

# Occupational crimes in casinos: employee theft in Macau, China

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# Abstract

It is virtually impossible to accurately measure employee theft across the casino industry using official statistics. In this paper, we use the self-report method for measuring crime to (a) estimate the prevalence, incidence, seriousness, and versatility of occupational offending in casinos in Macau, China-the largest casino gambling location in the world; and (b) identify characteristics which correlate with that offending. One in seven employees in our sample (14%; 38 out of 281) reported engaging in at least one of six offenses (theft in the workplace, falsification of documents, computer fraud, bribe offering, bribe accepting, and white-collar exploitation) in the 12 months prior to their survey response. The great majority of active offenders specialized in crime type: 61% of the active offenders in our sample (23 out of 38) committed just one of the six occupational crimes. Criminal "specialization" notwithstanding, offenders committed their crimes relatively frequently; occupational crimes were particularly costly to casinos in the long run; and these offenses varied in their severity and extent depending on crime type. Demographic characteristics of casino employees-in particular, male gender, occupational position, work schedule, and work-related experience-were associated with whether an employee engaged in workplace crime. Regarding psychological and lifestyle characteristics of employees, only financial pressure and gambling behavior were significantly related to occupational offending. Given that casinos are subject to high levels of surveillance relative to other places of employment, criminal motivation, and not just opportunity, could matter in terms of crimes committed by workers in the gaming industry.

Keywords Casinos · Macau · Employee theft · Self-reported crime

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#### Introduction

The gaming industry has become ubiquitous throughout much of the world due to a few factors. A major one is the proliferation of the Internet, which allows virtual gaming both within and across national boundaries. Another is the variety of political justifications for viewing such activities as robust mechanisms for providing funds for essential services, namely by allowing additional taxes to be levied on individuals and businesses. Worldwide, between 2006 and 2010, casino revenues alone increased from \$99.9 billion to \$117.6 billion (Pricewaterhouse-Coopers, 2013). Asian casinos' annual revenues have already far surpassed those of Las Vegas: In 2013, the average gross gaming revenue per casino in Singapore and Macau were \$2 billion and \$1.3 billion, respectively, compared to \$151 million for Las Vegas (PricewaterhouseCoopers, 2016).

Casinos also present unique accounting and disclosure challenges well beyond those found in other large business enterprises. As Skolnick noted in his study of legalized casino gambling in Las Vegas, "the world of casino gambling offers a portfolio of anonymous expenditure" that makes enforcement aimed at numerous potential offenses such as money laundering, loan sharking, and corruption much more difficult (Skolnick, 1978, p. 45). Relatedly, the internal operation of casinos is both problematic and complex because of two interrelated issues. First, they are environments with an extensive amount of liquid assets in the form of gaming chips and cash, which are attractive targets for misappropriation. Second, as gaming activity occurs, these assets are not recorded or counted. Money is continually being exchanged by thousands of persons in casinos without a record of who they are, how many persons are involved, and exactly how much is changing hands. Thousands of chip exchanges can take place at individual gaming tables each day. These activities naturally provide opportunities for a wide range of criminal acts, including employee theft, sometimes with customer accomplices. (Santaniello, 1982).

Numerous enforcement challenges for casino operators accompany the massive growth in these distinctive crime-facilitative environments (Needleman & Needleman, 1979). Offenses of all types, not only directly affect profits, but can influence stock prices when major incidents are uncovered and become public information. These concerns necessitate an array of surveillance, prevention, and control methods that are designed to induce compliance and reduce opportunities to steal.

Despite the potential significance of employee theft in casinos, it is an area where information remains scarce for a number of reasons. First, although employee theft remains a significant crime in numerous industries that causes considerable losses (Peters & Maniam, 2016), similar to other forms of white-collar and corporate offending, it continues to garner relatively little scholarly attention from criminologists (Kennedy, 2016). Second, in the highly competitive casino industry, firms are naturally secretive about internal data, as they can reflect negatively on management—sometimes with shareholder reprisals, as profits and stock prices can drop when such losses are uncovered. Third, the

precise means used to prevent theft are not widely disseminated so that both customers and employees cannot use such information to their advantage. Fourth, industry studies may be more likely to consider immediate organizational exigencies to protect investments and profits, which are not necessarily tied to the negative issue of internal criminality. And, fifth, like white-collar crimes more generally, such acts are not apt to be reported and instead require proactive discovery, demanding resources *and* expertise that are likely to vary across companies. These factors make the accurate portrayal of both the types and extent of employee theft across the gaming industry through the use of official statistics and reported cases virtually impossible.

The current study represents a first step in remedying such shortcomings by using self-report data collected in one particular jurisdiction: Macau, China. In 2019, the region employed over 58,000 people in the gaming and gambling industry, with roughly 98% of them working in casinos (Direcção dos Serviços & de Estatística e Censos, 2020). In the same year, the casinos in Macau contributed revenue of almost \$37 billion dollars (Macau Gaming Inspection and Coordination Bureau, 2021), over *three times* the casino gaming revenue of the entire U.S. state of Nevada, where Las Vegas is located (American Gaming Association, 2021).

The following analysis sheds light on the characteristics of employee workplace deviance, as well as its potential frequency and financial costs. Such study is important for providing insights for further theoretical analysis and more information that can prove useful for improvements to security, employee screening, and training. Macau provides a unique site for collecting data on these issues as it has experienced unprecedented growth and leads the world in casino revenues (PricewaterhouseCoopers, 2016).

The paper is organized as follows. First, a review of the literature on employee theft is presented including the theories that have been used to explain it. Following this is an overview of the gambling industry in Macau that provides a general historical and cultural context, the research approach, and the questions to be addressed. The research methodology, survey instrument, and data collection process are then presented, followed by the analysis and discussion of the results, and finally, concluding remarks (including issues for further research).

