

Measuring & Controlling Subway Fare Evasion: Improving NYCT's Safety and Security

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Photo: NYC Transit DRAW



New York City Transit

Notice: Opinions expressed in this presentation are those of the authors and do not necessarily reflect the official policy or position of Metropolitan Transportation Authority or MTA New York City Transit.

Background

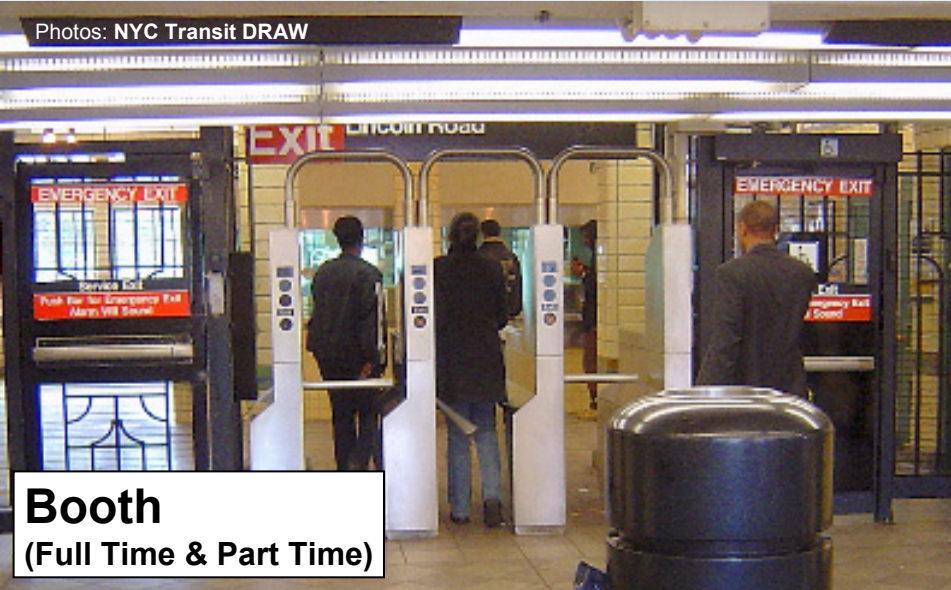


Photo: NYC Transit DRAW

- Fare evasion measured by station agents since early 1990s
- Reduced from 6.9% to supposedly about 0.2% because of:
 - New AFC system
 - Graffiti control
 - Police patrols
 - Civil penalties
 - General crime reduction
- **Renewed concerns:**
 - Booth destaffing program
 - Fare increases
 - 'Panic bars' on exit gates

Fare Collection Hardware

Photos: NYC Transit DRAW



Booth
(Full Time & Part Time)



HEETs



HXT
(Not surveyed)



Painted HXT
(Not surveyed)

Fare Tariff & Defining Evasion

- **Official methods:**

- Children under 44"
 - **Must crawl under turnstile**
 - **Not allowed alone**
- Passengers with bulk items, school field trips
 - **Request agent assistance**
 - **Enter through gate**
- ‘Block’ or half-fare tickets
 - **Surrender paper ticket**
 - **Enter through special entry turnstile**

- **Unofficially:**

- Riders open gates for paid passengers with bulk items
- Children squeeze through high-wheels with paid adults
- Flash passes, uniforms, contractors go through gates



