneezy et al., 2018; Khalmetski & Sliwka, 2019).
2. In most studies on lie detection, lies are not endogenous but *artificially enforced* (Holm & Kawagoe, 2010).
3. Deceiving in the lab occurs as a *one-shot* action between *strangers*, and therefore it does not trigger any consequences for personal relationships (Childs, 2012; Dreber & Johannesson, 2008; Gylfason et al., 2013).[5] Nonetheless, in many real-world contexts deceiving occurs between non-anonymous agents (parents, relatives, friends, colleagues), and may compromise personal relationships over time (e.g., Finkenauer et al., 2002). In turn, this may affect the decision to deceive in the first place.

In addition, most experimental studies involve undergraduate and graduate students from a single (or maximum two) location(s) within a country, and the sample size does not generally reach more than 500 observations. Our research addresses the above-mentioned drawbacks of prior experimental evidence by (1) analyzing gender differences not only with respect to the frequency of deceiving but also its extent, i.e., full-extent or partial deception; (2) using survey-based data wherein deceiving has not been artificially enforced but rather occurs in a natural context; and (3) exploring deception not between strangers but rather by adolescents towards parents, with possible relationship consequences. In addition, our sample size reaches more than 5,000 observations, which is—to the best of our knowledge—the *largest* dataset used to analyze gender differences on deceiving tendencies at both the extensive and intensive margins. Finally, the survey was administered in different geographical locations within Italy, which allows us to test whether gender differences vary across areas with different gambling cultures and social capital (Brenner & Brenner, 1990: 181–97; Pryor, 2007, 2008).

Whereas the experimental method is a standard methodology that allows researchers to perfectly control the context in the lab (Kagel & Roth, 2020), deceiving in out-of-the-lab environments may be perceived differently.[6]

[2]For a discussion on methodological issues in assessing deception among adolescents by means of self-reports, see, e.g., Gervais et al. (2000) and Engels et al. (2006).

[3]A few experimental papers have examined deception among children and adolescents (e.g., Bucciol & Piovesan, 2011; Glätzle-Rützler & Lergetporer, 2015; Houser et al., 2016; Brocas & Carrillo, 2021; see Sutter et al., 2019, for a review). Yet, none of those contributions focus on gender differences.

[4]Three exceptions include Friesen and Gangadharan (2012), Brocas and Carrillo (2021), and Fries et al. (2021), which provide mixed results. Friesen and Gangadharan (2012) and Fries et al. (2021) carried out lab experiments involving undergraduate and graduate students, finding that males are more likely to cheat than females, and that they cheat by a greater extent when they are dishonest. Brocas and Carrillo (2021) carried out dice games involving two distinct set of participants, namely school-age students from 5 to 17 years old, and undergraduates. They found no gender differences in either sample.

[5]This even holds in the few contributions that have introduced face-to-face lying to analyze lie detection beliefs (Holm & Kawagoe, 2010; Lohse & Qari, 2021).

[6]On different (cheating) behavior between a student sample and a representative sample in the laboratory, see, e.g., Fosgaard (2020). See also Hartog et al. (2002) and Beckmann and Menkhoff (2008).

Echoing Holm and Kawagoe's (2010) words, "deception at the poker table is likely to be considered less serious than lying to friends at the dinner table" (p. 311). Moreover, genders have been shown to differently respond to lab conditions, with women being more sensitive to changes in experimental conditions than men (Croson & Gneezy, 2009; Miller & Ubeda, 2012; but c.f., Fries et al., 2021). Our research seeks to address these considerations, which—coupled with the mixed results achieved thus far—call for exploring deceiving behavior and related gender differences in less abstract contexts.

2 | METHODS AND DATA

In this section, we describe the survey (Section 2.1), the variables used in our analysis (Section 2.2), and the sample along with descriptive statistics (Section 2.3).

2.1 | Survey

We use data from De Luigi et al. (2018), which were gathered through the "Gioco e Giovani" (in English: "Game and Youths") survey jointly designed by a team of researchers from the University of Bologna and the economics research institute Nomisma based in Bologna.[7] In this section, we briefly describe the survey and refer to De Luigi et al. (2018) for more details on its structure and related validation procedures.

The survey investigates the attitudes and patterns of gambling activities among adolescents (Italian high school students),[8] their schooling status, and a series of personal and socioeconomic characteristics. Individual data are collected at the school level. The schools included in the survey were selected randomly among all Italian high schools. Each school was asked to randomly select (at least) one class for every grade. The survey hence collects detailed information about the gambling habits of adolescents of different ages (from 14 to 18 years old or older), enrolled in different types of high schools (from lyceums to technical and vocational schools), and living in different geographical areas.

After testing a pilot survey administered in June 2014, the data were collected during the fall semester of 2014, mainly through an online form using schools' labs, which guaranteed complete anonymity and voluntary participation. The survey was designed to avoid positing questions in a direct and intrusive format, which could have induced non-responses and responses bias (De Schrijver, 2012; Tourangeau & Yan, 2007). This procedure then tends to reduce any social desirability bias (Larson, 2019).

The survey allowed collecting information on a wide range of participants' characteristics, activities, and attitudes. Here, we focus on respondents' gender and the specific questions related to their deceiving tendencies towards parents about their gambling habits. To better isolate the effect of gender on deception, we need to control for those variables that are likely correlated with deception, gender, and gambling habits. Hence, we also use information about the frequency of gambling activities, monetary expenditure on gambling, age, school performance, type of school attended, place of residence, living with parents, parent's education level and occupational status, all of which likely affect gambling frequency, deception patterns, and gender differences (De Luigi et al., 2018). To further disentangle the gender effect from that of gambling games, we also use information about the frequencies of play of thirteen different types of gambling games.

[7]More information about Nomisma is available at the webpage https://www.nomisma.it (last accessed: September 2021).

[8]We acknowledge that as the data are conditional on school attendance, we have no information about the gambling activity and deception behavior of adolescents not attending school. Although school attendance in Italy is compulsory up to 16 years old and high school students represent the majority of Italian adolescents, we cannot exclude a priori that adolescents not attending school might systematically differ from those attending school—including across genders—in terms of their gambling activity and deception behavior.

2.2 | Measures

Our focus is on individuals' deception patterns, which are measured via the following survey question:

> "If you played in 2013: Do your parents know that you are gambling/betting?"

Possible responses were:

- Yes, they know all the games I play.
- Yes, but I report them only some types of games.
- Yes, but I report that I play less often than I really do.
- No, they do not know.

This question allows us to analyze two dimensions of deception: the *extensive* margin, i.e., whether to deceive (either to a full extent or partially) or not; and the *intensive* margin, distinguishing between full-extent or partial deception. To separately explore these two dimensions, we created two dummy variables:

- *Extensive Margin (of Deception)*, equal to 1 for deception (i.e., for the responses "Yes, but I report them only some types of games," or "Yes, but I report that I play less often than I really do" and "No, they do not know all the games I play"), and 0 for no deception (i.e., for the response "Yes, they know all the games I play");
- *Intensive Margin (of Deception)*, equal to 1 for full-extent deception (i.e., for the response "No, they do not know"), and 0 for partial deception (i.e., for the response "Yes, but I report them only some types of games," *or* "Yes, but I report that I play less often than I really do").

We start with a basic analysis including information on gender ("*Male*," 1 for males), age ("*Age group*"), and place of residence ("*Geographical area*"). This latter takes three values corresponding to the three commonly-used macro-regions of Italy—namely, "North," "Center," and "South"[9]—and proxies strong and deeply rooted regional differences in terms of gambling cultures, economic conditions as well social and cultural capital (Putnam, 1994).[10] The basic analysis considers other three variables: the frequency of gambling ("*Frequency of play*," three-point scale: Rarely; Once a month; Once a week or more); a self-assessment of personal school performance ("*School performance*;" four-point scale: Poor, Fair, Good, Excellent); and the type of school attended ("*Professional school*;" 1 for professional school, 0 for other types of high schools including technical institutes, lyceum, and others).

We then assess the robustness of our approach by adding an extended set of additional control variables. Specifically, to better disentangle the gender effect on deception from that of gambling games, we consider the frequencies of play of thirteen different types of gambling games—including, e.g., online poker; on-site entertainment machines; sports betting; national lotteries—and their interactions with the gender variable. To control for socioeconomic status and educational background, we use the parents' education level and occupational status. Since differences in the parental environment may induce different effects on deception, we also include information about the respondent's living situation (i.e., living with both parents, either one of them, or separately but a bit with both). As an additional control variable, we include monetary expenditure on gambling games, as differences in expenditure may have significantly different effects on deception.

[9]This classification is used by the Italian National Institute of Statistics (ISTAT). Specifically, "North" includes the regions of Piemonte, Valle d'Aosta, Lombardia, Trentino-Alto Adige, Veneto, Friuli-Venezia Giulia, Liguria, and Emilia Romagna; "Center" includes Toscana, Umbria, Marche, and Lazio; and "South" includes Abruzzo, Molise, Campania, Puglia, Basilicata, Calabria, and the Islands, Sicilia and Sardegna. For more details, see https://www.istat.it/ (last accessed: September 2021).

[10]On the role of the country of residence, see also May et al. (2018) and—more broadly—Berggren et al. (2020).

Detailed descriptions of our variables are given in Table S9 in the supporting information, and descriptive statistics are reported in the next section.

2.3 | Sample and Descriptive Statistics

A total of 11,414 participants completed the survey. A quality control of data was conducted upfront to identify and drop incoherent or incomplete questionnaires. This process yielded eliminating 522 observations. The dataset gathered by De Luigi et al. (2018) comprises 10,892 respondents. Since 40 subjects reported gambling habits but did not respond to the key question about deception, they were dropped from our analysis. Hence, our final dataset comprises 10,852 observations. Given our research purpose, we focus on participants who actively gambled in the year preceding the administration of the survey, i.e., 5,435 gamblers.[11] Among gamblers, we distinguish two different subsamples: the "Deceivers" (N = 1,593; 29.31%) vs. "No Deceivers" (N = 3,842; 70.69%), and among the "Deceivers" the subsample of "Full Deceivers" (N = 1,016; 63.78%) vs. "Partial Deceivers" (N = 577; 36.22%). Table S10 in the supporting information provides descriptive statistics by gender, for the sample of "Gamblers" (Col 1) as well as separately for the two subsamples of "Deceivers" (Col 2) and "Full Deceivers" (Col 3).

Overall, 1,593 out of 5,435 (29.31%) adolescent players deceive their parents about their gambling activities either partially or fully, slightly lower than the frequency reported by prior lab or field studies. In the lab, Gylfason et al. (2013), found that 81 of 184 (44.0%) individuals cheated another anonymous participant by sending a deceptive message, while this proportion was 57% in Childs (2012), 47% in Dreber and Johannesson (2008), 44% in Sutter (2009), and 36% in Gneezy (2005). In the field, Jensen et al. (2002) found that 32–67% of high school students engage in deception on different matters, Bucciol et al. (2013) found that 43% of individuals engage in fare-dodging—i.e., commuting by bus without a valid ticket—and Djawadi and Fahr (2015) found that more than 32% of the population cheat for their gain. The relatively low frequency of deceivers found in our data is unsurprising given the specific context that we are analyzing. Here, deception is towards parents, with potential consequences in terms of compromised family relationships, e.g., reduced trust between parents and children. In this case, the intrinsic cost of deception is plausibly higher than in contexts where deception is a one-short act directed towards stranger(s).[12]

Our sample of gamblers (Col 1 in Table S10) includes 3,345 (61.55%) males, 50.40% and 34.32% individuals from the North and South of Italy, respectively, and 15.57% individuals attending professional schools. Age ranges between 13 and 22 years old, with most individuals (27.88%) aged 18 years old or above. Among the 5,435 gamblers, almost 83.3% reported a frequency of play of at least once a month, although most of them declared that they play rarely (66.70%) and have a fair school performance (59.38%). Those frequencies are roughly confirmed when separately considering the subsamples of deceivers (Col 2 in Table S10) and full deceivers (Col 3 in Table S10).

