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Systematic effects of crime on hotel operating performance

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HIGHLIGHTS

- This study examines the systematic effects of crime on hotel operating performance.
- Part I crime incidents have a significantly negative impact on hotel operating performance.
- Violent and property crimes both exert significant and negative impacts on hotel operating performance.
- Both night-time and day-time crime incidents are found to significantly and negatively impact hotel operating performance.
- Hotels are in general effective at keeping systematic security measures in place and preventing crime incidents from taking place systematically.

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ABSTRACT

We examine the systematic effects of crime on hotel operating performance based on data from a sample of 404 Houston hotels from January 2009 to December 2014. Econometric results show that Part I crime (i.e., violent and property crime) incidents have a significantly negative impact on hotel operating performance (measured by revenue per available room), ceteris paribus. Also, the marginal effect of crime declines as crime density level increases. Separate examinations of violent and property crimes show that they exert significant and negative impacts on hotel operating performance, with the impact of violent crimes being more substantial. In addition, the results reveal that both nighttime and daytime crime incidents significantly and negatively impact hotel operating performance. Finally, as evidenced by the insignificant impact of crime incidents occurring on hotel premises, the results suggest that hotels are generally effective at maintaining systematic security measures and preventing crime incidents from occurring.

1. Introduction

In 2015, there were 53,432 hotels with over 5 million hotel rooms operating in the United States, collectively employing 1.9 million people and creating $176 billion in revenue (American Hotel & Lodging Association, 2015). Despite the hotel industry's success, it is associated with high levels of crime, against both hotels and guests (e.g., Gill, Moon, Seaman, & Turbin, 2002; Mawby & Jones, 2007; Zhao & Ho, 2006). Possibly aggravated by location, design, or the nature of the hospitality industry, many hotels in the United Kingdom and the United States appear to have significant crime-related problems (e.g., Jones & Groenenboom, 2002; Zhao & Ho, 2006).

While a number of scholars have investigated hotel operating performance from different perspectives, such as e-commerce (e.g., Hua, Morosan, & DeFranco, 2015), total quality management and market orientation (e.g., Wang, Chen, & Chen, 2012), revenue management systems (e.g., Ortega, 2016), social media (e.g., Kim, Lim, & Brymer, 2015), online reviews (e.g., Phillips, Barnes, Zigan, & Schegg, 2016; Phillips, Zigan, Silva, & Schegg, 2015), information technology (e.g., Melián-González and Bulchand-Gidumal, 2016) and dynamic capabilities (Leonidou, Leonidou, Fotiadis, & Aykol, 2015), the impact of crime on hotel operating performance has eluded systematic academic examination, leaving a critical gap in the literature with regards to the theoretical and empirical connection between crime and hotel operating performance. In addition, prior studies on the effects of crime have been affected by omitted variable biases (OVB) (e.g., Abbott & Klaiber, 2011; Chay and Greenstone, 2005; Pope, 2008; Zabel, 2015), presumably resulting from a lack of longitudinal data, an insufficient number of control variables, and a failure to employ statistical models robust

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to autocorrelation and heteroscedasticity issues (e.g., Abbott & Klaiber, 2011; Zabel, 2015). We aim to fill this gap in the literature by employing a robust methodology with a proper panel design. First, using monthly hotel and crime data, we examine whether personal and property crimes affect hotel operating performance at the property level. Second, we examine the effects of nighttime and daytime crime incidents on hotel operating performance. Third, we study the effects of personal and property crime incidents within the hotel perimeter on hotel operating performance. Finally, following recommendations to alleviate OVB (Abbott & Klaiber, 2011; Zabel, 2015), we employ a comprehensive set of controlled variables with a panel design to construct fixed effect models in order to test our hypotheses.

This paper is organized as follows. In the next section, we review relevant literature and develop our hypotheses. In Section 3, we describe the data and methodology before reporting empirical results for a number of specifications in Section 4. We discuss implications in Section 5 and offer some concluding remarks in Section 6.

2. Literature review

While in the majority of prior studies, scholars have investigated the impact of crime on property values (e.g., Buck, Hakim, & Spiegel, 1993; Buck, Hakim, & Spiegel, 1991; Burnell, 1988; Congdon-Hohman, 2013; Linden & Rockoff, 2008; Lynch & Rasmussen, 2001; Pope & Pope, 2012; Thaler, 1978; Zabel, 2015), few researchers have examined the impact of crime on businesses, notable exceptions being Abadie and Dermisi (2008), Burnham, Feinberg, and Husted (2004), Greenbaum and Tita (2004), Rosenthal and Ross (2010), Schwartz, Susin, and Voicu (2003), and Sloan, Caudill, and Mixon (2016). As a result, the impact of crime on hotel performance has eluded systematic examination from both practitioners and scholars.