Turnstile Fare Evasion Methods

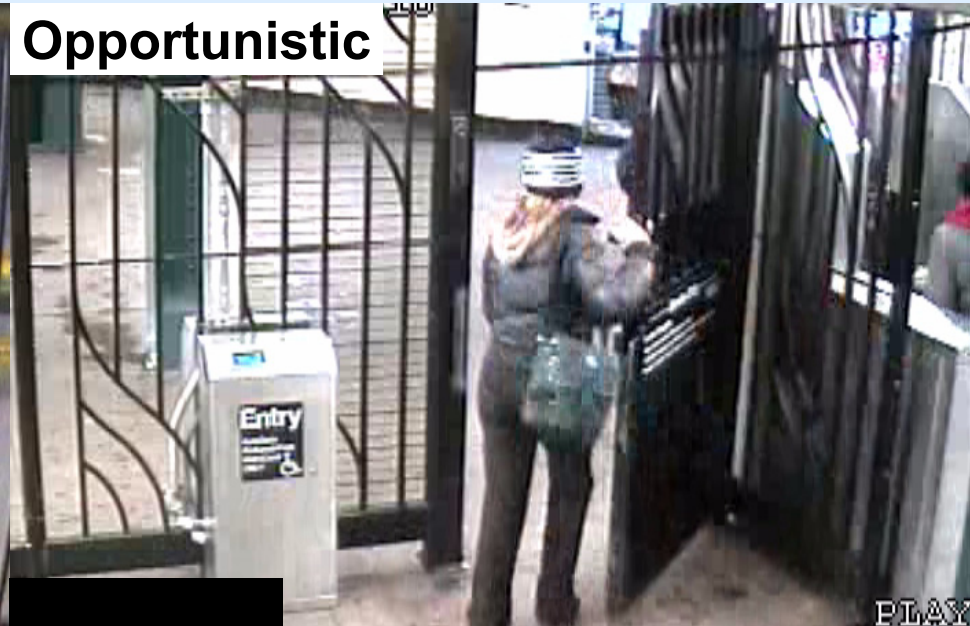


Gate Fare Evasion Methods

Deliberate



Opportunistic



Backcocks, then use panic bar to open gate

Catches gate to enter after others exit

Gate Left Open



Questionable



Opens unlocked gate to enter, or gate ajar

Police opens gate for stroller, bystander enters



Observation Methodology

Evasions	Questionable	Legal Entries
Traditional Turnstile • Under (over 44") • Jump • Backcock • Bump • (a) Low TS • (b) HEET Gate (Panic Bar) • Opportunistic • Deliberate • Gate Left Open	Tracked • School Group • Police/Fire/Court: (a) Badge (b) Uniform • Flash Pass • Open Gate with Key: (a) TA key (b) Emergency key • "Other" Not Tracked • Selling 'Swipes' • MetroCard passback	• Normal Turnstile Entry • Normal HEET Entry • Child under 44", with fare-paying adult • Paper Ticket • Bulk Item

- Discreet observations in half-hour periods divided into six-minute blocks; stratified sample (income and throughput); capture unusual activity only. Entries recorded in one of 19 categories.

Data Collection Forms

 New York City Transit MetroCard Station Entry Count Study

(Observations to be compared with MetroCard data.)

N004Wkd022017

Block 000 Type PART Booth Number H27
 Sched Time 15:00 Page 2
 Date 3/5/2010 Day Fri

