

UC Office of the President

ITS reports

Title

Patterns in Bike Theft and Recovery

Permalink

<https://escholarship.org/uc/item/9zd4w15w>

Authors

Cohen, Achituv

Nelson, Trisalyn

Schattle, Lizzy

et al.

Publication Date

2023-11-28

DOI

10.32866/001c.90056

Peer reviewed

Patterns in Bike Theft and Recovery

Achituv Cohen, University of California, Santa Barbara
Trisalyn Nelson, University of California, Santa Barbara
Lizzy Schattle, University of California, Santa Barbara
Moreno Zanotto, Simon Fraser University
Seth Herr, BikeIndex.org
Dillon Fitch, University of California, Davis
Meghan Winters, Simon Fraser University

September 2023

PRE-PRINT

Published in Findings, November 2023. <https://doi.org/10.32866/001c.90056>

Report No.: UC-ITS-2023-09

Patterns in Bike Theft and Recovery

Authors: Achituv Cohen (University of California, Santa Barbara, achituv@ucsb.edu), Trisalyn Nelson (University of California, Santa Barbara, trisalyn@ucsb.edu), Lizzy Schattle (University of California, Santa Barbara, schattle@ucsb.edu), Moreno Zanotto (Simon Fraser University, mzanotto@sfu.ca), Seth Herr (BikeIndex.org, seth@bikeindex.org), Dillon Fitch (University of California, Davis, dfitch@ucdavis.edu), Meghan Winters (Simon Fraser University, mwinters@sfu.ca)

Venue: Transport Findings

Abstract

Our goal is to reduce the negative impacts of bicycle theft by better understanding patterns in bicycle theft and recovery. We analyzed data from 1823 responses to a North American survey on bicycle theft conditions, recovery circumstances, and demographics. Survey recruitment was done in partnership with BikeIndex, a non-profit bicycling registration service. Most bikes were stolen from inside a shed or garage (28%) or from outdoor bicycle racks (18%) and most thefts occur overnight (41%). 15% of stolen bicycles were recovered. Key factors in recovery include police involvement, bike registration, and reporting the theft through multiple channels.

Keyword: bicycle theft, recovery patterns, active transportation

1 QUESTIONS

Bicycles are more likely than cars or motorcycles to be stolen (Van Kesteren, Mayhew, and Nieuwbeerta, 2000), and concerns about bicycle theft are a barrier to people using bicycles, especially for transportation (Poulos et al., 2012; Winters et al., 2011). Reducing bicycle theft is challenged by a lack of data; thefts are chronically underreported and there is no centralized reporting of recovered bicycles. The uptake of e-bicycles has the potential to increase bicycle use for transportation. However, given the high cost of e-bicycles, minimizing theft will be critical for supporting ridership. Understanding of patterns and conditions that lead to bicycle theft and recovery is a first step towards mitigating the negative consequences of theft. In this paper we answer two questions.

- What are patterns in where and when bicycles are stolen?
- What are common circumstances that lead to an increased chance that a bicycle will be recovered.

2 METHODS

We deployed an online survey to people that had their stolen bicycles in order to understand the conditions that lead to bike theft and recovery. Survey participant recruitment was mostly accomplished in partnership with BikeIndex.org. BikeIndex.org is a non-profit bicycling registration group that has helped recover 10,622 bicycles since 2013. BikeIndex.org emailed over 5000 registrants that had stolen bikes to invite participation in the survey. We also recruited survey participants through social media and email listservs to bicycle advocacy organizations. We received 1823 responses from the United States and Canada.

Our survey included questions broadly related to demographics of bicycle owners, conditions surrounding bike thefts, characteristics of bicycles, and efforts that lead to recovery or attempted recovery (Supplement 1). In order to identify patterns of bicycle theft and recovery, we use univariate summary statistics. We used cross-tabulation to analyze responses to theft and recovery questions for demographic groups and for quantifying associations between bicycle attributes, theft incidents, and likelihood of recovery.

3 FINDINGS

Demographics and characteristics of survey respondents are presented in Supplemental Table 2. Of the 1823 survey respondents, 61% of survey participants were male, 36% female, and 1% nonbinary. The ethnic background of the respondents was predominantly European (74%) and 80% of the participants held a bachelor's degree or higher. Additionally, 61% of the participants reported owning at least one bicycle. The median annual income of respondents was \$100,000 to \$149,999, and most were born in the 1980s (31%) or 1990s (24%).

The majority of bike thefts were reported to occur overnight (41%) and morning is the least likely time for thefts to occur (9%) (Table 1). The most common location for bicycles to be stolen from

is inside a shed or garage (28%), with outdoor bicycle racks being the second most common theft location (18%).

When it came to reporting theft incidents, 17% of incidents were reported to the police, 20% were also reported to the registry/recovery system, and 34% were also shared on social media. The analysis showed that females were more likely to communicate theft using the three types of means, with 42% of female participants compared to 31% of male participants.

Respondents indicated that 99% of the time entire bicycles were stolen (Table 2). Most of the time stolen bicycles were locked (59%). Among those who locked their bicycles, cable locks (35%) and U-locks (26%) were the most commonly used locks. The majority of stolen bicycles (46%) had a value of less than \$1000. Hybrid/city/Dutch bicycles and mountain bikes were the most commonly stolen, with each group accounting for 31% of thefts. E-bikes accounted for 12% of all stolen bicycles. The percentages do not account for how many bicycles of each type are in circulation, and it is likely that in 2022 when the survey was conducted that e-bikes were a relatively small proportion of all bicycles.