#### Literature review

Employee theft reportedly takes a massive toll on businesses, with approximately 7% of annual revenues in the U.S. lost to internal theft or fraud, which are also responsible for about 33% of all business bankruptcies (Statistic Brain Research Institute, 2018). Recent estimates of the prevalence of employee theft show that it is a growing crime problem that is much larger and costlier than one might assume. Industry surveys conducted in 2018 in the U.S. indicate that 75% of employees have stolen from their employer at least once (Statistic Brain Research Institute, 2019). The 2019 surveys found that 95% of businesses were hurt by employee theft (California Restaurant Association, 2019); estimates of the cost of employee theft are \$50 billion

annually (Statistic Brain Research Institute, 2018); more than a third of employees have stolen from their employers more than once (Statistic Brain Research Institute, 2018); two-thirds of cyber breaches are caused by employees' negligence or malicious acts (Willis Towers Watson, 2017); and, over the past two decades, corporate theft has increased more than 10% (Association of Certified Fraud Examiners, 2002, 2018). Additional data indicate that: stealing in the workplace starts small and can escalate to enormous losses (Chun, 2019); men make up the majority of offenders (about 60%; Statistic Brain Research Institute, 2018); about 75% of businesses are victims of "time theft" where employees were paid for hours they did not actually work (Osterhaus, 2015); time theft costs upward of 7% of the total gross payroll of companies; "sweet hearting," which involves an employee using their employee discount for their family and friends to buy a specific item, costs businesses approximately \$210 billion a year (Brady et al., 2012); and the average time to detect employee fraud is between 18 and 24 months (Statistic Brain Research Institute, 2018). One study found that the top three industries where employee theft occurs are finance, insurance, and healthcare. Finance and insurance have the highest number of perpetrators who are business partners, and 84% of healthcare incidents are due to individuals seeking financial gain (Miller & Trotman, 2018).

The growth of employee theft appears evident when comparing the 95% victimization rate in 2013 to the 79% rate of employee theft victimization ([Krippel, Henderson, Keene, Levi, & Converse, 2008]; identified in 1999, when "time theft" personal use of a computer or phone during working hours—was counted [Gershon, 2019]). Between 35 and 70% of surveyed employees have reported that they had engaged in theft from their employer (Boye & Slora, 1993; Slora, 1989). Although its prevalence varies across industries, employee theft's most common form is the theft of cash, which can occur in different ways (Kennedy, 2016).

Employee theft is an occupational crime that takes place within organizations and falls within offense-based definitions of white-collar crime. It is an example of white-collar crime as conceptualized by Edelhertz (1970) in that it uses concealment or guile in order to obtain money or property through nonphysical means. Offender-based definitions that include high social status (Sutherland, 1983) may also apply to employee theft committed by managers or executives but would not include lower-level employees (Kennedy, 2016). In a major literature review, Kennedy notes: "The literature on employee theft is clear that the factors most likely to be associated with employee theft intentions, as well as the actual occurrence of employee theft, are job dissatisfaction, perceptions of inequality/injustice, pay dissatisfaction, and the presence of workplace or role-based stressors" (Kennedy, 2016, p.10). Job dissatisfaction can be externalized as unproductive work behaviors and other forms of deviance (Jones, 2009).

There are also likely to be complex interactions among these factors. For example, although some workers may steal in order to make up for what they think constitutes fair compensation for their labor (Greenberg, 1990), there is also evidence that this reaction to pay dissatisfaction may also be accompanied or preceded by other deviant and counterproductive behavior and lowered workplace motivation (Jones, 2009).

Stress related to subjective interpretations of workplace situations, feelings of injustice or unfairness, and other role-based stressors may also be more likely to lead to employee thefts than conflicts with superiors (Fox et al., 2001). Other studies have found that age and time on the job are significant factors in understanding motivations to engage in employee theft (Harris & Benson, 2000). Those who are younger and with short job-tenure can display less attachment to the organization (Feldman, 2003), be more impulsive, perceive lower opportunity costs to engaging in theft, and/or see the consequences of their deviant behavior as less harmful (Rickman & Witt, 2007).

Personality factors have also been studied in relation to employee theft. In a fivefactor model (McCrae & Costa, 1987), commonly called "The Big Five," organizational theorists have studied the relationship of prominent personality characteristics to the likelihood of enacting deviance in the workplace. These factors include neuroticism, extraversion, openness, agreeableness, and conscientiousness. Conscientious individuals are less likely to engage in counterproductive activities at work (Bowling, 2010), while those higher in agreeableness are less likely to deviate (Penney & Spector, 2002). Workplace challenges increase counterproductive behavior, which suggests that workplace deviance is also influenced by workplace conditions (Spector & Fox, 2002).

Opportunity is also a central factor in employee theft. Most criminologists assume that crime cannot take place without a motivated offender and an opportunity to deviate (Benson & Simpson, 2018). In the current case, this implies that an employee must identify an opportunity to commit theft and is motivated enough to victimize an employer (Madensen & Eck, 2008). Offenders often have specialized knowledge about the business to engage in crimes against it (Clark & Hollinger, 1981). They are afforded legitimate access, which allows them to both commit and mask their criminal acts (Benson & Simpson, 2018). Employees are also often in positions that allow them to determine the best items to steal, and the most opportune times to do so, thereby increasing their chances of successfully committing crimes (Clarke, 1995). Similarly, such knowledge is derived from their experience and familiarity with surveillance techniques employed by the business, which can be used to increase both motivations and opportunities to engage in theft. Research shows that, given the opportunity, most employees prefer to steal cash, as it makes it easier to acquire other desired items (Kennedy, 2014). This is particularly relevant to casinos, as employees have direct access to large amounts of cash and chips during their everyday occupational routines.

Kennedy (2016) draws the following conclusions from the scientific literature regarding employee theft: (a) It is a poorly defined concept, with no consensus regarding the specific types of behaviors that constitute employee theft; (b) there is overlap between organizational and criminological theories regarding explanations of employee theft; (c) employee thieves enjoy greater access to targets and generally have greater knowledge of theft-prevention mechanisms within a particular business than do common criminals; (d) although the most trusted and longest-tenured employees have more opportunities to commit theft in the workplace, this does not imply that they are most likely to engage in such crimes; and, (e) until steps are

taken to address the problem in victimized businesses by owners working with the criminal justice system, employee theft will remain an underreported crime.