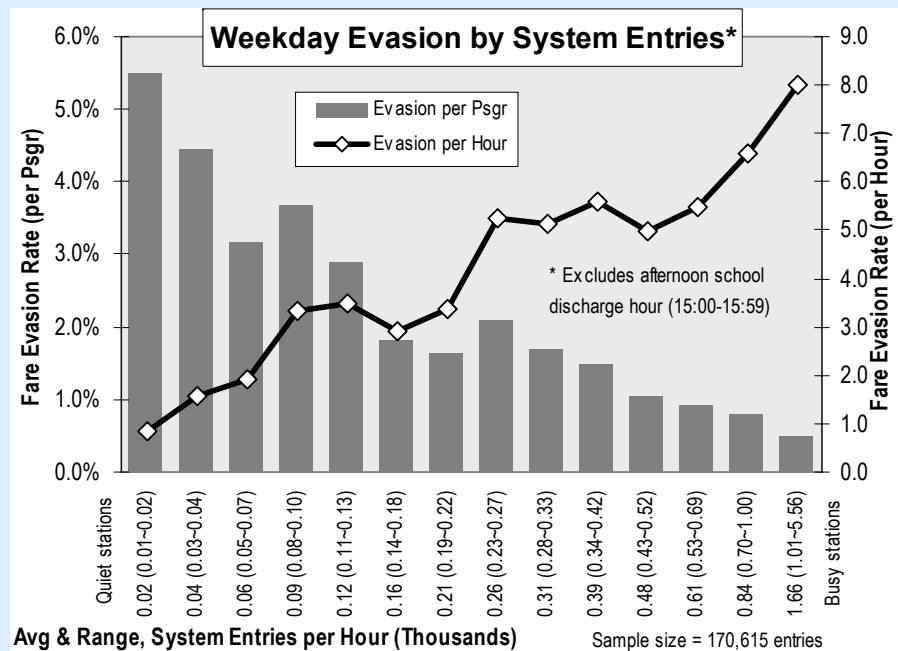
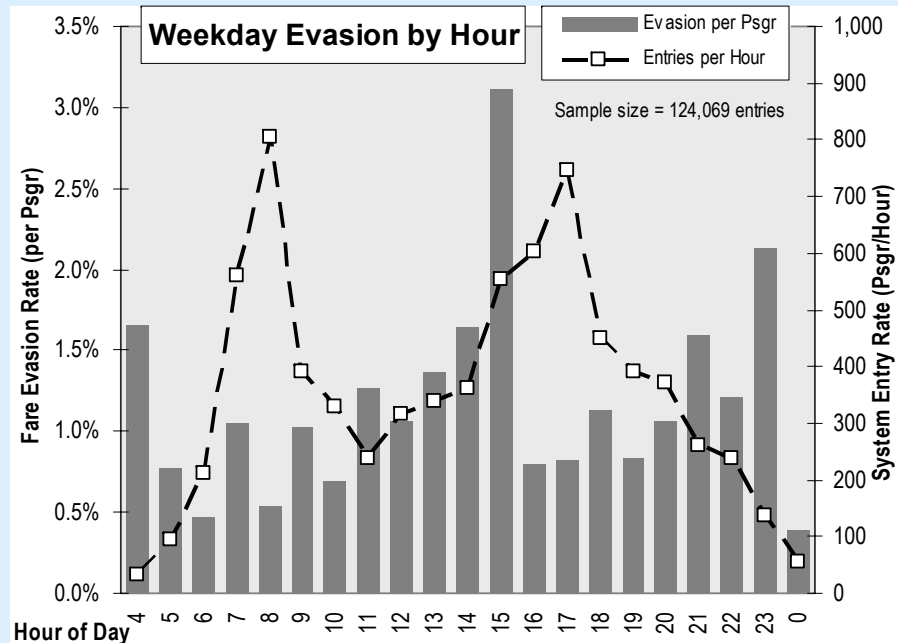
Name ARROYO Pass # M36039
 Station Myrtle-Wyckoff Aves
 Line CNR **L M** Div BMT

Use tally (hash) markings - Do not count low turnstile swipes - Write comments on reverse side - Each row is for six minutes' observations

	Write Time	Unusual Low Turnstile Entries			HEET Entries		Police Present (Y/N)?	Sta Cust Asst Present (Y/N)?	Hear Panic Alarm (Y/N)?	Unusual Gate Entries				Agent-Authorized Gate Entries								
		Crawl Child	Under Over 44*	Jump Over	Back-cocking	Bump-ing				Normal	Bump-ing	Oppor-tunistic	Left Open	Deli-berate	Used Key	Other (Specify)	Paper Ticket	School Group	Bulk Item	Police Badge	Uniform	Flash Pass
6 Min	15:00			I	(Pull turnstile back while stepping through.)	(Two persons squeeze through turnstile on one fare.)				N	N	N										
6 Min	15:06	I								N	N	Y										
6 Min	15:12				I	I				N	N	N										
6 Min	15:18	I	1(adult)							N	N	Y										
6 Min	15:24									N	N	Y			I							