The descriptive statistics in Table S10 provide a first glimpse of gender differences in deception. At the extensive margin, we observe a higher share of males among deceivers at 30.70% vs. 27.08% for females. Instead, at the intensive margin the share of full deceiver males is lower at 56.28% vs. 77.39% for females, and hence higher in the case of partial deception at 43.72% vs. 22.62% for females. We analyze those differences in greater detail in the following sections.

[11]See also Table S11, which reports descriptive statistics by gender, for both the sample of gamblers and the "left out" sample of non-gamblers. In Table S12, we report balance tests by gender in the sample of gamblers (Col 2), in the full sample of respondents (Col 1), and in the "left out" sample of non-gamblers over an extended set of variables. P-values of the difference in means are computed according to Chiapello (2018) and reported in squared brackets. Standard errors are clustered at the school level. The results show that gender differences are mostly consistent across subsamples, hence providing some support to the representativeness of our sample of gamblers.

[12]See also Holm and Kawagoe (2010), who found that truthful behaviors are significantly more common in "more natural" contexts—like face-to-face experiments—than other "more abstract" frameworks, like standard, computer-mediated experiments.

3 | RESULTS

In this section, we analyze gender differences in deception by using non-parametric tests (Section 3.1) and regression analyses (Section 3.2). In Section S2 of the supporting information, we provide some robustness checks.

3.1 | Non-parametric Tests

To test whether gender differences in deception are statistically significant, we conduct a series of chi-squared tests adjusted for clustering at the school level ("clχ^2") to account for the potential correlation of the error term within schools.

Figure 1 reports the proportions of males (grey bars) and females (black bars) using deception at the extensive and intensive margins, with 90% confidence bands (vertical lines), and the number of observations ("N" below each bar). At the extensive margin, 566 out of 2,090 females are deceivers (27.08%), whereas 1,027 out of 3,345 males are deceivers (30.70%). However, this difference is not statistically significant (clχ2 p-value = 0.111). At the intensive margin, 1,016 deceivers out of 1,593 *fully* deceive their parents (63.78%), with 438 of 566 females (77.39%) and 578 of 1,027 males (56.28%) fully deceiving. This difference is statistically significant (clχ2 p-value<0.001), showing that once females deceive, they are more likely to be full rather than partial deceivers than males.[13]

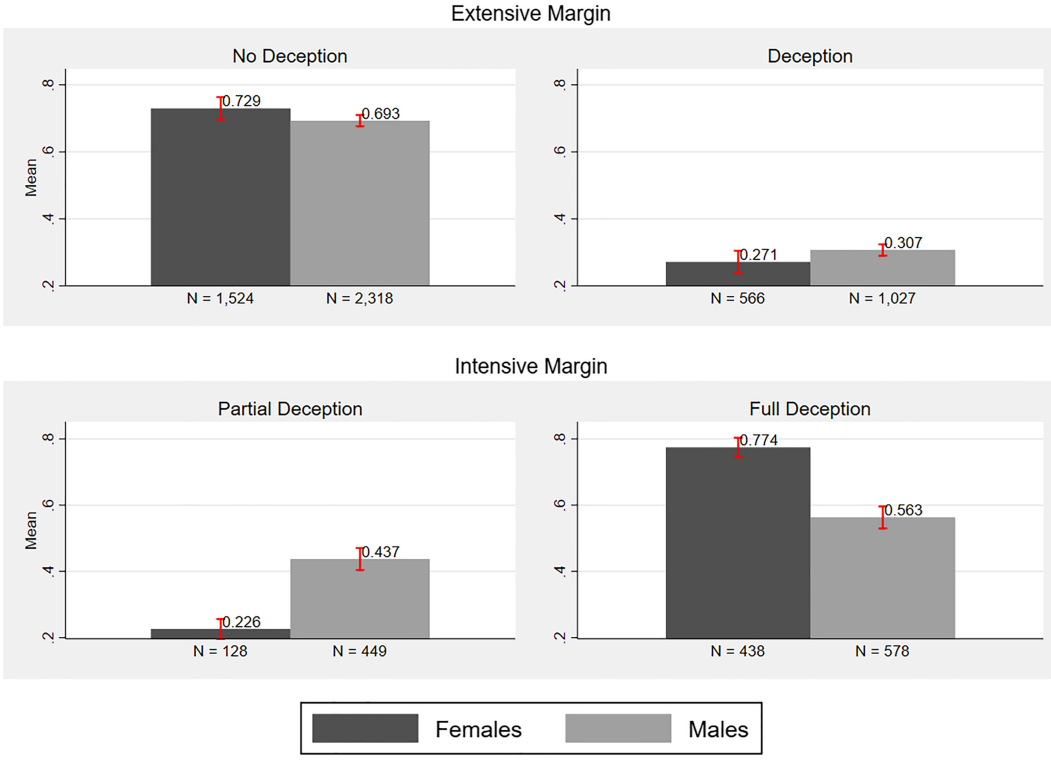

FIGURE 1 Proportion of males and females using deception at the extensive and intensive margins (with 90% confidence bands and number of observations). *Note:* Vertical lines represent 90% confidence bands, with standard errors clustered at the school level. "N" stands for the number of observations. [Colour figure can be viewed at wileyonlinelibrary.com]

Next, we test whether these gender differences remain consistent across some individual characteristics and different types of gambling games. Figure 2 shows the proportion of males (white marker) and females (black marker) using deception at each margin, separately by some key personal characteristics: frequency of play (Figure 2a), school performance (Figure 2b), age group (Figure 2c), and geographical area (Figure 2d). In each graph, the star indicates that the proportion of males and females using deception is statistically different at the 10% significance level or lower, with p-values from $\chi 2$ tests adjusted for clustering at the school level.

Figure 2 mostly confirms the general result shown in Figure 1: for each of the four characteristics, females are less likely to use deception than males (but in most cases this is not statistically significant), and if they deceive, they are more likely to fully—rather than partially—deceive their parents (instead, this is statistically significant in most of the cases).

More specifically, regarding the frequency of play (Figure 2a), the proportions of males and females significantly differ only at the intensive margin and at the lowest frequencies of play, with more females using full-extent deception vs. partial deception than males (for "Rarely:" 83.23% vs. 75.39%; cl$\chi 2$ p-value = 0.014; for "Once a month:" 55.56% vs. 35.68%; cl$\chi 2$ p-value = 0.005). Considering school performance (Figure 2b), at the extensive margin the proportions of males and females significantly differ only at the "Good" level, with more males deceiving than females (26.38% vs. 20.16%; cl$\chi 2$ p-value = 0.031). At the intensive margin, gender differences are always significant at each school performance level (all cl$\chi 2$ p-values < 0.01). Regarding age group (Figure 2c), at the extensive margin the proportions of males and females significantly differ only at over 17 years old (cl$\chi 2$ p-value = 0.041), with females being less likely to deceive than males. At the intensive margin, gender differences are significant at each age level (all cl$\chi 2$ p-values < 0.001)—with more females fully rather than partially deceiving than males—except at 16 years old. Considering geographical area (Figure 2d), the proportions of males and females significantly differ only at the intensive margin in each geographical area, with more females using full—rather than partial—deception than males (cl$\chi 2$ p-values < 0.001 for "North" and "South;" cl$\chi 2$ p-value = 0.055 for "Center").

Next, we test whether gender differences are statistically significant across different types of gambling games. Similar to Figure 2, Figure 3 shows the proportion of males (white marker) and females (black marker) using deception at each margin of deception, separately by type of gambling game. As in Figure 2, in Figure 3 the star indicates that the proportion of males and females using deception is statistically different at the 10% significance level or lower, with p-values from $\chi 2$ tests adjusted for clustering at the school level. In each graph, the y-axis reports four levels of frequency of play: 0 stands for "Never;" 1 for "Rarely;" 2 for "Once a month;" and 3 for "Once a week or more."

Regarding the type of game, we distinguish between (i) "online skill games" (Panel A in Figure 3), including online betting, online poker, online casino, and other online skill games; (ii) "offline skill games and on-site entertainment machines" (Panel B), including slot machines and video lottery, sports pools, sports betting (betting shop), and horse race betting (betting shop); and (iii) "lotteries and other luck games" (Panel C), including lotto, SuperEnalotto (a powerball-type game), scratch cards, bingo, and national lotteries.[14]

The graphs in Figure 3 generally confirm the main result shown in Figure 1 and 2, but also reveal that differences exist between males and females for specific types of games. Females tend to use deception less often than males, but in most cases this difference is not statistically significant except for online casino and other online skill games (Panel A), slot machines and video lottery, sports betting at betting shops (Panel B), SuperEnalotto and scratch cards (Panel C). It is worth noting that this difference is reversed—with more females using deception than males—when "Rarely" playing online poker. At the intensive margin, the fact that more females fully—rather than partially—deceive their parents is statistically significant in each type of game, for at least one frequency of play. This result is remarkably consistent across almost all frequencies of play for online poker and other skill games (Panel A), slot machines and video lottery (Panel B), SuperEnalotto, scratch cards, and bingo (Panel C).

[13]This result is sharp in contrast with Fries et al.'s (2021) experimental results, showing that males are not only more likely to cheat than females, but they also cheat to a greater extent conditional upon being dishonest.

[14]For a similar categorization of gambling games, see De Luigi et al. (2018).

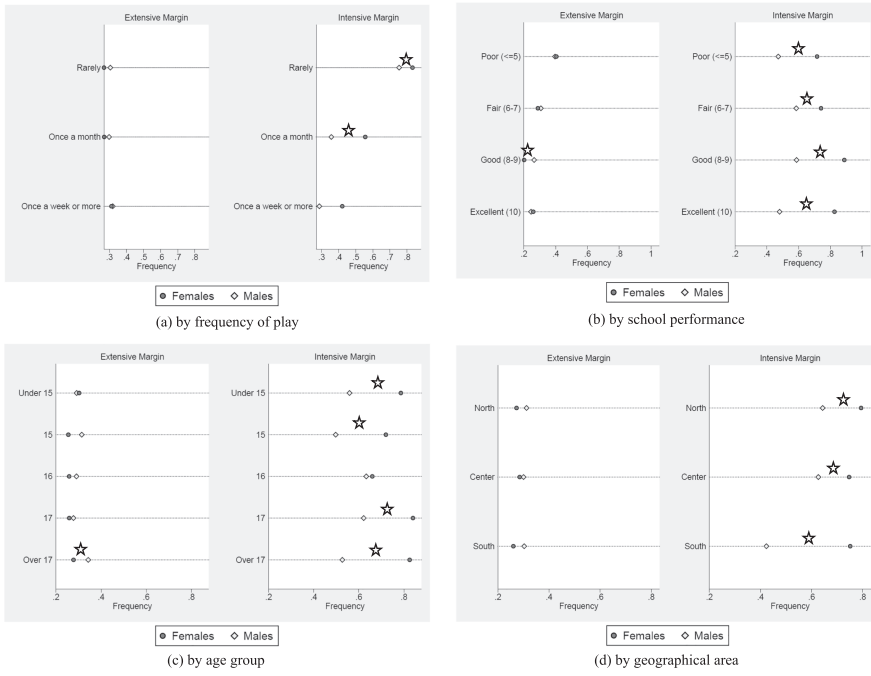

FIGURE 2 Proportion of males and females using deception at the extensive and intensive margins, by personal characteristics. *Note:* The star indicates that the proportion of males and females using deception is statistically different at the 10% significance level or lower, with $\chi 2$ tests adjusted for clustering at the school level ("clχ2"). As a reading example, consider the frequency of play (Figure 2a): at the extensive margin, gender differences in deception are not statistically significant, at neither levels of frequency of play (no stars in the graph), while at the intensive margin, the proportions of males and females significantly differ only at the lowest frequencies of play, with more females using full rather than partial deception than males (for "Rarely:" 83.23% females vs 75.39% males; clχ2 p-value = 0.014; for "Once a month:" 55.56% females vs 35.68% males; clχ2 p-value = 0.005). Consider school performance (Figure 2b): at the extensive margin, the proportions of males and females using deception are statistically significant only at the "Good" level, with more males using deception than females (26.38% males vs 20.16% females; clχ2 p-value = 0.031), while at the intensive margin, gender differences are always significant at each school performance level, with more females using full rather than partial deception than males (all clχ2 p-values < 0.01).