### **Employee theft in casinos**

Past studies on employee theft and the gaming industry have generally focused on employee theft in the workplace because of gambling behaviors and addictions (Kelly & Hartley, 2010). Most research done has studied how gambling addiction—in particular, pathological gambling—can serve as a driver of financial criminal behavior in workplace settings outside casinos (e.g., Albanese, 2008). In contrast, only a few works have directly investigated employee theft and misappropriation inside casinos (Bunn & Glynn, 2013; Marden & Edwards, 2005; Ooi, 2014). One study of insider theft in casinos found that professionals in the gaming industry operate under the assumptions that an internal or external threat is omnipresent and that non-security staff (e.g., dealers, waitresses, and cashiers) are not likely to be trustworthy—in fact, they may be thieves. One interviewee was paraphrased in the following manner: "If I never hired anyone with a questionable personal history, I'd have to turn down 90 percent of the job applicants in Vegas" (Bunn & Glynn, 2013, p. 129).

Despite such views, however, a major limiting factor to thorough surveillance, as complex and sophisticated as it may be, is that casinos seek to maintain a customerfriendly atmosphere, which constrains security efforts that might interfere with that experience. Beyond basic research considerations, employee theft poses numerous practical problems to casinos and to the gaming industry more generally. To begin with, the reputational interests in this economic sector are already undoubtedly fragile. Gambling, even under the best possible conditions and interpretations, is circumspect. It arouses public suspicion and carries with it the usual gambit of associated deviant and criminal activities having to do with organized crime, loan sharking, prostitution, drug and gambling addictions, and the like. The addition of employee theft to this list of disreputable characteristics further reduces the status of the industry as compared to other forms of enterprise. Second, the safety and well-being of customers in a highly competitive environment, and their willingness to spend time and money in a particular casino, are likely influenced by these activities, particularly after being disclosed publicly. Third, the business bottom line of corporate earnings and share prices can be affected by various forms of theft, large or small. News of scams and thefts have been known to drive down share prices of major casino companies (Palmeri & Wong, 2015). Fourth, employee theft poses serious and continual challenges to surveillance techniques and policies, which are arguably already among the strongest in the gaming industry as compared with other businesses. And, fifth, relating to Macau, a former Portuguese colony from 1557 until 1999 when it was returned to the People's Republic of China (PRC), it is a Special Administrative Region, with its own governing officials operating under the PRC maxim of "one country, two systems." There are large geo-political interests at play, as anything that happens in Macau necessarily reflects on China. Thus, the region has taken on great importance to China as a gambling Mecca that is a symbol of modernization, development, and economic success (Pontell et al., 2014; Zabielskis, 2015).

#### Macau casinos

Gaming in Macau was legalized in 1847 when it was still a Portuguese colony (de Inspecção, 2021). The growth of casino gambling in Macau occurred in various phases, culminating in its current reputation as the "Monte Carlo of the Orient," with the highest grossing revenues in the world (de Inspecção, 2021). In 1937, the first casino monopoly franchise was granted to the Tai Xing Company, whose conservative practices only included Chinese games in the casinos, which limited the full extent of the industry. In 1962, the Macau government granted monopoly rights to all forms of gambling to the Sociedade de Turismo e Diversoes de Macau (STDM). These exclusive gaming rights were extended to others between 1986 and 2001, with three licenses granted to a subsidiary of STDM, Wynn Resorts, and Galaxy Casino. By 2019, six foreign companies headed by outsiders—SJM Holdings, MGM China, Wynn Resorts, Melco Crown Entertainment, Galaxy Entertainment Group, and Sands China—held all six Macau gaming licenses, with three of these based in Hong Kong (Cohen, 2019).

Between 2008 and 2018, the number of visitors increased from 22.9 to 35.8 million a year (Direcção dos Serviços & de Estatística e Censos., 2009, 2019). In April 2020, the number had plunged over 99% from the same time the previous year because of quarantine restrictions due to the SARS-CoV-2 (novel coronavirus) pandemic (Macau Post Daily, 2020). Relatedly, casino revenues dropped by about 80% during that time (Master, 2020). It has since begun to recover (Hong, 2021).

Serious employee thefts in casinos highlighted in the media show the range of such offending as well as the potential fiscal losses that can be substantial. In a 2016 "abuse of trust" case, an employee of a VIP room at the Peninsula Casino stole HK\$5 million (mn) in cash and another HK\$430,000 in chips. The man was allegedly handed keys to the cage for "safekeeping" by a colleague, but instead took the money and fled to mainland China (Blaschke, 2017). In another case involving Wynn Resorts, the share price of the company fell 3.5% after a HK\$2 billion (bn) theft involving a junket operator of VIP rooms at the Wynn Macau (McGee, 2015). Junkets operators, independently undertaking licensed promotion of games in exchange for commission or remuneration, bring in high-stakes gamblers and VIP consumers to casinos (Pontell et al., 2014). Macau casinos rely heavily on junkets to run their VIP rooms, which account for most of their profits, and many of them ordinarily experience liquidity problems that are only exacerbated by employee theft. It was reported that a junket cage manager at the Wynn Macau absconded with client capital (Stradbrooke, 2015). Despite the impact of the negative publicity, a spokesman for the company claimed that the larceny would have "no direct financial impact on Wynn Macau," as the money was stolen from the junket operator, not from Wynn (McGee, 2015). That said, the stock market's reaction to this larceny indicated investors' deep concern about the massive risk of internal theft in the operation of the Wynn Macau. In 2013, an agent of a VIP room operator in Macau fled with between HK\$8bn and HK\$10bn; in 2015, another allegedly made off with between HK\$200mn and HK\$2bn (McGee, 2015). Moreover, news of employee theft can have cascading effects on other companies as well. For example, the VIP room theft at the Wynn Macau caused stock prices to fall between 2 and 6% for every parent company of casino operators in the region (Lopez, 2015). Through the financial market system, employee theft can cause diffuse victimization as stock buyers suffer investment losses, undermine a company's capitalization and long-term financing capacity, and threaten the profitability and self-management of the gaming industry.

Finally, it is worth noting that for both the reasons stated above regarding company recalcitrance in reporting employee thefts—and that perhaps more minor crimes may remain undiscovered for some time—the phenomenon is more pervasive than indicated by recorded cases. Like other forms of white-collar offending, only the tip of an iceberg is seen. Moreover, even a minor loss per incident could add up to a significant total loss across many unrecorded occurrences of theft.