We found 15% of bicycles were recovered. While stolen bicycles have a low likelihood of recovery, we found a higher percentage than previously reported; 15% as opposed to 5% (Asgard, 2023; Socialcycling, 2022) (Table 3). However, this sample is likely more theft-conscious than the population given their participation in BikeIndex. Knowing when your bicycle was stolen and reporting it through multiple channels aided recovery. Only 9% of respondents who were unaware of the time at which their bicycle was stolen were able to recover their bicycle, as compared to 15% overall. Recovery was also aided by reporting the theft in multiple ways and 17% of those who reported the theft through three channels - police, social media, and a registry/recovery system - were more likely to retrieve their bicycles. Recovery likelihood decreased to 16% when it was communicated through two channels - the police and the registry/recovery system. Communicating through one channel resulted in 12% recovery when reported to the police and 10% recovery when notified the registry/recovery system.

Police support and bicycle registration were factors in bicycle recovery. Of recovered bicycles, in-person police involvement was associated with (39%) recovered bikes, and an additional 24% of people who recovered bicycles were assisted by police via phone/email. Online support was the second most effective means of recovery (20%). However, bicycle owners who registered their bicycles were less likely to retrieve their bicycles through online support (16%) compared to non-registered bicycles (24%). Instead, registered bicycle owners seemed to rely more on police support, with 38% retrieving their registered bicycles in comparison to 32% of non-registered bicycles. It is also possible to recover stolen bicycles by looking at whether they are being sold online. Additionally, 27% of recovered bicycles were sold online, most commonly through Facebook in the US (9%) and Kijiji in Canada (8%).

Most recovered bicycles were reported to be either rideable (53%) or repairable (38%), and only 7% were salvage or junked. We found that road bicycles are generally returned in rideable condition (67%), while gravel/cyclocross and delivery/cargo bicycles are typically in repairable condition (57%).

Tables

Table 1. Count and percentage of each response to questions about theft incidents.

Question	Response	Count	Pct.
Day Part	Morning (06:00-11:59)	171	9%
	Afternoon (12:00-17:59)	356	20%
	Evening (18:00-23:59)	224	12%
	Overnight (00:00-05:59)	734	41%
Theft location	Inside a shed/garage	513	28%
	Outdoor bike rack	323	18%
	Outside in the yard or on a balcony, porch, or patio	255	14%
	Other	728	40%
Near university	No	1572	87%
	Yes	246	13%
Report made	The police, A bicycle registry/recovery system, Social media	619	34%
	The police, A bicycle registry/recovery system	533	29%
	The police	306	17%
	Other	361	20%

Table 2. Count and percentage of each response to questions about stolen bicycles

Question	Response	Count	Pct.
Part	Entire bicycle	1782	99%
	A major bicycle part necessary for riding	24	1%
Is registered	No	1124	62%
	Yes	634	35%
Is insured	No	1083	60%
	Yes	644	35%
Is locked	Yes	1069	59%
	No	712	39%
Locked type	Cable lock	368	35%
	U-lock	274	26%
	Chain-lock combination	83	8%
	Other	80	7%
	More than one lock	187	18%
Value approx.	Less than \$1000	842	46%
	\$1000- \$1999	431	24%
	\$2000 - %3999	298	16%
	%4000 or more	224	13%
Bicycle type	Hybrid/City/Dutch	544	31%

Question	Response	Count	Pct.
	Mountain	542	31%
	Road	376	21%
	Other	303	17%
Is electric	No	1561	88%
	Yes	217	12%

○

Table 3. Count and percentage of each response to questions about bicycle recovery.

Question	Response	Count	Pct.
Is recovered	No	1537	85%
	Yes	280	15%
How recovered	The police found it and returned it to me	96	34%
	I recovered it with online support	57	20%
	I found and recovered it myself	53	19%
	By a public/friend/family member	28	10%
	Other	45	16%
Is police assist	Yes, in-person support	109	39%
	No	103	37%
	Yes, phone or email support	68	24%
Is sold online	No	166	59%
	Yes, on Craigslist, Facebook Marketplace, OfferUp, Kijiji	62	22%
	Yes, on other website	14	5%
Recovery condition	Rideable	63	53%
	Repairable	45	38%
	Salvage/junk	8	7%

Acknowledgements

This study was made possible with funding received by the University of California Institute of Transportation Studies from the State of California through the Road Repair and Accountability Act of 2017 (Senate Bill 1)..

References

- Asgard. (2023, November 1). *Bike theft statistics Asgard*. <https://www.asgardsss.co.uk/asgard-bike-theft-statistics>
- Van Kesteren, J., Mayhew, P., & Nieuwbeerta, P. (2000). Criminal victimization in seventeen industrialized countries.. *International Journal of Comparative Criminology*, 1 (1), 151 - 160 (2001).
- Poulos, R. G., Hatfield, J., Rissel, C., Grzebieta, R., & McIntosh, A. S. (2012). Exposure-based cycling crash, near miss and injury rates: The Safer Cycling Prospective Cohort Study protocol. *Injury Prevention*, 18(1), e1–e1.
- Socalcycling. (2022, February 28). *Bicycle Theft is Becoming Increasingly Common* / *SoCalCycling.com*. <https://socalcycling.com/2022/02/28/bicycle-theft-is-becoming-increasingly-common/>
- Winters, M., Davidson, G., Kao, D., & Teschke, K. (2011). Motivators and deterrents of bicycling: comparing influences on decisions to ride. *Transportation*, 38(1), 153–168. 10.1007/s11116-010-9284-y.