Subway Fare Evasion Trends

- **Systemwide: 1.3%**
- **By time period:**
 - Peak periods: ~0.9%
 - more evasions per hour
 - but lower rates per passenger
 - Midday and nights: 1.3%~1.9%
 - high evasion rates
 - but not many evaders
 - School hour: almost 3.0%
 - highest evasions per psgr
- **By system entry rate:**
 - Busy stations: ~0.5%
 - low per-passenger rates
 - high per-hour rates (8.0 /hr)
 - Quiet stations: up to 5.5%
 - high per-passenger rates
 - low per-hour rates (<1.0 /hr)



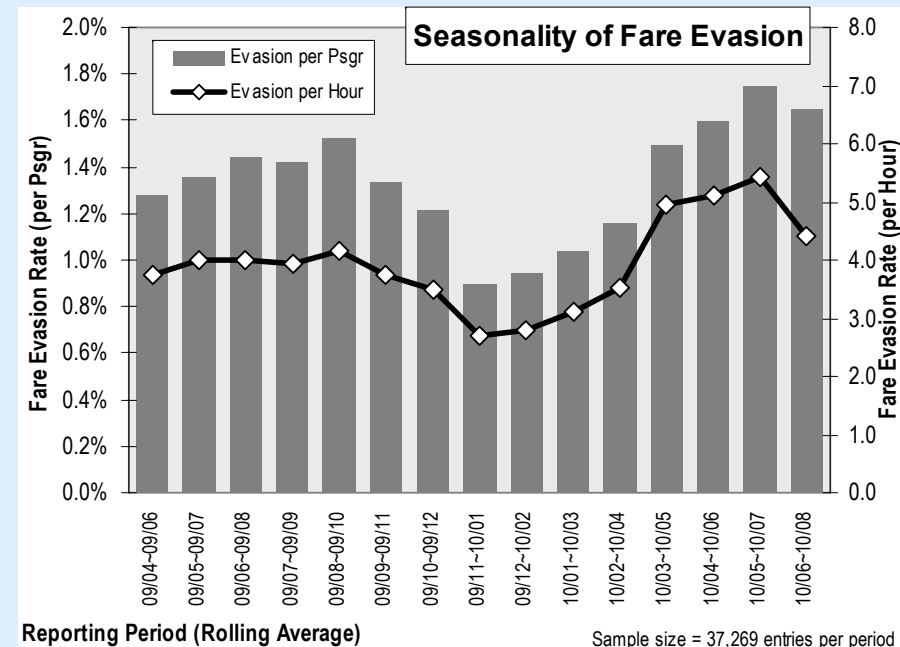
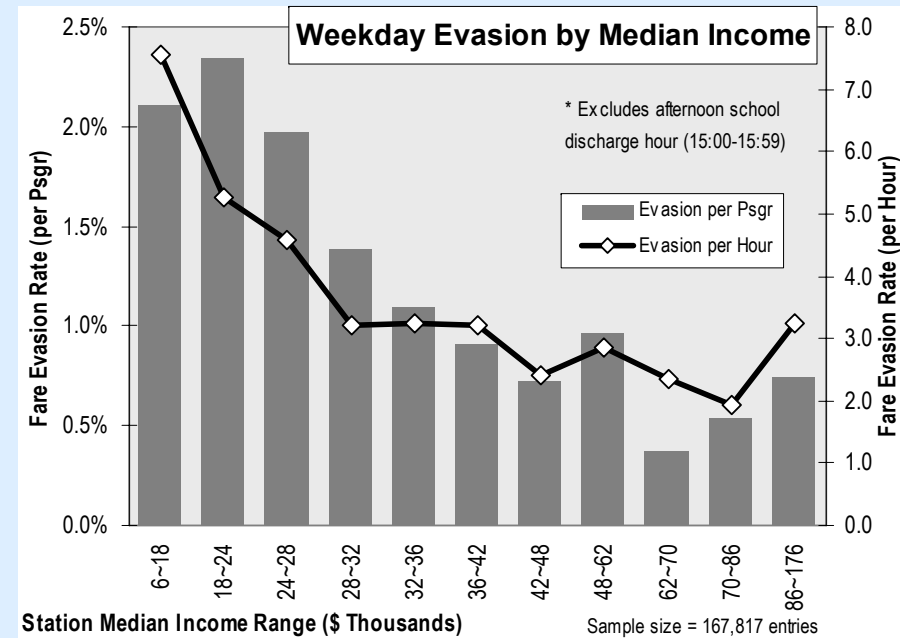
Evasion Trends: Income & Season