# Method

Since employee thefts are significantly underreported, official statistics on these occupational crimes will likely "present an inaccurate picture of their totality" (Kennedy, 2016, p. 415), especially for industries with reputational interests at stake, like the gambling industry. For this reason, to overcome the limitations of relying on official reports to the police, we used the self-report methodology in crime research to more accurately measure employee theft among casinos in the world's gambling capital: Macau, China.

# **Research design**

The main structure of the questionnaire was adopted from the Self Report of Offending survey (Young Adult; Wave 3, 2000–2002) of the *Project on Human Development in Chicago Neighborhoods* (Earls et al., 2002). The questions were modified and expressed in both Chinese and English for Macau gaming employees to collect the necessary data. The bilingual questionnaire was constructed with the following variables:

**Occupational crimes** Given that employee theft covers a spectrum of illicit behaviors that are financial in nature (Kennedy, 2016), consistent with the self-report method for measuring delinquency and crime (Thornberry & Krohn, 2017), we included several individual items to represent the entire domain of employee theft behavior. Six occupational crime variables in the current study served as indicators of employee theft and were represented by questions that were designed to obtain information from respondents regarding their past-year involvement in "theft in the workplace" (i.e., taken anything at work [in the gaming sector] without permission), "falsification of documents" (i.e., modified documents or correspondence of clients, guests, or service providers), "computer fraud" (i.e., modified services or

information at workplace computer without authorization), "bribe offering" (i.e., provided benefits or rebates to others that they should not have received), "bribe accepting" (i.e., provided unauthorized access or services to others in exchange for gifts), and "white-collar exploitation" (i.e., extracted tips or gifts from clients, guests, or providers). The respondents were asked to report whether that they had engaged in these crimes and to respond with a yes-no format for relevant follow-up prompts designed to obtain information about the amount of illegal profits and frequency of involvement. The self-report method allowed us to (a) estimate the prevalence, incidence, seriousness, and versatility of occupational offending in casinos; and (b) identify demographic and other background characteristics which correlate with that offending (and which are listed below).

**Demographic characteristics** Variables measuring demographic characteristics included age, gender, educational level, monthly income, and marital status. Owing to the present study focusing on casino employees, occupational position, length of time working in the gaming industry, and shift duties were also included. Individuals who maintained their livelihoods from the Macau gaming sector were considered as gaming employees in the current study. Junket promoters and collaborators associated with casinos (e.g., rolling chips persons, or "*bate-ficha* guys," and bet counting persons) were considered as a single occupational category.

Psychological and lifestyle characteristics A series of psychological and lifestyle characteristics constituted variables of interest, including job satisfaction, career aspiration, low self-control, financial position, financial pressure, and gambling participation. Job satisfaction (Cronbach's  $\alpha = .75$ ) and career aspiration (Cronbach's  $\alpha = .76$ ) were measured by eight and four items, respectively, from the Macao Gaming Employee Life Survey (澳門博彩從業員生活調查; Institute for the Study of Commercial Gaming at the University of Macau, 2009). Respondents were asked to rate the degree of agreement with each statement scored on a 5-point Likert scale from 1 (Totally disagree) to 5 (Totally agree). A higher score indicated greater job satisfaction or career aspiration. For the self-control index (Cronbach's  $\alpha = .79$ ), we used the Brief Self-Control Scale (BSCS), which served as an abbreviated version of the Self-Control Scale that consisted of 13 items and measured general impulsivity (Tangney et al., 2004). The Chinese version of the BSCS was produced by Unger et al. (2016). Respondents were asked to rate how well each statement described them on a 5-point Likert scale from 1 (Not at all like me) to 5 (Very much like me), where a higher score indicated lower self-control (e.g., "Pleasure and fun sometimes keep me from getting work done"); the four items that measured self-restraint were reverse-scored so that higher scores implied greater impulsivity (e.g., "I am good at resisting temptation"; recode [1=5], [2=4], [4=2], and [5=1]). Financial wellbeing was measured by response categories of overspending, barely enough money to live on, and comfortable/well off; the feeling of financial pressure was operationalized by categories of no stress at all and slightly, moderately, very, and extremely

pressured. Regarding gambling participation, respondents were asked to report, in a yes-no format, whether or not they had gambled in the past 12 months.

### Procedure

Individuals working in the Macau gaming sector at the time of the survey and those who had worked in the Macau gaming sector at any time in the prior 12 months were the target sample for this survey. The first question—which asked potential respondents whether they had ever worked in the Macau gaming sector, either at the time of the survey or at any time in the previous 12 months—was designed as a screening question to identify the target sample. To make sure that the respondents understood the questions in the same way to lead to more reliable results, a pilot test was conducted from July 9 to August 16, 2017. A snowball sampling method was employed, and 25 individuals participated in the pilot test.

With some revisions, the formal survey was conducted in Macau from September to December in 2017. Respondents were recruited via a convenience snowball sampling procedure administered through an online platform, with the sample of respondents being drawn from the Internet. The hyperlink of the survey was sent out through social network tools and social media mobile applications. To increase participation, a lucky draw activity with supermarket coupons was offered to potential respondents. Participation was voluntary, and inclusion in the study sample required completion of the questionnaire. The introduction of the survey emphasized that all information provided would be completely anonymous to encourage as much participation as possible. A total of 281 valid responses were used for the analysis.

The fact that many self-report surveys, including ours, rely on nonprobability samples "in no way lessens the valuable etiological insights they can provide" (Junger-Tas & Marshall, 1999, p. 295). Edwin Sutherland's work on white-collar crime set the intellectual stage for the self-report method of measuring crime, pointing to the reality that official statistics often exclude middle- and upper-class offenders (Kivivuori, 2011). Still, selection bias can undermine sample representativeness of self-report surveys (see Barratt et al., 2015), especially with Internet-mediated research methods like those used in our study. Nevertheless, the gaming industry accounts for about one-fourth of Macau's labor force (Sheng & Gu, 2018), making it the heart of Macau's economy; as such, potential respondents were likely tied to the single booming sector of the Macau economy (casino gaming). Furthermore, prevalence rates for computer (52%) and mobile phone (86%) usage are high for the Macau population (Xie et al., 2020). Thus, our technique for recruiting survey participants helped us obtain a sample large enough to maximize its representativeness of the population of interest (i.e., casino workers in Macau).