While providing some preliminary evidence, these descriptive statistics do not permit us to isolate the gender effect on deception from the effects of all the different types of gambling games, nor the various effects of personal and parental background. In the next section, we conduct econometric analyses to analyze the impact of gender on deception while controlling for an extensive set of covariates and interaction effects.

3.2 | Regression Analyses

To disentangle the gender effect on deception from other effects including those linked to different gambling games, as well as further controlling for individual and parental background, we perform a series of logit regressions where we continue to distinguish between the extensive and intensive margins of deception. We consider two dependent variables: the "*Extensive Margin*" and "*Intensive Margin*." *Extensive Margin* is equal to 1 if the player deceives his/her parents about the gambling activity (either partially or fully), and 0 if s/he does not. *Intensive Margin* is equal to 1 if—

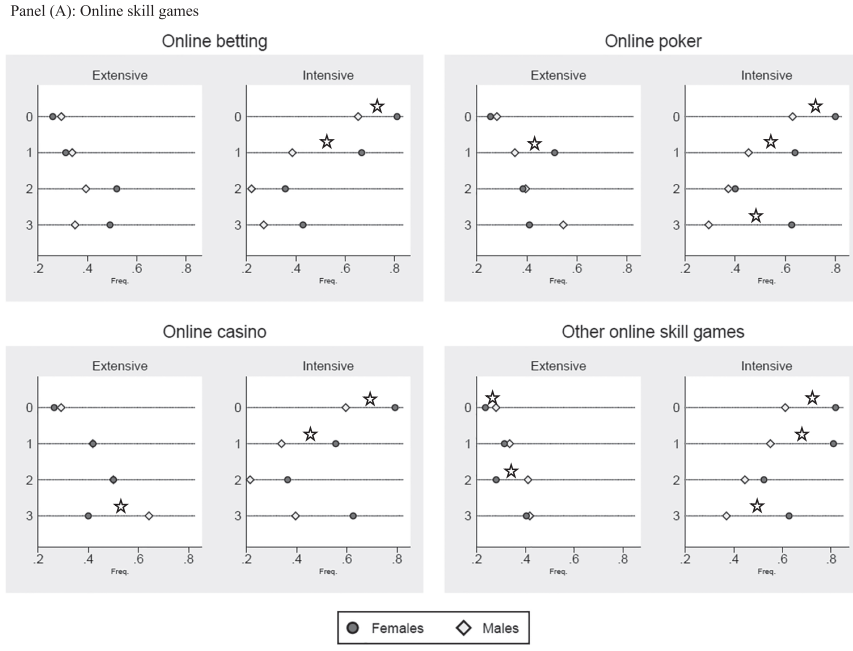

FIGURE 3 Proportion of males and females using deception at the extensive and intensive margins, by types of gambling game. *Note:* The star indicates that the proportion of males and females using deception is statistically different at the 10% significance level or lower, with $\chi 2$ tests adjusted for clustering at the school level. The y-axis indicates the frequencies of play: 0 stands for "Never"; 1 for "Rarely"; 2 for "Once a month"; 3 for "Once a week or more." Extensive and Intensive stand for the extensive and intensive margins of deception, respectively. Panel (A): Online skill games; Panel (B): Offline skill games and on-site entertainment machines; Panel (C): Lotteries and other luck games.

conditional upon deception (*Extensive Margin* = 1)—the player fully deceives his/her parents, and 0 if s/he deceives only in part, i.e., telling his/her parents that s/he plays less than the real frequency.

Our key independent variable is the gender dummy "*Male*" (1 for males). We start by considering a basic set of control variables and their interactions with the gender dummy. Next, we show the robustness of our approach by including a wider set of covariates. As in our statistical tests, in all our regression analyses standard errors are clustered at the school level to account for potential within-school correlation.

Table 1 reports the marginal effects of logit regressions for two different specifications: the "Basic Model" in Col (1) includes only the gender dummy (*Male*), while the "Basic Model + Controls" in Col (2) adds controls on the *Frequency of play*, *Geographical area*, *School performance*, *Age group*, and *Professional school*.[15] We report the corresponding logit coefficients in Table S1 in the supporting information. The estimates confirm the main result: males are significantly more likely than females to deceive but less likely to use full deception. Indeed, in both Cols (1) and (2), *Male* is positive at the *Extensive Margin* but negative at the *Intensive Margin*, and statistically significant at the 10% (5% in Col 2) and 0.1% levels, respectively. Gender differences are quantitatively large, especially at the intensive margin: males are almost 4% *more* likely to deceive but approximately 21% *less* likely to fully deceive than females (Col 1). When controls are added (Col 2), the estimated effects at the intensive margin drop to 10.9%.

[15]We stress that the estimates that we report do not imply causation. Our variables may capture the effect of other variables omitted from the specification, noticeably those related to the benefits and costs of deception, including, e.g., family or peer effects (for related discussions, see Gwozdz et al., 2019; Bucciol et al., 2013; Nikolaou, 2019).

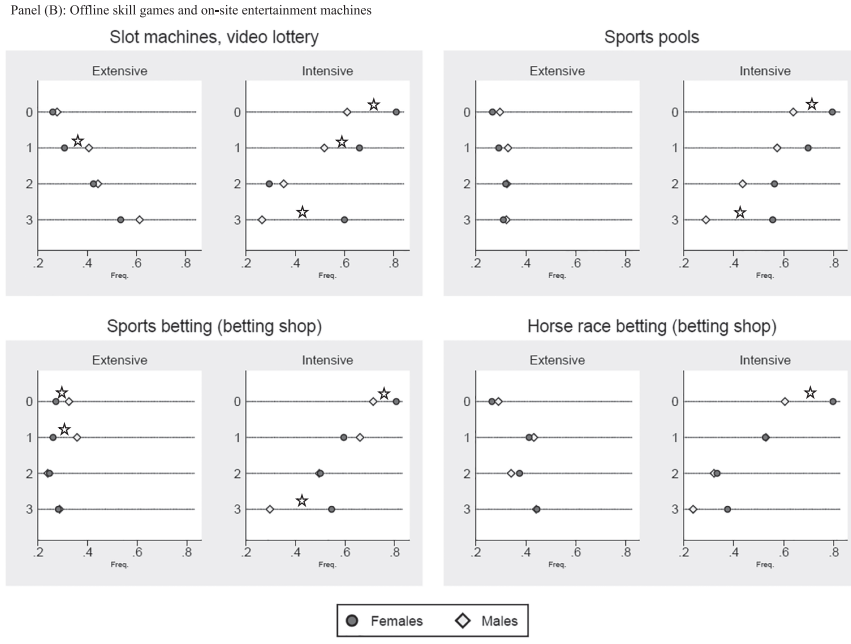

FIGURE 3 (Continued)

Col (2) further reveals statistically significant associations (at the 5% or lower levels) between deception and other control variables. Deceiving is less likely with the improvement in school performance (see the negative effects of *School performance*) and at 16 or 17 years old. Conditional upon deception, full-extent deception is less likely with an increase in the frequency of play (see the negative and increasing effects of *Frequency of play*), and among those living in the South (see the negative effects of "South"). Some covariates exert a quantitatively stronger effect on the extensive and intensive margins than the gender effect, noticeably *Frequency of play* and *School performance*. Indeed, full deception is 34.7% and 43% less likely, respectively, when deceivers play once a month, or once a week or more, in comparison with those who play rarely (Col 2, "Intensive Margin"). Deception is approximatively 14% less likely for respondents with "Good" or "Excellent" school performance, in comparison with those with a "Poor" performance. Moreover, it is worth noting the effect of *Professional school*, whereby those attending are 9.6% more likely to deceive their parents than those attending other types of schools (e.g., lyceum). The other variables—*Geographical area* and *Age group*—have a statistically significant effect on deception, with a less or equally sizable effect than the gender effect.

The results shown in Table 1 are robust to including interactions between *Male* and a series of additional key factors (*Age group*, *Frequency of play*, *School performance*, *Geographical area*). Specifically, in Table 2 we report marginal effects of logit regressions from four different specifications that include interactions between *Male* ("M") and (1) each age group in Col 1 "M # Age group," (2) each level of frequency of play in Col 2 "M # Frequency of play," (3) each level of school performance in Col 3 "M # School performance," and (4) each geographical area in Col 4 "M # Geo area." All specifications include each of the variables as taken "alone" and the other covariates as controls (including *Professional school*). In Table S2 in the supporting information, we report the estimated logit coefficients with the set of control variables fully specified.

The estimates in Table 2 provide additional support to the main result: after controlling for interaction effects, *Male* remains statistically significant at both the extensive and intensive margins (at the 5% and 0.1% significance levels, respectively), and with opposite signs, i.e., positive at the extensive margin and negative at the intensive margin.

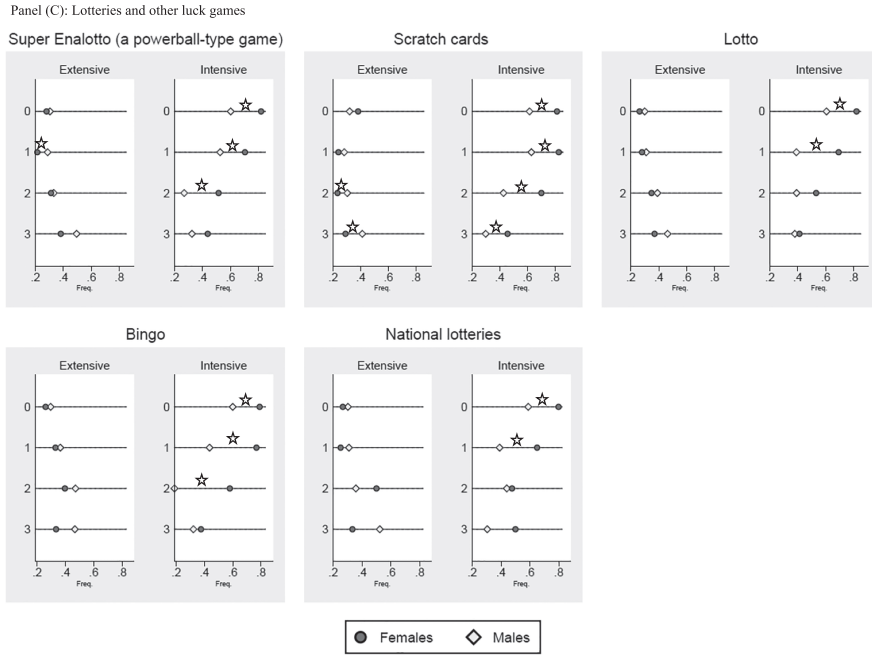

FIGURE 3 (Continued)

To test gender differences *at each value* of age group, frequency of play, school performance, and geographical area, we conducted a series of post-hoc analyses, i.e., contrasting predictive margins. The results are reported in Table 3, which shows the clustered chi-squared tests (clχ2) and corresponding p-values for gender differences ("M vs. F") at each value of each control variable analyzed in Table 2, at both the extensive and intensive margins. The contrasts of marginal predictions refine the results shown in Figure 2. Gender differences across ages are *jointly* statistically significant at the extensive margin (p-value = 0.070), and more neatly at the intensive margin (p-value<0.001). Looking *separately* at each age group reveals that gender differences are significant across age groups at either the extensive or intensive margins or both, but not at either margin at 16 years old.

