2019 Fare Evasion Study

Audit, Risk and Compliance

February 26, 2020
Content Overview

- Fare Evasion Risk Landscape Review (2018)
- Auditor General’s Findings (Dec 2018)
- Tapping Behaviour (Sept 2019)
- Fare Evasion Study (Dec 2019)
- Considerations
Audit, Risk and Compliance (ARC) Fare Evasion Activities

**Initial Involvement**

2018

- Focused efforts to gain a comprehensive understanding of the TTC’s fare evasion risk landscape and impact of key infrastructure and customer centric changes.

**Customer Tapping Behaviour on Streetcars and System Wide Fare Evasion Study**

2019

- Observed streetcar customer tapping behaviour with and without visible Fare Inspector presence. A 25% increase in customer tapping behaviour was noted when uniformed Fare Inspectors are present. Results informed the design of a comprehensive 2019 Fare Evasion Study.

- Conducted system wide fare evasion study during November and December 2019. Results to serve as a benchmark for future ARC evasion work.

**Regular Reporting and Board Oversight**

2020

- Provide support of quarterly reporting on TTC’s fare evasion and impact of revenue protection initiatives to the Board.
2018 Auditor General Fare Evasion Study - Recap

System Wide Fare Evasion Rates

- Weighted Average Fare Evasion Rate: 5.4%
  - Streetcar: 15.2%
  - Bus: 5.1%
  - Subway: 3.7%

Financial Impact

- Annual Uncollected Revenue**: $60.7M*
  - Streetcar: $12.2M
  - Bus: $30.1M
  - Subway: $18.4M

Recommendations

- TTC Board Approved Recommendations
  - Phase 1: 27
  - Phase 2: 34

Notes:

* An additional $3.4 million in revenue loss due to malfunctioning Metrolinx equipment was identified in 2018.
** Based on Average Fare (2018) of $2.23.
### Fare Evasion Study Methodology Comparison

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Type of Inspection</strong></td>
<td>Plain Clothes Fare Inspectors (all modes)</td>
<td>Plain Clothes TTC Special Constables (all modes)</td>
</tr>
<tr>
<td><strong>Fare Inspection Method</strong></td>
<td>Streetcar – POP inspection (100% sweep)</td>
<td></td>
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<tr>
<td></td>
<td>Bus – POP inspection (boarding passengers)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subway – Main Entrances (Concession only) and Secondary Entrances (Security video review)</td>
<td></td>
</tr>
<tr>
<td><strong>Inspection Period</strong></td>
<td>November to December</td>
<td></td>
</tr>
<tr>
<td><strong>Inspection Time</strong></td>
<td>Non-peak and peak periods, week-days and week-ends</td>
<td>Plus crush-loads and late evenings</td>
</tr>
<tr>
<td><strong>Type of Enforcement</strong></td>
<td>Education only</td>
<td>Issued tickets (fraudulent use of child PRESTO card)</td>
</tr>
<tr>
<td></td>
<td>Hotlist (child concession misuse)</td>
<td></td>
</tr>
<tr>
<td><strong>Sample Size by Mode</strong></td>
<td>Streetcar (7 routes; 315 streetcars)</td>
<td>Streetcar (9 routes; 186 streetcars)</td>
</tr>
<tr>
<td></td>
<td>Bus (26 routes; 76 buses)</td>
<td>Bus (52 routes; 117 buses)</td>
</tr>
<tr>
<td></td>
<td>Subway (15 main entrances; 4 secondary entrances – 38 hours of security camera footage)</td>
<td>Subway (38 main entrances; 24 secondary entrances – 24 hours of security camera footage)</td>
</tr>
<tr>
<td></td>
<td>Total Observations Collected – 19,647</td>
<td>Total Observations Collected – 30,247*</td>
</tr>
</tbody>
</table>

*ARC employed a stratified random sampling technique. To ensure representative coverage, sample observations were made across all service hours, taking into account boarding data by mode and route, and by time of day and the day of the week.*
2019 ARC Fare Evasion Study Results - Overall

**System Wide Fare Evasion Rates**

- Weighted Average Fare Evasion Rate: 5.7%
  - Streetcar: 15.9%
  - Bus: 6.3%
  - Subway: 2.4%