A key issue with the self-report method for measuring crime has been eliciting truthful responses on sensitive subjects such as workplace criminality (as is the case in the present study). However, this issue was mitigated in the current research given our use of the Internet and mobile computing, which are methodological advancements that "remove the effect of having to admit participating in problematic behavior directly to an interviewer" (Krohn et al., 2010, p. 512). Also, prevalence

estimates derived from Internet-based and paper-and-pencil surveys are generally similar to one another, which means that a computerized survey instrument does not deter honest self-reporting of deviant behaviors (Eaton et al., 2010).

#### Analytic strategy

The "Results" section presents four sets of analyses of employee theft in Macau casinos. In the first analysis, we provided prevalence rates for the different indicators of employee theft among the total sample of survey respondents and the subsample of respondents who reported engaging in crime/deviance in the workplace. In other words, what percentage of the total sample committed theft in the workplace, falsification of documents, computer fraud, bribe offering, bribe accepting, and white-collar exploitation and how common was each occupational crime among those who admitted to engaging in employee theft? In the second analysis, we computed a criminal versatility score of the number of different types of occupational crimes reported by each respondent in the subsample of active offenders. Our index of employee theft had six items (offense types), so the versatility score varied from 1 to 6: a score of 1 indicated that an offender committed just one distinct crime type, and 6 meant an offender engaged in all six crime types. The third analysis produced summary statistics for the incidence and seriousness of the six occupational crimes committed by employees to assess their frequency and costliness. And, the last analysis consisted of Pearson chi-square tests of independence to estimate if the personal characteristics of employees were linked to whether they engaged in work-related deviance; this would aid with the future development of regression models that test criminological theory in an East Asian context.

## Results

Table 1 presents the prevalence rates for occupational crimes split into the total sample of casino employees (N=281) and the subsample consisting of self-reported workplace offenders (n=38). Worth noting is that one in seven casino employees (14%) reported that they had engaged in occupational crime and/or deviance over the previous 12 months (i.e., 38 out of 281). The total sample shows 19 reports of theft (7%), which comprised the highest offense category. Of those who reported occupational crimes, the most common type was workplace theft (50%). This was followed by accepting bribes and *white-collar exploitation*, a residual category for other crimes such as extorting tips, gifts, rebates, or kickbacks from guests, clients, or service providers when working in the gaming sector (32% each); offering bribes and falsification of documents (24% each); and computer fraud (8%). Even with individuals reporting multiple work-related offenses, there is a notable degree of variation in the types of employee crimes that were committed and reflected in the data.

The overwhelming majority of occupational criminals in the group of active offenders specialized in offense type. Table 2 shows that 61% of the individuals in the occupational crime subsample committed *just one* of the six distinct offenses listed above (23 out of 38). Nonetheless, eight out of the 38 active criminals (21%)

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	Total Sample $(N = 28I)$		Occupational Crime Subsample	e(n=38)
Offense	f	%	f	%
Theft in the workplace	19	6.76	19	50
Falsification of documents	6	3.20	6	23.68
Computer fraud	3	1.07	3	7.89
Bribe offering	6	3.20	6	23.68
Bribe accepting	12	4.27	12	31.58
White-collar exploitation	12	4.27	12	31.58

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Table 2

engaged in two distinct crime types. Another 13% of survey respondents reported carrying out three different occupational offenses. One individual reported engaging in four separate work-related crimes, and another committed *all six* occupational crimes: theft in the workplace, falsification of documents, computer fraud, bribe offering, bribe accepting, and white-collar exploitation. Thus, in our sample of active offenders, most could be considered "specialists," that is, criminals who commit a single offense type.

The extent and severity of these crime types are reflected in measures of central tendency and dispersion for the incidence and rewards of occupational crime (see Table 3). Respondents were asked whether they had reported taking anything at work in the gaming sector without permission; in another survey question, respondents admitting to workplace theft were asked to indicate how many times they had committed larceny in the past 12 months, and these 19 individuals committed an average of 19 thefts (M=19, SD=23.3), which means that a typical occupational criminal in this sample, on average, stole more than once a month (19 thefts ÷ 12 months = 1.6 thefts a month). On one hand, since only 7% of the total sample of employees stole over the course of a year, the prevalence rate of employee theft appeared low. On the other hand, the incidence rate of employee theft seemed quite high because the active offenders in this sample committed work-related theft practically every month. In another survey question, employee thieves were asked to estimate the total value of the items they had stolen in the past 12 months. The average value was 3913 MOP (M = 3913 MOP; SD = 4992 MOP), which translates to almost an average of US \$500 a year per offender. It follows that employee theft was a common crime carried out by a relatively few "chronic" offenders.

Although falsification of documents was reported less frequently than theft in the workplace, the 9 employees who committed this crime, on average, engaged in it 77 times in the previous 12 months (M=76.7, SD=125), with an average monthly rate of 6 forgery crimes worth 4889 MOP annually (608 USD; SD=13,180 MOP [1638 USD]). While the falsification of documents had a prevalence rate that was lower than workplace theft, its incidence rate was much higher—in fact, it was the highest among all crime types—and the crime of forgery was also costlier to casino businesses per offender per year.

Computer related forgery showed the lowest prevalence rate among all employee crimes (1%), but the second highest incidence rate (M=40.7, SD=68.7). However, this occupational offense also yielded the fewest direct monetary benefits (M=33 MOP [4 USD]; SD=58 MOP [7 USD]).

On the other hand, the crimes of bribe offering (M=6.6, SD=3.8) and bribe accepting (M=4.2, SD=3.2) had the lowest incidence rates among all occupational crime types, but these offenses reportedly yielded the highest amounts for employee criminals *and* their liaisons over a one-year period. 58,444 MOP (7263 USD; SD=165,593 MOP [20,578 USD]) was the average total value of gifts or rebates that offenders *provided* to others in one year, whereas 51,167 MOP (6359 USD; SD=141,624 MOP [17,600 USD]) was the average value of benefits that offenders *received* from others by granting them unauthorized access or services. Thus, although least frequent, these offenses were the costliest for businesses.