Regarding the frequency of play, at the intensive margin gender differences are statistically significant both *jointly* (p-value<0.001) and *separately* at each frequency level (p-values equal to 0.002, 0.003, and 0.087 for "Rarely," "Once a month," and "Once a week or more," respectively). At the extensive margin, gender differences are significant only at the lowest frequency of play, i.e., "Rarely" (p-value = 0.044).

Considering school performance, at the intensive margin gender differences are statistically significant both *jointly* (p-value<0.001) and *separately* at each performance level. At the extensive margin, gender differences are significant only at a "Good" performance level (p-value = 0.003). Regarding geographical area, gender differences are *jointly* statistically significant only at the intensive margin (p-value<0.001).

Looking *separately* at each geographical area, gender differences are significant at both the extensive and intensive margins only in the North of Italy (p-values equal to 0.0437 and 0.0347, respectively), while only at the intensive margin in the South of Italy (p-value<0.001).

To better disentangle the gender effect on deception from the effect of different gambling games, we have conducted an additional series of logit regressions where we have included as independent variables (i) the frequencies of play of different types of gambling games, (ii) their interactions with *Male*, and (iii) an extended set of control variables. More specifically, Table 4 reports the marginal effects of logit regressions from two different specifications. In Col (1), the "Basic Model + Additional Controls" includes the dummy *Male*; the basic set of control variables

TABLE 1 Gender differences in deception (marginal effects of logit regressions)

	(1) Basic Model		(2) Basic Model + Controls	
	Extensive Margin	Intensive Margin	Extensive Margin	Intensive Margin
Male	0.037^{+} (0.020)	−0.216*** (0.027)	0.035* (0.015)	−0.109*** (0.026)
Frequency of play				
Rarely (omitted)				
Once a month			−0.006 (0.017)	−0.347*** (0.034)
Once a week or more			0.009 (0.018)	−0.430*** (0.031)
Geographical area				
North (omitted)				
Center			0.004 (0.024)	0.016 (0.022)
South			−0.009 (0.021)	−0.072** (0.027)
School performance				
Poor (omitted)				
Fair			−0.088*** (0.020)	0.018 (0.029)
Good			−0.145*** (0.024)	0.059 (0.036)
Excellent			−0.137*** (0.039)	−0.001 (0.064)
Age group				
Under 15 (omitted)				
15			−0.029 (0.024)	−0.038 (0.039)
16			−0.050^{+} (0.026)	0.018 (0.037)
17			−0.052* (0.025)	0.087* (0.034)
Over 17			−0.009 (0.021)	0.030 (0.031)
Professional school			0.096** (0.032)	−0.026 (0.028)
Observations	5,435	1,593	5,341	1,567
Pseudo R^2	0.001	0.035	0.016	0.170
BIC	6584.320	2027.370	6479.685	1804.136

Note: This table reports marginal effects of logit regressions. Standard errors in parentheses, clustered at the school level. For the estimated logit coefficients, see Table S1. The dependent variables are "Extensive Margin" and "Intensive Margin." Extensive Margin is equal to 1 if the player deceives his/her parents about the gambling activity (either partially or fully), and 0 if s/he does not. Intensive Margin is equal to 1 if—conditional upon deception (Extensive Margin = 1)—the player fully deceives his/her parents, and 0 if s/he deceives only in part, i.e. telling his/her parents that s/he plays less than the real frequency.

$^{+}p < 0.10$.

$^{*}p < 0.05$. $^{**}p < 0.01$. $^{***}p < 0.001$.

considered in Tables 1 and 2—i.e., *Frequency of play*, *Geographical area*, *School performance*, *Age group*, *Professional school*; an additional set of control variables, i.e., the frequencies of play (4-point scale: "Never;" "Rarely;" "Once a month;" "Once a week or more") for each of the thirteen different gambling games as shown in Figure 3; and *Expenditure on gambling*, *Father* and *Mother education level*, *Father* and *Mother occupational status*, and *Living with parents*. For a detailed description of the variables, see Table S9.

In "Model (1) + Interactions" (Col 2), in addition to the variables considered in Col (1), we have added the interactions between *Male* and each level of frequency of play for each of the thirteen gambling games (*Male # Frequency of play for each game*). For brevity reasons, in Table 4 we have used the checkmark symbol "✓" to indicate that the

TABLE 2 Gender differences in deception and interaction effects (marginal effects of logit regressions)

	(1) M # Age group		(2) M # Frequency of play		(3) M # School performance		(4) M # Geographical area	
	Extensive Margin	Intensive Margin	Extensive Margin	Intensive Margin	Extensive Margin	Intensive Margin	Extensive Margin	Intensive Margin
Male ("M")	0.035* (0.015)	−0.113*** (0.026)	0.034* (0.015)	−0.114*** (0.027)	0.034* (0.015)	−0.111*** (0.026)	0.035* (0.015)	−0.112*** (0.025)
Age group								
Under 15 (omitted)								
15	−0.027 (0.024)	−0.037 (0.040)	−0.029 (0.024)	−0.038 (0.039)	−0.028 (0.024)	−0.033 (0.039)	−0.029 (0.024)	−0.040 (0.040)
16	−0.048+ (0.026)	0.019 (0.034)	−0.049+ (0.026)	0.016 (0.037)	−0.048+ (0.026)	0.018 (0.037)	−0.050+ (0.026)	0.015 (0.037)
17	−0.050* (0.025)	0.089* (0.034)	−0.052* (0.025)	0.086* (0.034)	−0.051* (0.025)	0.087* (0.034)	−0.053* (0.025)	0.088** (0.033)
Over 17	−0.007 (0.021)	0.032 (0.031)	−0.008 (0.021)	0.030 (0.031)	−0.006 (0.021)	0.033 (0.032)	−0.009 (0.021)	0.032 (0.031)
Geographical area								
North (omitted)								
Center	0.004 (0.024)	0.014 (0.021)	0.004 (0.024)	0.015 (0.021)	0.005 (0.024)	0.017 (0.022)	0.004 (0.023)	0.016 (0.022)
South	−0.009 (0.021)	−0.070** (0.026)	−0.009 (0.021)	−0.071** (0.027)	−0.009 (0.021)	−0.071** (0.026)	−0.010 (0.021)	−0.071** (0.026)
Frequency of play								
Rarely (omitted)								
Once a month	−0.006 (0.017)	−0.343*** (0.033)	−0.006 (0.018)	−0.342*** (0.035)	−0.006 (0.017)	−0.343*** (0.035)	−0.006 (0.017)	−0.344*** (0.034)
Once a week or more	0.009 (0.018)	−0.424*** (0.030)	0.013 (0.022)	−0.427*** (0.037)	0.010 (0.018)	−0.426*** (0.030)	0.011 (0.018)	−0.427*** (0.030)
School performance								
Poor (omitted)								
Fair	−0.087*** (0.020)	0.012 (0.029)	−0.088*** (0.020)	0.018 (0.029)	−0.092*** (0.020)	0.018 (0.028)	−0.089*** (0.020)	0.016 (0.029)
Good	−0.143*** (0.024)	0.052 (0.036)	−0.146*** (0.024)	0.059 (0.036)	−0.146*** (0.024)	0.058+ (0.035)	−0.146*** (0.024)	0.058 (0.036)
Excellent	−0.137*** (0.038)	−0.002 (0.064)	−0.137*** (0.039)	−0.001 (0.064)	−0.144*** (0.037)	−0.020 (0.065)	−0.137*** (0.039)	−0.010 (0.065)
Professional school	0.097** (0.033)	−0.028 (0.028)	0.096** (0.032)	−0.026 (0.028)	0.095** (0.032)	−0.026 (0.028)	0.104** (0.036)	−0.021 (0.031)
M # Age group	✓	✓						
M # Frequency of play			✓	✓				
M # School performance					✓	✓		

TABLE 2 (Continued)

	(1) M # Age group		(2) M # Frequency of play		(3) M # School performance		(4) M # Geographical area	
	Extensive Margin	Intensive Margin	Extensive Margin	Intensive Margin	Extensive Margin	Intensive Margin	Extensive Margin	Intensive Margin
M # Geographical area							✓	✓
Observations	5,341	1,567	5,341	1,567	5,341	1,567	5,341	1,567
Pseudo R^2	0.017	0.174	0.016	0.171	0.017	0.174	0.016	0.173
BIC	6510.462	1825.051	6496.694	1817.988	6501.259	1817.478	6495.168	1813.386

Note: This table reports marginal effects of logit regressions. Standard errors in parentheses, clustered at the school level. For the estimated logit coefficients with the set of control variables fully specified, see Table S2. The dependent variables are "Extensive Margin" and "Intensive Margin." Extensive Margin is equal to 1 if the player deceives his/her parents about the gambling activity (either partially or fully), and 0 if s/he does not. Intensive Margin is equal to 1 if—conditional upon deception (Extensive Margin = 1)—the player fully deceives his/her parents, and 0 if s/he deceives only in part, i.e. telling his/her parents that s/he plays less than the real frequency.

$^{+}p < 0.10$.

$^{*}p < 0.05$. $^{**}p < 0.01$. $^{***}p < 0.001$.

TABLE 3 Gender differences in deception and interaction effects (contrasts of marginal predictions)

	Extensive Margin		Intensive Margin	
	clχ2	p-value	clχ2	p-value
(1) Male # Age group				
(M vs F) Under 15	0.06	0.810	4.49	0.034
(M vs F) 15	5.46	0.019	3.68	0.055
(M vs F) 16	0.76	0.383	0.20	0.658
(M vs F) 17	0.48	0.488	7.71	0.005
(M vs F) Over 17	3.88	0.049	11.38	0.000
Joint	10.18	0.070	25.57	0.000
(2) Male # Frequency of play				
(M vs F) Rarely	4.06	0.044	9.53	0.002
(M vs F) Once a month	1.58	0.208	8.54	0.003
(M vs F) Once a week or more	0.20	0.655	2.93	0.087
Joint	5.50	0.138	18.50	0.000
(3) Male # School performance				
(M vs F) Poor	0.01	0.943	5.45	0.02
(M vs F) Fair	2.12	0.145	3.60	0.058
(M vs F) Good	8.88	0.003	13.78	0.000
(M vs F) Excellent	0.00	0.996	3.36	0.067
Joint	10.13	0.038	26.46	0.000
(4) Male # Geographical Area				
(M vs F) North	4.07	0.0437	4.46	0.0347
(M vs F) Center	0.00	0.9958	0.58	0.4467
(M vs F) South	1.65	0.1987	17.78	0.0000
Joint	5.94	0.1144	23.49	0.0000

Note: This table reports contrasts of marginal predictions from the logit regressions in Table S2, with chi-squared tests adjusted for clustering at the school level ("clχ2") and corresponding p-values for gender differences ("M vs F", M for Male and F for Female) at each value of each interaction variable analyzed in Table S2, at both the extensive and intensive margins. The dependent variables are "Extensive Margin" and "Intensive Margin." Extensive Margin is equal to 1 if the player deceives his/her parents about the gambling activity (either partially or fully), and 0 if s/he does not. Intensive Margin is equal to 1 if—conditional upon deception (Extensive Margin = 1)—the player fully deceives his/her parents, and 0 if s/he deceives only in part, i.e. telling his/her parents that s/he plays less than the real frequency.

regression model includes these additional control variables and/or the set of interactions. We refer to Table S3 in the supporting information for the full specification of each control variable and interaction, and Table S4 for the estimates of the corresponding logit coefficients.