2.1. Impact of crime on property values

In a well-established line of research, scholars have investigated the impact of crime on property values (e.g., Bishop & Murphy, 2011; Buck et al., 1991, 1993; Burnell, 1988; Congdon-Hohman, 2013; Cullen & Levitt, 1999; Glaeser & Sacerdote, 1999; Gibbons, 2004; Ihlanfeldt & Mayock, 2010; Linden & Rockoff, 2008; Pope, 2008; Pope & Pope, 2012; Thaler, 1978; Zabel, 2015). Since the 1960s, the hedonic pricing model has been employed to explore a variety of valuation issues such as air quality value (e.g., Ridker & Henning, 1967), school value (e.g., Kain & Quigley, 1970), and crime value (e.g., Thaler, 1978). The key rationale behind such a model rests upon the belief that economic agents typically consider housing characteristics and local amenities to be critical when selecting a place of residence (Schwartz et al., 2003). Agent preference is thus influenced by housing values, which are utilized to extract the "implicit price" of a housing attribute or local amenity (e.g., Chay and Greenstone, 2005; Kain & Quigley, 1970; Pope, 2008; Ridker & Henning, 1967; Schwartz et al., 2003; Thaler, 1978) under a certain market equilibrium. As a result, economists have frequently used the hedonic pricing model to examine the impact of crime on household valuations (e.g., Buck et al., 1991, 1993; Burnell, 1988; Gray & Joelson, 1979, pp. 47–60; Hellman & Naroff, 1979; Lynch & Rasmussen, 2001; Naroff, Hellman, & Skinner, 1980; Rizzo, 1979; Zabel, 2015).

The empirical evidence shows that crime generally has a significant and negative impact on property values, with a well-established line of research focusing on residential house prices. For example, in two studies, crime rates exhibited a significant impact of −0.07 (Thaler, 1978) and −0.05 (Haurin & Brasington, 1996) on the elasticity of home values. From a different measurement perspective, a one standard deviation increase in crime on average leads to a significant decrease of −3.11 standard deviations in the natural log of house prices (Zabel, 2015). Such consistent empirical evidence has been obtained repeatedly, using both cross-sectional data (e.g., Burnell, 1988; Gray & Joelson, 1979, pp. 47–60; Hellman & Naroff, 1979; Lynch & Rasmussen, 2001; Naroff et al., 1980; Rizzo, 1979) and panel data (e.g., Buck et al., 1991, 1993; Zabel, 2015). However, because the property value literature focuses on the impact of crime on residential house prices, generalizability of findings to other industries is limited.

2.2. Impact of crime on businesses

Notwithstanding the abundance of literature on crime and property value, few have explored the impact of crime on businesses (Sloan et al., 2016) other than Bates and Robb (2008), Burnham et al. (2004), Greenbaum and Tita (2004), Rosenthal and Ross (2010), Schwartz et al. (2003), and Sloan et al. (2016). Despite meaningful insights offered by these studies, distinct pieces of empirical evidence and perspectives suggest the need for more in-depth and contextualized investigations on the systematic impact of crime. Specifically, Schwartz et al. (2003) examined the impact of crime on the real estate business boom in 1994 by employing hedonic regression models on panel data of repeat sales in New York City between 1988 and 1998, revealing that falling crime rates contributed to about one third of the property price increase after 1994. Burnham et al. (2004) examined panel data from 318 U.S. counties between 1982 and 1997, which showed that violent crime has a negative and larger impact on economic growth in nearby suburbs than in more distant suburbs. Using a panel of zip code-level data for five U.S. cities between 1987 and 1994, Greenbaum and Tita (2004) found that service-related establishments in low crime areas tend to experience increased violence. Employing confidential microdata from the U.S. Census Bureau's Characteristics of Business Owners Survey, Bates and Robb (2008) found that business viability appears similar for firms that are most negatively affected by crime and otherwise identical firms that are not affected by crime. Further, some business owners may rationally choose to locate their businesses in high crime areas. More recently, Rosenthal and Ross (2010) showed that relative sensitivity to crime can be used as a sorting mechanism to categorize different sectors of the economy in order to understand business location choices. They showed that entrepreneurs consider violent crime to be a critical factor when bidding for business locations in five U.S. cities. Building on these findings from Rosenthal and Ross (2010), Sloan et al. (2016) focused on the relationship between crime and restaurant openings in Memphis, Tennessee from 2009 to 2014 and found that higher crime is positively and significantly associated with new restaurant openings, indicating that location benefits may overpower crime problems and attract restaurant entrepreneurs.

In addition, scholars have recognized both theoretically and empirically that fear of violence causes consumers, employees and entrepreneurs to change their routine activities (e.g., Greenbaum & Tita, 2004; Wilcox, Land, & Hunt, 2003), resulting in direct and indirect increases in business operating costs. For example, Hamermesh (1999) found that areas with higher homicide rates are associated with deviations from optimal patterns of work timing (i.e., evening and nighttime work is shifted to the daytime), resulting in increased labor costs. In addition, both crime and the fear of crime lead to cost increases associated with surveillance, security, insurance premiums, and stolen property repair and replacement (Burrows, Anderson, Bamfield, Hopkins, & Ingram,