• By median income

- Higher evasions observed in stations where adjacent census tract median income < \$30k
- No effect when income > \$30k

• Seasonality

- Evasion is more prevalent during warm summer months
 - Summer = ~1.7%
 - Winter = ~0.9%
- Consistent with literature on general crime trends
- Seasonal ridership impacts (trip purpose)



Combating Fare Evasion



Photo: NYC Transit DRAW

- Properly locking service access gates at all times
- Improve communication of child height restrictions
- Fare control configuration and staff presence don't seem to have much effect
 - Gate evasion rates:
0.9% unstaffed, 1.0% staffed
 - High-wheel evasion rates:
1.2% unstaffed, 1.0% staffed
- **Tackling organized fare abuse operations (swipers)**
 - Vending machine vandalism costs repair expenses
 - Swiping impacts revenue
 - Work with NYPD Transit Bureau and community courts
 - Use video evidence if available

Fare Enforcement Issues



- **Legal framework**
 - New York's rules were well established by the 1980s
 - Important clarifications:
 - **arrest versus summons**
 - **undercover enforcement permissible?**
 - **arresting powers**
 - **dispute/appeals process**
 - Expected fines versus fares
 - **New York's fine = \$100**
 - **progressive?**
 - **"street economics"**
- **"Surge" enforcement**
- **Video recording cameras**
 - Shared use for anti-terrorism

CHEATERS COST MTA MILLIONS

Fare-beaters underestimated for years

FOR YEARS, NYC Transit has wildly underestimated how often riders beat the fare, which costs the cash-crunched agency out of millions of dollars, the Daily News has learned.

Fare-beaters jump turnstiles or enter through emergency exit gates about 19 million times a year, a new agency analysis shows.

That's far more than the old estimate of about 5 million a year, which went out the window in April, when agency bean counters changed the way they tally scofflaws.

The lost revenue is staggering. Fare-beating deprived NYC Transit of approximately \$27 million last year alone, based on an average subway fare of \$1.48, according to the new analysis.

Under the old method of estimating fare-beating, the agency believed it was losing about \$7 million a year.

The lost revenue is even larger than the amount the Metropolitan Transportation Authority plans to save with subway service cuts that are scheduled to go into effect soon to help plug a large budget gap.

Some paying straphangers fumed yesterday when told about farebeats at the turnstiles.

"It makes me mad because I have to pay for them," said 44-year-old Bronx baby-sitter Elisea Hernandez.

Published on March 16, 2010, at 12:00 PM. Tuesday, April 27, 2010

DAILY NEWS NYDailyNews.com

It opens subway gates & is FDNY emergency tool, too

BY PETE DONOHUE
DAILY NEWS STAFF WRITER

THE KEY to the subway is plenty useful aboveground, too.

After revealing that scammers are selling fare-beaters a \$27 key that opens subway emergency exits, the Daily News found the key also controls elevators at thousands of city buildings.

The FDNY confirmed the "fireman's service" key — used in emergencies — can call all elevators to the lowest floor and hold them there.

Thousands of firefighters have the keys, which the FDNY has been using for many years. FDNY spokesman Frank Gribbon said.

EXCLUSIVE
BY PETE DONOHUE
DAILY NEWS STAFF WRITER

"There should be a guard there," Thomas DeMarcus, a 50-year-old Queens actor, said at the unstaffed 47th St. entrance to the station.

The unstaffed station turned Long Island parents Maria and Co-

Get magic keys that open the gates at 468 stations

EXCLUSIVE
BY MIKE JACCARINO
AND PETE DONOHUE
DAILY NEWS STAFF WRITERS

THIS IS THE key to the city, and it costs only \$27.