Table 4 provides further support to the main result. After controlling for different types of gambling games, interaction effects, and an extended set of covariates, the gender effect remains statistically significant in both specifications, at both the extensive and intensive margins of deception (respectively at the 5% and 1% level in Col 1; at the 10% and 0.1% level in Col 2), and with opposite signs, i.e., positive at the extensive margin and negative at the intensive margin. By considering Col 2, which includes interactions, we can see that males are approximatively 3.2% more likely to use deception than females, and 11.4% less likely to use full—rather than partial—deception than females, *ceteris paribus*.

TABLE 4 Gender differences in deception with additional controls on type of gambling game and interactions (marginal effects of logit regressions)

	(1) Basic Model + Additional Controls		(2) Model (1) + Interactions	
	Extensive Margin	Intensive Margin	Extensive Margin	Intensive Margin
Male	0.035* (0.014)	−0.072** (0.026)	0.032+ (0.018)	−0.114*** (0.031)
Frequency of play				
Rarely (omitted)				
Once a month	−0.011 (0.017)	−0.204*** (0.036)	−0.010 (0.017)	−0.206*** (0.034)
Once a week or more	−0.055* (0.024)	−0.165*** (0.048)	−0.049* (0.024)	−0.176*** (0.048)
Geographical area				
North (omitted)				
Center	−0.003 (0.022)	0.024 (0.026)	−0.003 (0.022)	0.032 (0.026)
South	−0.024 (0.020)	−0.043 (0.028)	−0.023 (0.019)	−0.046 (0.029)
School performance				
Poor (omitted)				
Fair	−0.049* (0.021)	−0.023 (0.029)	−0.045* (0.021)	−0.030 (0.030)
Good	−0.107*** (0.024)	0.015 (0.037)	−0.103*** (0.024)	0.007 (0.036)
Excellent	−0.112** (0.037)	−0.038 (0.070)	−0.110** (0.037)	−0.047 (0.074)
Age group				
Under 15 (omitted)				
15	−0.020 (0.023)	−0.045 (0.034)	−0.017 (0.023)	−0.048 (0.033)
16	−0.044+ (0.026)	0.017 (0.032)	−0.041 (0.026)	0.018 (0.031)
17	−0.043+ (0.025)	0.066* (0.031)	−0.039 (0.025)	0.069* (0.030)
Over 17	−0.011 (0.022)	0.027 (0.032)	−0.009 (0.022)	0.028 (0.032)
Professional school	0.074* (0.029)	−0.023 (0.025)	0.075** (0.027)	−0.037 (0.025)
Frequency of play for each game[a]	✓	✓	✓	✓
Expenditure on gambling	✓	✓	✓	✓
Father Education Level	✓	✓	✓	✓
Mother Education Level	✓	✓	✓	✓
Father Occupational Status	✓	✓	✓	✓
Mother Occupational Status	✓	✓	✓	✓
Living with parents	✓	✓	✓	✓
Male # Frequency of play for each game[b]			✓	✓
Observations	5,240	1,539	5,240	1,539
Pseudo R^2	0.064	0.258	0.072	0.278
BIC	6579.741	2041.755	6864.858	2288.673

Note: This table reports marginal effects of logit regressions. Standard errors in parentheses, clustered at the school level. The checkmark symbol "✓" indicates that the variable and/or the set of interactions are included in the regression model. For the full specification of each control variable and interactions, see Table S3. For the estimated logit coefficients, see Table S4. For a detailed variables description, see Table S9. The dependent variables are "Extensive Margin" and "Intensive Margin." Extensive Margin is equal to 1 if the player deceives his/her parents about the gambling activity (either partially or fully), and 0 if s/he does not. Intensive Margin is equal to 1 if—conditional upon deception (Extensive Margin = 1)—the

player fully deceives his/her parents, and 0 if s/he deceives only in part, i.e. telling his/her parents that s/he plays less than the real frequency.
[a]Frequencies of play ("Never;" "Rarely;" "Once a month;" "Once a week or more") for each of the following thirteen different gambling games: online betting, online poker, online casino, other online skill games; slot machines/video lottery, sports pools, sports betting (betting shop), horse race betting (betting shop), lotto, SuperEnalotto (a powerball-type game), scratch cards, bingo, national lotteries.
[b]Interactions between *Male* and each frequency of play for each of the thirteen gambling games.
$^{+}p < 0.10$,
$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

To test gender differences at each level of frequency of play for each of the thirteen different games, we conducted a series of post-hoc analyses—i.e., contrasting predictive margins—and report them in Table 5. Similar to Table 3, Table 5 displays chi-squared tests adjusted for clustering at the school level ("clχ2") and corresponding p-values for gender differences ("M vs. F," M for male and F for female) at each level of frequency of play, for each of the thirteen gambling games, at both the extensive and intensive margins of deception.

Here, it is worth noting that at the intensive margin the gender difference is statistically significant among "occasional" gamblers (those who play "Rarely") of online skill games (p-value = 0.0952) and lotto (p-value = 0.0029), and among "heavy" gamblers (those who play "Once a week or more") of SuperEnalotto (p-value = 0.005), on-site entertainment machines (p-value = 0.038), and lotto (p-value = 0.045). At the extensive level, the difference is statistically significant only for "heavy" gamblers of online poker (p-value = 0.027).

4 | DISCUSSION

Our results indicate that gender differences in deception are reversed at the extensive and intensive margins, with a much larger discrepancy at the latter margin: females are less likely to deceive than males, but they do so to a greater extent, i.e., they are more likely to use full—rather than partial—deception than males.

This finding—which is robust to a rich set of controls and robustness checks—can be explained through the lens of intrinsic deception costs (Abeler et al., 2014; Duncan & Li, 2018; Fischbacher & Föllmi-Heusi, 2013; Gneezy, 2005; Rosenbaum et al., 2014; Ruffle & Tobol, 2017), and reputational concerns (Gneezy et al., 2018). If breaking moral norms—including that of not engaging in deception—is costlier for females than males (Grosch & Rau, 2017), the former tends to conform to this norm more closely. Consistently, at the intensive margin, female deceivers transfer the "moral" dimension at this margin and do not admit to having broken the norm at all.[16] On the other hand, if males incur lower moral costs in infringing this norm, they are more likely to use deception at the extensive margin. At the same time, male deceivers seem to adopt an unethical, goal-oriented strategy that suggests selecting the intensity of deception that fits better at the intensive margin. Hence, as males gamble more frequently than females on average, to be more credible the former reduce the extent of deception at the intensive margin.[17]

Our post-hoc analyses on interaction effects further reveal that at the extensive margin gender differences vary across some key personal and parental backgrounds, whereas they remain rather consistent at the intensive margin (Table 3). Specifically, at the extensive margin males tend to use deception significantly more often than females at the lowest frequency of play ("Rarely"), with good school performance, at 15 and 18 years or older, and if they are resident in the North of Italy. At the intensive margin, females tend to fully—rather than partially—deceive their parents more often than males at all levels of age group (except at 16 years old), frequency of play, school performance, and geographical area (except the Center of Italy).

[16]This is in line with the "neutralization theory": among individuals who do act dishonesty, women are more likely to make excuses to justify their cheating than males (Rosenbaum et al., 2014; Ward & Beck, 1990).
[17]On a similar interpretation of deceiving behavior through the lens of reputational costs and credibility, see Gneezy et al. (2018).

TABLE 5 Gender differences in deception with additional controls on different types of gambling games and interactions (contrasts of marginal predictions)

	Extensive Margin		Intensive Margin	
	clχ2	p-value	clχ2	p-value
(A) Online skill games				
Male # Online betting				
(M vs F) Never	1.35	0.2449	1.87	0.1713
(M vs F) Rarely	0.72	0.3952	1.58	0.2091
(M vs F) Once a month	0.00	0.9538	1.40	0.2375
(M vs F) Once a week or more	0.13	0.7139	0.47	0.4938
Joint	3.04	0.5517	4.44	0.3498
Male # Online poker				
(M vs F) Never	0.03	0.8557	0.97	0.3254
(M vs F) Rarely	2.34	0.1262	0.61	0.4364
(M vs F) Once a month	0.23	0.6323	0.01	0.9341
(M vs F) Once a week or more	5.13	0.0236	1.50	0.2199
Joint	16.71	0.0022	2.98	0.5613
Male # Online casino				
(M vs F) Never	0.04	0.8387	0.28	0.5987
(M vs F) Rarely	0.03	0.8726	1.08	0.2980
(M vs F) Once a month	0.06	0.8110	1.26	0.2607
(M vs F) Once a week or more	0.60	0.4377	0.90	0.3423
Joint	0.72	0.9493	4.02	0.4032
Male # Other online skill games				
(M vs F) Never	0.07	0.7938	2.97	0.0850
(M vs F) Rarely	0.03	0.8594	2.78	0.0952
(M vs F) Once a month	1.24	0.2660	0.00	0.9765
(M vs F) Once a week or more	0.02	0.8863	0.81	0.3687
Joint	2.53	0.6396	6.09	0.1925
(B) Offline skill games and on-site entertainment machines				
Male # Slot machines/video lottery				
(M vs F) Never	0.28	0.5976	1.55	0.2138
(M vs F) Rarely	0.33	0.5655	0.61	0.4330
(M vs F) Once a month	0.49	0.4833	0.71	0.3992
(M vs F) Once a week or more	0.12	0.7272	4.28	0.0385
Joint	5.74	0.2196	6.27	0.1799
Male # Sports pools				
(M vs F) Never	0.02	0.8811	0.29	0.5891
(M vs F) Rarely	0.10	0.7518	1.31	0.2523
(M vs F) Once a month	0.00	0.9773	1.08	0.2981
(M vs F) Once a week or more	0.57	0.4511	0.35	0.5537
Joint	0.83	0.9344	1.93	0.7480
Male # Sports betting (betting shop)				

(Continues)

TABLE 5 (Continued)