Offense	W	SD	Min	Max
Theft in the workplace $(n = 19)$				
Number of times in past 12 months	19	23.3	1	100
Value of items stolen in past 12 months	3913 MOP (486 USD)	4992 MOP (620 USD)	3 MOP (0.37 USD)	17,000 MOP (2113 USD)
Falsification of documents $(n=9)$				
Number of times in past 12 months	76.7	125	1	365
Value of benefits in past 12 months	4889 MOP (608 USD)	13,180 MOP (1638 USD)	0 MOP	40,000 MOP (4971 USD)
Computer fraud $(n=3)$				
Number of times in past 12 months	40.7	68.7	1	120
Value of benefits in past 12 months	33 MOP (4 USD)	58 MOP (7 USD)	0 MOP	100 MOP (12 USD)
Bribe offering $(n=9)$				
Number of times in past 12 months	9.9	3.8	1	12
Value of benefits offered in past 12 months	58,444 MOP (7263 USD)	165,593 MOP (20,578 USD)	0 MOP	500,000 MOP (62,135 USD)
Bribe accepting $(n = 12)$				
Number of times in past 12 months	4.2	3.2	1	10
Value of benefits accepted in past 12 months	51,167 MOP (6359 USD)	141,624 MOP (17,600 USD)	0 MOP	500,000 MOP (62,135 USD)

Table 3 (continued)

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Offense	W	SD	Min	Max
White-collar exploitation $(n = 12)$				
Number of times in past 12 months	35.1	84.2	1	300
Value of exploits made in past 12 months	11,879 MOP (1476 USD)	12,471 MOP (1550 USD)	50 MOP (6 USD)	35,000 MOP (4349 USD)

White-collar exploitation was the third highest offense category in both incidence rate and amounts received. On average, employees committed this offense 35 times a year (M=35.1, SD=84.2) and stole 11,879 MOP (1476 USD; SD=12,471 MOP [1550 USD]). These acts comprised the second highest prevalence rate (4%), with 12 employees actively involved in criminal extortion, thereby making this occupational crime relatively common and severe.

Table 4 displays respondent demographic data separated into three groups: the total sample, those who reported engaging in occupational crime, and those who did not report engaging in workplace crime. When compared with the population parameters for workers of the Macau gaming sector (see page 28: https://www. dsec.gov.mo/getAttachment/fb62032a-34c6-4d51-bf8d-4c48bbdb94d4/C IE PUB 2017 Q4.aspx), our demographic statistics indicate that respondents were younger (typically between the ages of 30–39, with a median age of 33), predominantly male (54%), and more educated (30% had a bachelor's degree or higher vs. 26% for the population as a whole). Younger age, male gender, and higher education notwithstanding, our sample of respondents earned a monthly income comparable to Macau casino employees, with most respondents, like casino workers in general, usually earning a salary of 20,000 MOP or less a month. (In fact, the 15,001-20,000 MOP monthly income bin was the median value for workers in our sample, but we collapsed our 11 income bins to just three categories to reduce data sparseness and enhance interpretation of the data.) Furthermore, a large percentage of our sample (80%) worked in shifts like most workers in Macau casinos (85%). Therefore, our sample deviates from the population on some measures, but converges on others.

Frequencies and percentages are reported for each variable, and Pearson chisquare tests of association were conducted to examine the relationship between committing occupational crime (1 = yes; 0 = no) and a range of variables. Focusing first on the relationship between age and crime, we see that most respondents were under the age of 40 in all the analyzed samples, ranging from approximately 70% in both the total and no occupational crime groups to about 76% in the occupational crime subsample. The association between age and work-related crime was not statistically significant at the .05 alpha level (Pearson  $\chi^2[3] = 3.85$ , p = .28).

Regarding the gender, education, monthly income, and marital status of respondents, gender proved to be a variable that was significantly related to occupational crime commission (Pearson  $\chi^2[1]=5.30$ , p < .05), as 71% of those reporting occupational crimes were male, compared to 54% and 51% in the total sample and the no occupational crime subsample, respectively. Educational level was not significantly related to occupational crime (Pearson  $\chi^2[4]=2.77$ , p=.60) and was more or less evenly distributed across samples with about 30% of respondents reporting a college degree, followed by about 40% finishing high school. Monthly income and occupational crime were unrelated to one another since most respondents in either sample (the total sample or the occupational crime or no occupational crime subsamples) earned 20,000 MOP or less a month (Pearson  $\chi^2[2]=1.95$ , p=.38). Similarly, no significant differences were found for marital status with about 50% reporting being married in the full and subsample groups (Pearson  $\chi^2[2]=0.08$ , p=.96).

On the other hand, occupational positions held in the casino showed a strong and statistically significant relationship with reported offending (Pearson  $\chi^2[3] = 24.51$ ,

Iable 4 Demogral	pnic Unaracteristic	s of Study Particip	Janus					
	Total Sample (N=	: 281)	Occupational Crii(n = 38)	ne Subsample	No $Occupational$ (n = 243)	Crime Subsample		
Variable	f	%	f	%	f	%	$\chi^2$	d
Age							3.85	0.28
21–29	89	31.67	6	23.68	80	32.92		
30–39	110	39.15	20	52.63	06	37.04		
40-49	46	16.37	4	10.53	42	17.28		
50 or above	36	12.81	5	13.16	31	12.76		
Gender							5.30	0.02
Male	151	53.74	27	71.05	124	51.03		
Female	130	46.26	11	28.95	119	48.97		
Education							2.77	0.60
Elementary school or below	10	3.56	0	0	10	4.12		
Junior secondary school (7th to 9th Grade)	72	25.62	12	31.58	60	24.69		
Senior high school (10th to 12th Grade)	114	40.57	14	36.84	100	41.15		

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	Total Sample (N=	: 281)	Occupational Cri. $(n = 38)$	me Subsample	No Occupational $(n = 243)$	Crime Subsample		
Variable	f	%	f	%	f	%	×2	d
Bach- elor's degree / Higher vocational or technical col- lege education	81	28.83	=	28.95	70	28.81		
Master's degree or above	4	1.42	1	2.63	Э	1.23		
Monthly income							1.95	0.38
20,000 (MOP) or less	147	52.31	17	44.74	130	53.50		
20,001–30,000 (MOP)	100	35.59	14	36.84	86	35.39		
30,001 (MOP) or more	34	12.10	7	18.42	27	11.11		
Marital status						-	0.08	0.96
Single	121	43.06	17	44.74	104	42.80		
Married	143	50.89	19	50	124	51.03		
Divorced	17	6.05	2	5.26	15	6.17		
Position							24.51	0.00
Managerial member	56	19.93	7	18.42	49	20.16		
Non-managerial member (table game)	116	41.28	11	28.95	105	43.21		