The key unlocks swing gates next to every subway turnstile, granting easy — and free — access

to the city's subway system.

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DAILY NEWS NYDailyNews.com



Photo: NBC Daily News reporter Pete Donohue used \$27 emergency master key to open subway gates across New York. Photo by Kevin Hager

THIEVES OWN THE SUBWAY FOR \$27

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Photo: NBC Daily News reporter Pete Donohue used \$27 emergency master key to open subway gates across New York. Photo by Kevin Hager

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EXCLUSIVE — SEE PAGE 5

N.Y. KEY PARTY!

Angry riders, cops rip MTA on subway gate breach

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DAILY NEWS NYDailyNews.com

Up for the count

Estimated number of fare-beaters

2008 1.62 million 22% 5.2 million \$7 million

2009 1.58 million 1.2% 18.9 million \$27 million

*New method and higher rate calculated for April-June 2009. Final numbers not yet available.

Source: NYC Transit

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The key is to stop 'magical morons'

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BY MIKE McLAUGHLIN, PETE DONOHUE and ERIN EINHORN
DAILY NEWS WRITERS

NYC TRANSIT officials vowed a swift crackdown yesterday on illegal master subway keys that let fare-beaters ride the rails free.

Straphangers and elected officials fumed over the "shocking" security breach exposed in Sunday's Daily News, which reported copies of the keys have made it into criminal hands.

"It's mind-boggling," said City Council Transportation Committee Chairman James Vacca (D-Brooklyn), who said he would grill transit henchmen when they come before his committee next week.

"This could be a major security problem if these keys get into the wrong hands," Vacca said.

They already have. The News's exclusive report found.

The keys are supposed to go only to police, firefighters and authorized MTA workers to let them enter the subway through emergency gates — but illegal copy-lace have been circulating around

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SUBWAY SHOCKER

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Enforcement's down as fare-beating grows

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FEAR BEATING is rampant in the subway, but police enforcement has been declining, NYPD statistics reveal.

Police ticketed or arrested about 87,000 riders who jumped turnstiles or entered through emergency exits last year, the lowest number cited in five years, the data show.

The Daily News yesterday reported that a new NYC Transit analysis estimates 19 million riders are beating the fare annually — much higher than previous estimates of about 5 million.

The Metropolitan Transportation Authority said that transit officials "continue to work with the NYPD on cost-effective strategies such as targeting high-incidence locations and placing cameras in key areas."

The police gave fare-evaders tickets to

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I got to pay every trip,' he whines

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But if he was short on cash, he'd peddle \$1 and \$2 subway rides to people waiting in line for MetroCards or to those who didn't have enough for a trip. That's when he got caught.

"I made some money," he said. "Nobody got hurt."

Police arrested him earlier months at a midtown station after spotting him spending a year and charging a ride. Cops charged him with possessing burglar tools and petty larceny — but his most recent key is gone.

"I was read," he said. "It was kind of pricey. Any door you need, you get it right. Most people don't notice. Everybody's using it."

The Daily News yesterday also tracked down a 51-year-old Manhattan man arrested with a key last month.

He claimed he didn't know his purpose. It was a ring of keys that belonged to a friend who recently died, he said. The transit of

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Conclusions & Future Work

- **Multi-pronged approach is required to manage evasion**
 - AFC security & audit features
 - Legal enforcement framework
 - Data collection & analysis to identify 'hot spots'
 - Task-force based approach
 - Comprehensive press strategy
- **Information sharing is key**
 - Crime of opportunity
 - Controls are necessary
- **Future work**
 - Measurable benefits of fare enforcement
 - Evader-criminal correlation
 - Countermeasure effectiveness
 - Socio-demographic patterns



Photo: NYC Transit DRAW

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Photo: Amanda Marsh

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 - Automated Fare Collection
 - Office of Management & Budget
- **TRB AP030 Committee's Anonymous Reviewers**