	Extensive Margin		Intensive Margin	
	clχ2	p-value	clχ2	p-value
(M vs F) Never	0.00	0.9788	0.10	0.7504
(M vs F) Rarely	1.69	0.1941	0.25	0.6178
(M vs F) Once a month	0.06	0.8007	0.94	0.3312
(M vs F) Once a week or more	0.06	0.8078	0.96	0.3281
Joint	4.99	0.2878	3.34	0.5029
Male # Horse race betting (betting shop)				
(M vs F) Never	0.06	0.8048	3.53	0.0602
(M vs F) Rarely	0.14	0.7072	0.21	0.6477
(M vs F) Once a month	0.37	0.5444	0.29	0.5880
(M vs F) Once a week or more	0.01	0.9384	1.05	0.3066
Joint	0.50	0.9732	8.64	0.0707
(C) Lotteries and other luck games				
Male # Lotto				
(M vs F) Never	0.84	0.3593	7.63	0.0058
(M vs F) Rarely	0.17	0.6767	8.86	0.0029
(M vs F) Once a month	0.09	0.7625	0.13	0.7203
(M vs F) Once a week or more	0.13	0.7223	4.03	0.0447
Joint	2.08	0.7204	11.31	0.0233
Male # SuperEnalotto				
(M vs F) Never	0.01	0.9270	0.42	0.5164
(M vs F) Rarely	0.43	0.5125	1.02	0.3122
(M vs F) Once a month	0.70	0.4024	1.67	0.1956
(M vs F) Once a week or more	0.01	0.9250	7.74	0.0054
Joint	2.49	0.6461	8.96	0.0621
Male # Scratch cards				
(M vs F) Never	0.34	0.5587	1.08	0.2991
(M vs F) Rarely	0.07	0.7936	0.77	0.3792
(M vs F) Once a month	0.83	0.3631	1.32	0.2512
(M vs F) Once a week or more	0.79	0.3728	1.14	0.2860
Joint	11.58	0.0208	2.03	0.7297
Male # Bingo				
(M vs F) Never	0.90	0.3420	1.13	0.2872
(M vs F) Rarely	0.14	0.7070	2.05	0.1518
(M vs F) Once a month	0.07	0.7887	7.15	0.0075
(M vs F) Once a week or more	0.10	0.7567	0.58	0.4458
Joint	1.90	0.7548	8.10	0.0879
Male # National lotteries				
(M vs F) Never	1.44	0.2305	1.56	0.2117
(M vs F) Rarely	0.20	0.6515	1.33	0.2495

TABLE 5 (Continued)

	Extensive Margin		Intensive Margin	
	clχ2	p-value	clχ2	p-value
(M vs F) Once a month	2.11	0.1468	0.59	0.4412
(M vs F) Once a week or more	0.57	0.4498	1.57	0.2098
Joint	7.39	0.1169	5.03	0.2839

Note: This table reports contrasts of marginal predictions from the logit regressions in Table S4, with chi-squared tests adjusted for clustering at the school level ("clχ2") and corresponding p-values for gender differences ("M vs F", M for Male and F for Female) at each value of each interaction variable analyzed in Table S4, at both the extensive and intensive margins. The dependent variables are "Extensive Margin" and "Intensive Margin." Extensive Margin is equal to 1 if the player deceives his/her parents about the gambling activity (either partially or fully), and 0 if s/he does not. Intensive Margin is equal to 1 if—conditional upon deception (Extensive Margin = 1)—the player fully deceives his/her parents, and 0 if s/he deceives only in part, i.e. telling his/her parents that s/he plays less than the real frequency.

This latter factor deserves a brief discussion. Italy is well known for being characterized by large, persistent, and deeply rooted socioeconomic and cultural differences among geographical areas of the country (Putnam, 1994). From this perspective, the variable *Geographical area* in our dataset can be considered as a proxy for these differences. In particular, several empirical and experimental contributions have highlighted the Italian "North–South divide," with human capital unevenly spread throughout the country and large economic and social discrepancies between the "wealthy" Center-North and the "less developed" South (e.g., Bigoni et al., 2019; Odoardi & Muratore, 2018, 2019; Putnam, 1994). These differences have also affected—and still affect—gambling habits, which are stronger in the South of Italy. Specifically, gambling has gained more social acceptance in Southern regions, where gambling is more frequent among both the whole population and adolescents (e.g., Bastiani et al., 2013; Gandullia & Leporatti, 2018; Talamo & Manuguerra, 2016). Hence, the opportunity cost attached to deceive parents about gambling is more likely to be lower in the South than in the rest of the country. This is confirmed in our results, which show lower rates of full deception among those living in the South vis-à-vis the North (Tables 1 and 2), and significant gender differences at both margins of deception only in the North (Table 3). We have already suggested that at the extensive margin females are generally less likely to break social norms than males (Duncan & Li, 2018; Fries et al., 2021), whereas males' deception decisions are more goal-oriented and less "morally dependent" at the intensive margin. Our findings reveal that the geographical dimension is also particularly relevant in this respect.

Our results further reveal that gender differences are more pronounced for certain types of gambling games and the related frequency of play (Tables 4 and 5). More specifically, at the intensive margin, the gender difference is statistically significant among "occasional" gamblers (those who play "Rarely") of online skill games and lotto, and among "heavy" gamblers (those who play "Once a week or more") of SuperEnalotto, on-site entertainment machines, and lotto. At the extensive level, the difference is statistically significant only for "heavy" gamblers of online poker.

As a final note, our analyses also show that other factors are associated with deception—even more than gender—noticeably school performance, frequency of play, type of school attended, and geographical area (Tables 1 and 2). Deceiving behaviors is negatively correlated with the improvement in school performance, and positively associated with the attendance of professional schools rather than other schools such as lyceums or technical schools. Conditional upon deception, full-extent deception is less likely with an increase in the frequency of play, and among those living in the South.

5 | CONCLUSION

In terms of the research and policy implications of this research, our study provides two main contributions to the empirical and experimental literature on gender differences in deception. The results from this literature are mixed,

suggesting either a neat difference—with females being more honest than males (e.g., Childs, 2012; Dreber & Johannesson, 2008; Muehlheusser et al., 2015)—or no differences at all (e.g., Capraro, 2018; Lohse & Qari, 2021). In contrast with some lab experiments showing that women are both more honest and *less* likely to use full deception than men (e.g., Duncan & Li, 2018; Fries et al., 2021)—we find that females tend to use deception less often than males but are *more* likely to use full deception. We show that this result is robust to several controls and robustness checks, particularly at the intensive margin.

Second, our rich set of covariates allows us to provide additional, novel insights into the factors that affect variation in deception. Gender differences are statistically significant at both margins of deception only at the lowest frequency of play (among "occasional" players), good school performance, at 15 and 18 years or older, and in the North of Italy, a geographical area with high social capital in which gambling is less widespread and socially accepted than, e.g., the South. Considering different types of games, our findings further reveal that gender differences are statistically significant among those adolescents playing on-site entertainment machines and some luck games such as SuperEnalotto, lotto, and bingo, especially at the intensive margin.

Overall, this adds important insights to the literature on gender differences in deception, which thus far has mostly focused on the extensive margin, and generalized male and female behaviors instead of specifying personal and parental background conditions, nor the type of game or activity under which those gender behavioral gaps may arise. It is also worth noting that as strong and continuous interactions between potential deceivers and their parents could raise the intrinsic costs of deception, one may have expected deception to be less widespread in our analysis than in lab experiments, wherein the gains to deceive are monetary, there are few interactions among anonymous agents, and reputational losses are weak and one-shot lasting. Instead, our results reveal that even in situations with non-monetary factors and long-run repeated interactions—in which reputational effects as well social norms accrue a crucial role—deception still occurs as a "common" behavior.

While our research is specifically focused on gender differences in deception, it provides some broader policy implications on gambling habits among adolescents. Growing evidence from the last decade reveals that women's gambling participation is rising and reaching similar rates as for men (e.g., Holdsworth et al., 2012; McCormack et al., 2014; Salonen et al., 2017; Wardle, 2017). Nonetheless, research and policies on gambling are still strongly male-biased (McCarthy et al., 2019). Our research stresses the importance of additionally considering female gamblers: on average they play less than males, but they tend to hide it to the full extent. This suggests that there remains a stigma around gambling among female adolescents, which is particularly evident for those over 17 years old, playing some "physical" luck games (e.g., on-site entertainment machines, SuperEnalotto, lotto, bingo), and living in areas where gambling is not as widespread and/or socially approved.

Our findings speak to both researchers and policymakers. First, more research is needed on females' gambling patterns and motivations, from adolescence to adulthood. The ongoing process of the "feminization" of gambling should be treated as a serious concern and more extensively analyzed in connection with socio-cultural background, personal characteristics, and parental environment. Second, future studies could explore whether the gender differences in deceiving one's parents about gambling hold when considering other addictive goods such as alcohol and tobacco, or during/after critical periods such as the Covid-19 quarantine.

Our results also provide some insights into gambling-preventing policy measures. Several rules and practices are already in place to contrast gambling among adolescents, but they could be more effective if considering the related deception patterns, e.g., the contexts under which adolescents more likely hide their gambling activities. For example, some high schools have already introduced a series of information courses about the risks of gambling. Those courses should include discussions about gender differences in both gambling habits, and even more crucially the related deception patterns—which have been largely disregarded thus far—could be specially planned in professional schools where deception rates are higher than in other types of schools such as lyceums, and should be particularly targeted at females who tend to fully hide their gambling activities.

Apart from these common practices, researchers and policymakers could explore new ways of reaching adolescents using social platforms, as already done in other contexts (e.g., dietary behaviors; Folkvord & de Bruijne, 2020).

For example, future experimental studies could test the effects of anti-deception messages within gambling prevention campaigns, to be conveyed by popular social influencers, sports champions, or other celebrities on social media or other advertising methods. Our findings inform future gambling prevention campaigns to consider the reversed gender effect at the extensive and intensive margins of deception, with specific attention towards those adolescents who shy away from disclosing their gambling habits and likely need more support, starting with feeling more comfortable talking about it.

ACKNOWLEDGMENTS

We are indebted to David Stadelmann and two anonymous referees for their insightful comments. We gratefully acknowledge Nomisma s.p.a. and the CEO Luca Dondi dall'Orologio for the provision of the dataset. We thank Roberta La Torre, Alexander Staudt, and Francesca Toschi for helpful suggestions. Open Access Funding provided by Universita degli Studi di Bologna within the CRUI-CARE Agreement.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are proprietary data provided by Nomisma s.p.a., not allowed to be publicly available.

ORCID

Alice Guerra https://orcid.org/0000-0003-1956-0270

REFERENCES

Abbott, M., Romild, U., & Volberg, R. (2018). The prevalence, incidence, and gender and age-specific incidence of problem gambling: Results of the Swedish longitudinal gambling study (Swelogs). *Addiction*, *113*(4), 699–707. https://doi.org/10.1111/add.14083

Abeler, J., Becker, A., & Falk, A. (2014). Representative evidence on lying costs. *Journal of Public Economics*, *113*, 96–104. https://doi.org/10.1016/j.jpubeco.2014.01.005

Abeler, J., Nosenzo, D., & Raymond, C. (2019). Preferences for truth-telling. *Econometrica*, *87*(4), 1115–1153. https://doi.org/10.3982/ECTA14673

Bastiani, L., Gori, M., Colasante, E., Siciliano, V., Capitanucci, D., Jarre, P., & Molinaro, S. (2013). Complex factors and behaviors in the gambling population of Italy. *Journal of Gambling Studies*, *29*(1), 1–13. https://doi.org/10.1007/s10899-011-9283-8

Beckmann, D., & Menkhoff, L. (2008). Will women be women? Analyzing the gender difference among financial experts. *Kyklos*, *61*(3), 364–384. https://doi.org/10.1111/j.1467-6435.2008.00406.x

Ben-Ner, A., & Hu, F. (2021). Lying in a finitely repeated game. *Economics Letters*, *201*, 109741. https://doi.org/10.1016/j.econlet.2021.109741

Berggren, N., Bergh, A., Bjørnskov, C., & Tanaka, S. (2020). Migrants and life satisfaction: The role of the country of origin and the country of residence. *Kyklos*, *73*(3), 436–463. https://doi.org/10.1111/kykl.12225

Bigoni, M., Bortolotti, S., Casari, M., & Gambetta, D. (2019). At the root of the North-South cooperation gap in Italy: Preferences or beliefs? *The Economic Journal*, *129*(619), 1139–1152. https://doi.org/10.1111/ecoj.12608

Brenner, R., & Brenner, G. A. (1990). *Gambling and Speculation*. Cambridge University Press.