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Table 4 (continue	(pa							
	Total Sample (N=	- 281)	Occupational Crin(n = 38)	ne Subsample	No $Occupational$ (n = 243)	Crime Subsample		
Variable	f	%	f	%	f	%	χ <sup>2</sup>	d
Non-managerial member (other)	95	33.81	12	31.58	83	34.16		
Junket promoter or collaborator (rolling chips person, etc.)	14	4.98	×	21.05	9	2.47		
Duration of work							7.78	0.01
Less than 5 years	133	47.33	10	26.32	123	50.62		
6 years or more	148	52.67	28	73.68	120	49.38		
Working in shifts							10.26	0.01
Yes	224	79.72	26	68.42	198	81.48		
No	20	7.12	1	2.63	19	7.82		
Sometimes	37	13.17	11	28.95	26	10.70		

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p < .05). Managerial positions ranged from about 18–20% across all groups. Nonmanagerial table game positions in the total sample and no occupational crime subsample were between 41% and 43%, respectively, compared to the occupational crime group, which was only 29%—which may be due to the higher degree of surveillance present with those jobs, making it more difficult to engage in crime (especially plain theft, the most highly reported crime amongst those who responded that they had engaged in workplace deviance). Other non-managerial jobs ranged from 32 to 34% across all samples. However, the category of junket promoter or collaborator—or, in other words, someone who works in the junket environment—showed dramatic differences, with 21% of those reporting workplace crimes occupying such positions, versus only 2–5% in the non-offending and total samples, respectively. Thus, a statistically significant, disproportionate number of those holding junketrelated positions engaged in crimes.

The length of employment or duration of work also showed a significant relationship with offending behaviors (Pearson  $\chi^2[1] = 7.78$ , p < .05). While the total and non-offending samples were split about equally between persons working less than 5 years (47% and 51%, respectively), 74% of the offending group had been employed in the gaming industry for 6 years or more.

Whether or not an employee worked in shifts showed a significant relationship to lawbreaking (Pearson  $\chi^2[2] = 10.26$ , p < .05). Almost 30% of the offending group reported *sometimes* working in shifts, as compared to only 13% in the total sample and 11% of those who reported committing no crimes.

Additional detail regarding these data is shown in Table 5, which displays respondents' psychological and lifestyle characteristics. These are, again, presented for the total, offending, and non-offending samples. Composite indexes relating to both job satisfaction and career aspiration—which were measured dichotomously as high and low, determined as above *or* at or below the midpoint value of summed up Likert-scale items that ranged from 1 to 5, with 1 meaning "Totally disagree" and 5 meaning "Totally agree"—showed no significant relationships with offending (Pearson  $\chi^2[1]=0.24$ , p=.63; Pearson  $\chi^2[1]=2.60$ , p=.11). Whether an employee reported high or low self-control appeared to have no bearing on their offending (Pearson  $\chi^2[1]=0.24$ , p=.62).

Similarly, the variable of financial position, measured by whether one overspends, barely has enough money to live on, or is comfortable and well off, showed no significant relationship to committing crime and/or deviance in the workplace (Pearson  $\chi^2[2] = 3.58$ , p = .17).

The variable of the feeling of financial pressure, on the other hand, was significantly related to reported workplace deviance (Pearson  $\chi^2[4] = 11.01$ , p < .05). The respondents in the occupational crime subsample were considerably less likely to report feelings of slight, or no stress at all, and more likely to report experiencing moderate or higher degrees of financial pressure.

Whether or not one had engaged in gambling in the previous year was also significantly related to occupational criminality (Pearson  $\chi^2[1] = 10.50$ , p < .05). Those who reported that they had gambled were considerably more likely to report workplace deviance and crime. More than half of the respondents in the occupational crime group reported participating in gambling activity in the previous year, as

Table 5 Psycholo	gical and Lifestyle	Characteristics of	Study Participants					
	Total Sample (N =	= 281)	Occupational Cri(n = 38)	me Subsample	No Occupational (n = 243)	Crime Subsample		
Variable	f	%	f	%	f	%	$\chi^2$	d
Job satisfaction							0.24	0.63
21 (midpoint) or below	91	32.38	11	28.95	80	32.92		
22 or above	190	67.62	27	71.05	163	67.08		
Career aspira- tions							2.60	0.11
12 (midpoint) or below	214	76.16	25	65.79	189	77.78		
13 or above	67	23.84	13	34.21	54	22.22		
Low self-control							0.24	0.62
39 (midpoint) or below	230	81.85	30	78.95	200	82.30		
40 or above	51	18.15	8	21.05	43	17.70		
Financial pres- sure							11.01	0.03
No stress at all	31	11.03	1	2.63	30	12.35		
Slightly	63	22.42	3	7.89	60	24.69		
Moderately	119	42.35	20	52.63	66	40.74		
Very	47	16.73	10	26.32	37	15.23		
Extremely	21	7.47	4	10.53	17	7		
Financial posi- tion							3.58	0.17
Overspending	23	8.19	6	15.79	17	7		

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Table 5 (continue	ed)							
	Total Sample (N:	= 281)	Occupational $Cri$ (n=38)	ime Subsample	No $Occupational$ (n = 243)	Crime Subsample		
Variable	f	%	f	%	f	%	$\chi^2$	d
Barely enough money to live on	210	74.73	27	71.05	183	75.31		
Comfortable / well-off	48	17.08	5	13.16	43	17.70		
Gambling par- ticipation							10.50	0.00
No	190	67.62	17	44.74	173	71.19		
Yes	91	32.38	21	55.26	70	28.81		

compared to less than a third of those in the total sample and a little over a quarter in the non-offending group.