Brocas, I., & Carrillo, J. D. (2020). Introduction to special issue "Understanding Cognition and Decision Making by Children." Studying decision-making in children: Challenges and opportunities. *Journal of Economic Behavior & Organization*, *179*, 777–783. https://doi.org/10.1016/j.jebo.2020.01.020

Brocas, I., & Carrillo, J. D. (2021). Self-serving, altruistic and spiteful lying in the schoolyard. *Journal of Economic Behavior & Organization*, *187*, 159–175. https://doi.org/10.1016/j.jebo.2021.04.024

Bucciol, A., Landini, F., & Piovesan, M. (2013). Unethical behavior in the field: Demographic characteristics and beliefs of the cheater. *Journal of Economic Behavior & Organization*, *93*, 248–257. https://doi.org/10.1016/j.jebo.2013.03.018

Bucciol, A., & Piovesan, M. (2011). Luck or cheating? A field experiment on honesty with children. *Journal of Economic Psychology*, *32*(1), 73–78.

Burton, V. S. Jr., Cullen, F. T., Evans, T. D., Alarid, L. F., & Dunaway, R. G. (1998). Gender, self-control, and crime. *Journal of Research in Crime and Delinquency*, *35*(2), 123–147. https://doi.org/10.1177/0022427898035002001

Calado, F., Alexandre, J., & Griffiths, M. D. (2017). Prevalence of adolescent problem gambling: A systematic review of recent research. *Journal of Gambling Studies*, *33*(2), 397–424. https://doi.org/10.1007/s10899-016-9627-5

Cappelen, A. W., Sørensen, E. Ø., & Tungodden, B. (2013). When do we lie? *Journal of Economic Behavior & Organization*, *93*, 258–265. https://doi.org/10.1016/j.jebo.2013.03.037

Capraro, V. (2018). Gender differences in lying in sender-receiver games: A meta-analysis. *Judgment and Decision making*, *13*(4), 345–355.

Cauffman, E., Lexcen, F. J., Goldweber, A., Shulman, E. P., & Grisso, T. (2007). Gender differences in mental health symptoms among delinquent and community youth. *Youth Violence and Juvenile Justice*, *5*(3), 287–307. https://doi.org/10.1177/1541204007301292

Charness, G., Samek, A., & van de Ven, J. (2021). What is considered deception in experimental economics? *Experimental Economics*, *25*, 1–28. https://doi.org/10.1007/s10683-021-09726-7

Chiapello, M. (2018). BALANCETABLE: Stata module to build a balance table. Technical Report. Boston College, Department of Economics.

Childs, J. (2012). Gender differences in lying. *Economics Letters*, *114*(2), 147–149. https://doi.org/10.1016/j.econlet.2011.10.006

Childs, J. (2013). Personal characteristics and lying: An experimental investigation. *Economics Letters*, *121*(3), 425–427. https://doi.org/10.1016/j.econlet.2013.09.005

Chowdhury, S. M., Jeon, J. Y., Kim, C., & Kim, S. H. (2021). Gender differences in repeated dishonest behavior: experimental evidence. *Games*, *12*(2), 44. https://doi.org/10.3390/g12020044

Conrads, J., Irlenbusch, B., Rilke, R. M., Schielke, A., & Walkowitz, G. (2014). Honesty in tournaments. *Economics Letters*, *123*(1), 90–93. https://doi.org/10.1016/j.econlet.2014.01.026

Crawford, V. P., & Sobel, J. (1982). Strategic information transmission. *Econometrica: Journal of the Econometric Society*, *50*, 1431–1451. https://doi.org/10.2307/1913390

Croson, R., & Gneezy, U. (2009). Gender differences in preferences. *Journal of Economic Literature*, *47*(2), 448–474. https://doi.org/10.1257/jel.47.2.448

De Luigi, N., Gibertoni, D., Randon, E., & Scorcu, A. E. (2018). Patterns of gambling activities and gambling problems among Italian high school students: Results from a latent class analysis. *Journal of Gambling Studies*, *34*(2), 339–359. https://doi.org/10.1007/s10899-017-9694-2

De Schrijver, A. (2012). Sample Survey on Sensitive Topics: Investigating Respondents' Understanding and Trust in Alternative Versions of the Randomized Response Technique. *Journal of Research Practice*, *8*(1), 1–17.

DePaulo, B. M., Kashy, D. A., Kirkendol, S. E., Wyer, M. M., & Epstein, J. A. (1996). Lying in everyday life. *Journal of Personality and Social Psychology*, *70*(5), 979–995. https://doi.org/10.1037/0022-3514.70.5.979

Djawadi, B. M., & Fahr, R. (2015). "… and they are really lying": Clean evidence on the pervasiveness of cheating in professional contexts from a field experiment. *Journal of Economic Psychology*, *48*, 48–59. https://doi.org/10.1016/j.joep.2015.03.002

Dreber, A., & Johannesson, M. (2008). Gender differences in deception. *Economics Letters*, *99*(1), 197–199. https://doi.org/10.1016/j.econlet.2007.06.027

Dugar, S., Mitra, A., & Shahriar, Q. (2019). Deception: The role of uncertain consequences. *European Economic Review*, *114*, 1–18. https://doi.org/10.1016/j.euroecorev.2019.01.010

Duncan, D., & Li, D. (2018). Liar Liar: Experimental Evidence of the Effect of Confirmation-Reports on Dishonesty. *Southern Economic Journal*, *84*(3), 742–770. https://doi.org/10.1002/soej.12244

Dykstra, V. W., Willoughby, T., & Evans, A. D. (2020). A longitudinal examination of the relation between lie-telling, secrecy, parent–child relationship quality, and depressive symptoms in late-childhood and adolescence. *Journal of Youth and Adolescence*, *49*(2), 438–448. https://doi.org/10.1007/s10964-019-01183-z

Engels, R. C., Finkenauer, C., & van Kooten, D. C. (2006). Lying behavior, family functioning and adjustment in early adolescence. *Journal of Youth and Adolescence*, *35*(6), 949–958. https://doi.org/10.1007/s10964-006-9082-1

Erat, S. (2013). Avoiding lying: The case of delegated deception. *Journal of Economic Behavior & Organization*, *93*, 273–278. https://doi.org/10.1016/j.jebo.2013.03.035

Erat, S., & Gneezy, U. (2012). White lies. *Management Science*, *58*(4), 723–733. https://doi.org/10.1287/mnsc.1110.1449

Ezquerra, L., Kolev, G. I., & Rodriguez-Lara, I. (2018). Gender differences in cheating: Loss vs. gain framing. *Economics Letters*, *163*, 46–49. https://doi.org/10.1016/j.econlet.2017.11.016

Feldman, S. S., Cauffman, E., Jensen, L. A., & Arnett, J. J. (2000). The (un)acceptability of betrayal: A study of college students' evaluations of sexual betrayal by a romantic partner and betrayal of a friend's confidence. *Journal of Youth and Adolescence*, *29*(4), 499–523. https://doi.org/10.1023/A:1005166627678

Finkenauer, C., Engels, R. C., & Meeus, W. (2002). Keeping secrets from parents: Advantages and disadvantages of secrecy in adolescence. *Journal of Youth and Adolescence*, *31*(2), 123–136. https://doi.org/10.1023/A:1014069926507

Fischbacher, U., & Föllmi-Heusi, F. (2013). Lies in disguise-an experimental study on cheating. *Journal of the European Economic Association*, *11*(3), 525–547. https://doi.org/10.1111/jeea.12014

Folkvord, F., & de Bruijne, M. (2020). The effect of the promotion of vegetables by a social influencer on adolescents' subsequent vegetable intake: A pilot study. *International Journal of Environmental Research and Public Health*, *17*(7), 2243. https://doi.org/10.3390/ijerph17072243

Fosgaard, T. R. (2020). Students cheat more: Comparing the dishonesty of a student sample and a representative sample in the laboratory. *The Scandinavian Journal of Economics*, *122*(1), 257–279. https://doi.org/10.1111/sjoe.12326

Fries, T., Gneezy, U., Kajackaite, A., & Parra, D. (2021). Observability and lying. *Journal of Economic Behavior & Organization*, *189*, 132–149. https://doi.org/10.1016/j.jebo.2021.06.038

Friesen, L., & Gangadharan, L. (2012). Individual level evidence of dishonesty and the gender effect. *Economics Letters*, *117*(3), 624–626. https://doi.org/10.1016/j.econlet.2012.08.005

Gandullia, L., & Leporatti, L. (2018). The demand for gambling in Italian regions and its distributional consequences. *Papers in Regional Science*, *97*(4), 1203–1225. https://doi.org/10.1111/pirs.12302

Gerlach, P., Teodorescu, K., & Hertwig, R. (2019). The truth about lies: A meta-analysis on dishonest behavior. *Psychological Bulletin*, *145*(1), 1–44. https://doi.org/10.1037/bul0000174

Gervais, J., Tremblay, R. E., Desmarais-Gervais, L., & Vitaro, F. (2000). Children's persistent lying, gender differences, & disruptive behaviors: A longitudinal perspective. *International Journal of Behavioral Development*, *24*(2), 213–221. https://doi.org/10.1080/016502500383340

Gervais, J., Tremblay, R. E., & Héroux, D. (1998). Boys' lying and social adjustment in pre-adolescence: teachers', peers' and self-reports. *Criminal Behavior and Mental Health*, *8*(2), 127–138. https://doi.org/10.1002/cbm.231

Glätzle-Rützler, D., & Lergetporer, P. (2015). Lying and age: An experimental study. *Journal of Economic Psychology*, *46*, 12–25. https://doi.org/10.1016/j.joep.2014.11.002

Gneezy, U. (2005). Deception: The role of consequences. *American Economic Review*, *95*(1), 384–394. https://doi.org/10.1257/0002828053828662

Gneezy, U., Kajackaite, A., & Sobel, J. (2018). Lying Aversion and the Size of the Lie. *American Economic Review*, *108*(2), 419–453. https://doi.org/10.1257/aer.20161553

Grosch, K., & Rau, H. A. (2017). Gender differences in honesty: The role of social value orientation. *Journal of Economic Psychology*, *62*, 258–267. https://doi.org/10.1016/j.joep.2017.07.008

Guerra, A., & Zhuravleva, T. (2022). Do women always behave as corruption cleaners? *Public Choice*, *191*(1-2), 173–192. https://doi.org/10.1007/s11127-022-00959-5

Gwozdz, W., Nie, P., Sousa-Poza, A., DeHenauw, S., Felső, R., Hebestreit, A., Iguacel, I., Lissner, L., Lauria, F., Page, A., Reisch, L.A., Tornaritis, M., Veidebaum, T., Williams, G., Foraita, R., and on behalf of the I.Family Consortium. (2019). Peer Effects on Weight Status, Dietary Behaviour and Physical Activity among Adolescents in Europe: Findings from the I. Family Study. *Kyklos*, *72*, 270–296, DOI: https://doi.org/10.1111/kykl.12197

Gylfason, H. F., Arnardottir, A. A., & Kristinsson, K. (2013). More on gender differences in lying. *Economics Letters*, *119*(1), 94–96. https://doi.org/10.1016/j.econlet.2013.01.027

Halpert, E. (2000). On lying and the lie of a toddler. *The Psychoanalytic Quarterly*, *69*(4), 659–675. https://doi.org/10.1002/j.2167-4086.2000.tb00580.x

Hartog, J., Ferrer-i-Carbonell, A., & Jonker, N. (2002). Linking measured risk aversion to individual characteristics. *Kyklos*, *55*(1), 3–26. https://doi.org/10.1111/1467-6435.00175

Higgins, G. E. (2004). Gender and Self-Control Theory: Are There Differences in the Measures and the Theory's Causal Model? *Criminal Justice Studies*, *17*(1), 33–55. https://doi.org/10.1080/0888431042000204961

Holdsworth, L., Hing, N., & Breen, H. (2012). Exploring women's problem gambling: A review of the literature. *International Gambling Studies*, *12*(2), 199–213. https://doi.org/10.1080/14459795.2012.656317

Holm, H. J., & Kawagoe, T. (2010). Face-to-face lying. An experimental study in Sweden and Japan. *Journal of Economic Psychology*, *31*, 310–321. https://doi.org/10.1016/j.joep.2010.01.001

Houser, D., List, J. A., Piovesan, M., Samek, A., & Winter, J. (2016). Dishonesty: From parents to children. *European Economic Review*, *82*, 242–254. https://doi.org/10.1016/j.euroecorev.2015.11.003

Houser, D., Vetter, S., & Winter, J. (2012). Fairness and cheating. *European Economic Review*, *56*(8), 1645–1655. https://doi.org/10.1016/j.euroecorev.2012.08.001

Irlenbusch, B., & Villeval, M. C. (2015). Behavioral ethics: how psychology influenced economics and how economics might inform psychology? *Current Opinion in Psychology*, *1*(6), 87–92. https://doi.org/10.1016/j.copsyc.2015.04.004

Jensen, L. A., Arnett, J. J., Feldman, S. S., & Cauffman, E. (2002). It's wrong, but everybody does it: Academic dishonesty among high school and college students. *Contemporary Educational Psychology*, *27*(2), 209–228. https://doi.org/10.1006/ceps.2001.1088

Jung, S., & Vranceanu, R. (2017). Experimental evidence on gender differences in lying behavior. *Revue économique*, *68*(5), 859–873. https://doi.org/10.3917/reco.pr3.0097

Kagel, J. H., & Roth, A. E. (Eds.) (2020). *The Handbook of Experimental Economics* (Vol. 2). Princeton University Press. https://doi.org/10.2307/j.ctvzsmff5

Kajackaite, A., & Gneezy, U. (2017). Incentives and cheating. *Games and Economic Behavior*, *102*, 433–444. https://doi.org/10.1016/j.geb.2017.01.015

Keltikangas-Järvinen, L., & Lindeman, M. (1997). Evaluation of theft, lying, and fighting in adolescence. *Journal of Youth and Adolescence*, *26*(4), 467–483. https://doi.org/10.1023/A:1024585406173

Khalmetski, K., & Sliwka, D. (2019). Disguising lies: Image concerns and partial lying in cheating games. *American Economic Journal: Microeconomics*, *11*(4), 79–110.

Larson, R. B. (2019). Controlling social desirability bias. *International Journal of Market Research*, *61*(5), 534–547. https://doi.org/10.1177/1470785318805305

Lohse, T., & Qari, S. (2021). Gender differences in face-to-face deceptive behavior. *Journal of Economic Behavior & Organization*, *187*, 1–15. https://doi.org/10.1016/j.jebo.2021.03.026

Lundquist, T., Ellingsen, T., Gribbe, E., & Johannesson, M. (2009). The aversion to lying. *Journal of Economic Behavior & Organization*, *70*(1–2), 81–92. https://doi.org/10.1016/j.jebo.2009.02.010

May, A. M., McGarvey, M. G., & Kucera, D. (2018). Gender and European economic policy: A survey of the views of European economists on contemporary economic policy. *Kyklos*, *71*(1), 162–183. https://doi.org/10.1111/kykl.12166

McCarthy, S., Thomas, S. L., Bellringer, M. E., & Cassidy, R. (2019). Women and gambling-related harm: a narrative literature review and implications for research, policy, and practice. *Harm Reduction Journal*, *16*(1), 1–11. https://doi.org/10.1186/s12954-019-0284-8

McCormack, A., Shorter, G. W., & Griffiths, M. D. (2014). An empirical study of gender differences in online gambling. *Journal of Gambling Studies*, *30*(1), 71–88. https://doi.org/10.1007/s10899-012-9341-x

Miller, L., & Ubeda, P. (2012). Are women more sensitive to the decision-making context? *Journal of Economic Behavior & Organization*, *83*(1), 98–104. https://doi.org/10.1016/j.jebo.2011.06.014

Mitchell, S., & Rosa, P. (1981). Boyhood behavior problems as precursors of criminality: A fifteen-year follow-up study. *Journal of Child Psychology and Psychiatry*, *22*(1), 19–33. https://doi.org/10.1111/j.1469-7610.1981.tb00528.x

Muehlheusser, G., Roider, A., & Wallmeier, N. (2015). Gender differences in honesty: Groups versus individuals. *Economics Letters*, *128*, 25–29. https://doi.org/10.1016/j.econlet.2014.12.019

Nikolaou, D. (2019). Sex, Drugs, Alcohol and Subjective Well-Being: Selection or Causation? *Kyklos*, *72*(1), 76–117. https://doi.org/10.1111/kykl.12196

Odoardi, I., & Muratore, F. (2018). The Italian Regional Dualism: A MARS and Panel Data Analysis. *The Review of Regional Studies*, *48*(3), 323–346. https://doi.org/10.52324/001c.7991

Odoardi, I., & Muratore, F. (2019). The North-South Divergence in Italy during The Great Recession. *The Manchester School*, *87*(1), 1–23. https://doi.org/10.1111/manc.12230

Pryor, F. L. (2007). Culture and Economic Systems. *American Journal of Economics and Sociology*, *66*(4), 817–855. https://doi.org/10.1111/j.1536-7150.2007.00541.x

Pryor, F. L. (2008). Macro-Determinants of Gambling in Industrialized Nations. *Kyklos*, *61*(1), 101–113. https://doi.org/10.1111/j.1467-6435.2008.00394.x

Putnam, R. D. (1994). *Making Democracy Work: Civic Traditions in Modern Italy*. Princeton University Press.

Rebellon, C. J., Wiesen-Martin, D., Piquero, N. L., Piquero, A. R., & Tibbetts, S. (2015). Gender differences in criminal intent: Examining the mediating influence of anticipated shaming. *Deviant Behavior*, *36*(1), 17–41. https://doi.org/10.1080/01639625.2014.903755

Rosenbaum, S. M., Billinger, S., & Stieglitz, N. (2014). Let's be honest: A review of experimental evidence of honesty and truth-telling. *Journal of Economic Psychology*, *45*, 181–196. https://doi.org/10.1016/j.joep.2014.10.002

Ruffle, B. J., & Tobol, Y. (2017). Clever enough to tell the truth. *Experimental Economics*, *20*(1), 130–155. https://doi.org/10.1007/s10683-016-9479-y

Salonen, A. H., Alho, H., & Castrén, S. (2017). Attitudes towards gambling, gambling participation, and gambling-related harm: Cross-sectional Finnish population studies in 2011 and 2015. *BMC Public Health*, *17*(1), 1–11. https://doi.org/10.1186/s12889-017-4056-7

Serra-Garcia, M., Van Damme, E., & Potters, J. (2011). Hiding an inconvenient truth: Lies and vagueness. *Games and Economic Behavior*, *73*(1), 244–261. https://doi.org/10.1016/j.geb.2011.01.007

Shalvi, S., Gino, F., Barkan, R., & Ayal, S. (2015). Self-serving justifications: Doing wrong and feeling moral. *Current Directions in Psychological Science*, *24*(2), 125–130. https://doi.org/10.1177/0963721414553264

Shurchkov, O., & van Geen, A. V. (2019). Why Female Decision-Makers Shy Away from Promoting Competition. *Kyklos*, *72*(2), 297–331. https://doi.org/10.1111/kykl.12202

Sobel, J. (2013). Ten possible experiments on communication and deception. *Journal of Economic Behavior & Organization*, *93*, 408–413. https://doi.org/10.1016/j.jebo.2013.03.021

Sobel, J. (2020). Lying and deception in games. *Journal of Political Economy*, *128*(3), 907–947. https://doi.org/10.1086/704754

Stewart, M. A., & de Blois, S. (1985). Diagnostic criteria for aggressive conduct disorder. *Psychopathology*, *18*(1), 11–17. https://doi.org/10.1159/000284211

Stouthamer-Loeber, M. (1986). Lying as a problem behavior in children: A review. *Clinical Psychology Review*, *6*(4), 267–289. https://doi.org/10.1016/0272-7358(86)90002-4

Sutter, M. (2009). Deception through telling the truth?! Experimental evidence from individuals and teams. *The Economic Journal*, *119*(534), 47–60. https://doi.org/10.1111/j.1468-0297.2008.02205.x

Sutter, M., Zoller, C., & Glätzle-Rützler, D. (2019). Economic behavior of children and adolescents–A first survey of experimental economics results. *European Economic Review*, *111*, 98–121. https://doi.org/10.1016/j.euroecorev.2018.09.004

Talamo, G., & Manuguerra, G. (2016). The gambling sector: A socio-economic analysis of the case of Italy. *Eastern European Business and Economics Journal*, *2*(4), 315–330.

Tani, F., Ponti, L., & Ghinassi, S. (2021). Gambling behaviors in adolescent male and female regular and non-regular gamblers: A study of Central Italian adolescents. *Journal of Gambling Studies*, *37*(3), 747–763. https://doi.org/10.1007/s10899-020-09979-6

Tourangeau, R., & Yan, T. (2007). Sensitive questions in surveys. *Psychological Bulletin*, *133*(5), 859–883. https://doi.org/10.1037/0033-2909.133.5.859

Ward, D. A., & Beck, W. L. (1990). Gender and dishonesty. *The Journal of Social Psychology*, *130*(3), 333–339. https://doi.org/10.1080/00224545.1990.9924589

Ward, S. J., & King, L. A. (2018). Gender differences in emotion explain women's lower immoral intentions and harsher moral condemnation. *Personality and Social Psychology Bulletin*, *44*(5), 653–669. https://doi.org/10.1177/0146167217744525

Wardle, H. (2017). The 're-feminisation' of gambling: Social, cultural and historical insights into female gambling behaviour in Great Britain. In H. Bowden-Jones & F. Prever (Eds.), *Gambling disorders in women: An international female perspective*. Routledge. 10.4324/9781315627625-18

Zitzewitz, E. (2012). Forensic Economics. *Journal of Economic Literature*, *50*(3), 731–769. https://doi.org/10.1257/jel.50.3.731

SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.

How to cite this article: Guerra, A., Randon, E., & Scorcu, A. E. (2022). Gender and deception: Evidence from survey data among adolescent gamblers. *Kyklos*, *75*(4), 618–645. https://doi.org/10.1111/kykl.12305