#### **Discussion and conclusion**

In sum, the crime data revealed that occupational crimes were not uncommon in casinos, as 14% of all employees reported that they had committed offenses in the workplace. Among occupational crimes, theft was the most prevalent: 7% of all sampled casino employees had stolen at least once over the year. Moreover, 50% of all workplace criminals had committed theft, making it the most common reported occupational crime. In addition, 61% of employee offenders could be considered criminal "specialists" since they committed only a single type of workplace offense. At the same time, criminal "specialization" notwithstanding, offenders committed their crimes relatively frequently. These offenses were also particularly costly to casinos in the long run, as about 7% of respondents reported engaging in theft, and the typical offender did this 19 times per year, netting an average total of US \$500 in stolen goods. Nonetheless, other occupational offenses, such as falsification of documents and white-collar exploitation, had higher incidence rates and provided more criminal "rewards" to offenders. Thus, occupational crime varied in its severity and extent depending on the offense in question.

Demographic characteristics of casino employees-related particularly to occupational position and work-related experience-were associated with whether an employee engaged in workplace crime. In the case of gender, men were significantly over-represented among occupational criminals. In terms of occupational position, there was a significantly larger percentage of employee criminals working in the junket environment of casinos relative to those who had not committed any crimes. With respect to work-related experience, length of employment also displayed a significant relationship with lawbreaking: About three-quarters of the offending group worked in the gaming industry for more than 6 years. Moreover, work schedule linked with occupational offending: Those reporting workplace offenses were more likely to report sometimes working in shifts, while being less likely to either be a shift worker entirely or not one at all. This last finding is curious and may be better illuminated through additional qualitative study of the assignment of duties of employees: whether they are full or part-time, temporary, filling in for others, or have other various assignments. These individuals may somehow "slip through the cracks" of control mechanisms through less training and/or surveillance, not have had sufficient socialization into their organizational roles, be in a better position to engage in deviance as they come and go in less permanent work shifts, or be influenced by some combination of these factors.

Regarding the data on psychological and lifestyle characteristics of employees, only a few factors appeared to be related to crime and deviance in casinos. Job satisfaction and career aspiration were not related to workplace deviance and crime. Similarly, reported impulsivity (i.e., low self-control) showed no significant relationship to criminal or deviant activities. Financial position was also unrelated to crime or deviance. Financial pressure was significantly related to reported workplace deviance, with those in the occupational crime subsample significantly more likely to report experiencing financial pressure. Gambling in the previous year was also associated with occupational crime: Casino employees who reported that they had gambled in the prior year were also likely to have reported engaging in workplace criminality.

### **Theoretical and policy implications**

The existence of occupational crime under circumstances of intense surveillance, which is a hallmark of the casino industry, tests the limits of control against employee theft in business more generally. That is, employee criminality should be less likely in casinos than in other industries given sophisticated efforts to prevent it. Yet, it still exists and is costly. Moreover, unlike other occupational settings that are much less guarded, and unless they are working in the security offices themselves, employees are less likely to have full access to, and deep knowledge about internal and external controls, or to learn about guardianship patterns so as to avoid being caught engaging in deviant behaviors. None of the respondents in the sample worked in the security area, but, nonetheless, their knowledge about patterns of control practices may have varied depending on their associations with others in the organization. The development of more extensive modeling to examine potential causal factors associated with employee theft can better inform internal control policies and practices.

Knowing more about both the patterns and reasons for employee theft will be useful for formulating organizational strategies and policies that can reduce the frequency of work-related crime and the costs associated with that offending. The present study represents a first step in that direction. The inherent difficulties in obtaining systematic data and the limitations of the current study in terms of the amount of information that could be gained were discussed earlier in detail. Greater cooperation by the gaming industry in gaining access to employees would produce more robust data with which to test various theoretical models of criminogenesis, including more detailed information on both employees and their work environments than was possible in this preliminary study. Further refinement of record-keeping practices, especially where cash is exchanged, is one major area for focused attention. Casino companies can also better inform employees regarding their surveillance capabilities. Businesses might also recognize inequities and communicate understanding of workplace challenges to workers. Rewarding employees for doing the "right thing" can increase company morale and help in cultivating a culture of virtue in a sea of vice.

The potential criminogenic effects of the casino environment are important as well. Employees are watched closely, yet some may remain unaware until they are caught leaving companies reacting to crime in the workplace after it has already been committed. Employees are surrounded by large amounts of money that is being spent frivolously, yet many make low hourly wages and must interact with customers who make much more. Thus, casino employees must directly face stark economic inequalities every day.

Understanding the full range of factors that cause occupational crimes in casinos also requires that researchers draw upon theory from criminology to study the "criminal propensity" of employee criminals. Decades ago, Sutherland (1947)

argued that explanations of criminal behavior are dispositional or situational in nature and that such factors might prove to be important in predicting the incidence of crime. Given that casinos are subject to high levels of surveillance relative to other places of employment (Austrin & West, 2005), employee crimes in these settings can possibly be driven more by the personal characteristics of offenders than by the situations which they find themselves in at work. In other words, criminal motivation could matter more than opportunity in terms of crimes committed by workers in the gaming industry. Descriptive analyses of our crime data suggested that employee crimes in casinos had prevalence rates lower than what is reported in the employee theft literature (Kennedy, 2016), but were nonetheless committed frequently by a relatively small number of criminal "specialists." Bivariate analysis of the data presented here showed that economic strain (financial pressure), but not impulsivity (low self-control), was related to whether a casino employee engaged in work-related criminal/deviant behaviors. As such, the analysis provided preliminary support for Agnew's (1992) general strain theory of crime, but not Gottfredson and Hirschi's (1990) general self-control theory of crime. Nevertheless, in the absence of a multivariate model that parses out the independent effects of theoretical predictors on the incidence of occupational crimes, a "criminal propensity" such as low self-control cannot yet be ruled out as a potential explanation for occupational crime behavior (Simpson & Piquero, 2002).

More robust empirical tests of Agnew's (1992) and Gottfredson and Hirschi's (1990) general theories of crime could provide potential insights into the etiology of occupational crime in an East Asian context. Criminologists have begun to assess the generalizability of Western-derived criminological findings in East Asia (e.g., the age–crime relationship; see Steffensmeier et al., 2020; Steffensmeier et al., 2017). Agnew (2015) and Gottfredson (2018) actively encourage application of their competing theories to crime in Asian societies; therefore, future research studies should pit the criminological concepts of strain and self-control against one other in order to advance scientific criminology.

#### Code availability Not applicable.

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Data availability Data are included in the manuscript; no supplementary data are necessary.

#### Declarations

Conflict of interest Not applicable.

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