**Financial Impact**

- Annual Uncollected Revenue: $70.3M*
  - Streetcar: $23.0M
  - Bus: $34.4M
  - Subway: $12.9M

**Considerations**

- TTC Management to Report Back to the Audit, Risk and Management Committee by Q3 2020

* Based on Average Fare (2019) of $2.25.
* Streetcar fare evasion rate at 15.9%, accurate to plus or minus 0.8%, 19 times out of 20.
* Bus fare evasion rate at 6.3%, accurate to plus or minus 0.9%, 19 times out of 20.
* Subway fare evasion rate at 2.4%, accurate to plus or minus 0.2%, 19 times out of 20.
2019 ARC Study - System Wide Fare Payment Equipment Availability

- **PRESTO Readers**
  - 96% Availability
  - 1,175 PRESTO readers observed on 303 vehicles (bus and streetcar)
  - 46 of these were out of service (streetcar only)

- **Fare Gates**
  - 100% Availability
  - 432 fare gates observed at 38 main entrances and 24 secondary entrances
  - No fare gates were out of service

- **SRVMs**
  - 84% Availability
  - 95 Parkeon SRVMS and 183 S&B SRVMS observed on 139 LFLRVs
  - None of the Parkeon SRVMs were out of service
  - 45 of the S&B SRVMs were out of service

Above results are based on ARC’s Fare Evasion Study conducted from November to December 2019.
2019 ARC Study - Overall Fare Evasion Analysis

Fare Evasion Rate by Type

<table>
<thead>
<tr>
<th>Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fraudulent Use of Child PRESTO Card</td>
<td>33.7%</td>
</tr>
<tr>
<td>No Valid Proof of Payment</td>
<td>33.2%</td>
</tr>
<tr>
<td>Tailgating</td>
<td>10.8%</td>
</tr>
<tr>
<td>Illegal Entry through Collector Fare Gate</td>
<td>8.7%</td>
</tr>
<tr>
<td>Post Secondary Card Abuse</td>
<td>5.2%</td>
</tr>
<tr>
<td>Senior/Youth Card Abuse</td>
<td>4.6%</td>
</tr>
<tr>
<td>Other *</td>
<td>3.8%</td>
</tr>
</tbody>
</table>

Fare Evasion Rate by Time Period

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Streetcar</th>
<th>Bus</th>
<th>Subway</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning Peak 6 am - 9 am</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midday 9 am - 3 pm</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Afternoon Peak 3 pm - 7 pm</td>
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<td></td>
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<tr>
<td>Early Evening 7 pm - 10 pm</td>
<td></td>
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<tr>
<td>Late Evening 10 pm - 1 am</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Above results are based on ARC’s Fare Evasion Study conducted from November to December 2019.

* Other Includes: Illegal entry through bus bays, Incorrect fare, Pushing through the fare gates, Expired legacy transfers, Hopping over the barrier, Opening the gate for another person to enter, Employee card abuse and Pensioner card abuse.
2019 ARC Study - Streetcar Fare Evasion Analysis

**Streetcar Fare Evasion by Type**

15.9% Fare Evasion Rate

<table>
<thead>
<tr>
<th>Type</th>
<th>Non-Paying Customers</th>
<th>Paying Customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Floor Light Rail Vehicles (LFLRVs)</td>
<td>17.5%</td>
<td>82.5%</td>
</tr>
<tr>
<td>Legacy Streetcars</td>
<td>10.1%</td>
<td>89.9%</td>
</tr>
<tr>
<td>Replacement Buses</td>
<td>7.4%</td>
<td>92.6%</td>
</tr>
</tbody>
</table>

Above results are based on ARC’s Fare Evasion Study conducted from November to December 2019.
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*Door 2 fare evasion rate is 18.9% and Door 3 fare evasion rate is 18.3%.
2019 ARC Study - Bus Fare Evasion Analysis

Bus Fare Evasion by Type

6.3% Fare Evasion Rate

<table>
<thead>
<tr>
<th>Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Valid Proof of Payment</td>
<td>48.8%</td>
</tr>
<tr>
<td>Fraudulent Use of Child PRESTO Card</td>
<td>36.6%</td>
</tr>
<tr>
<td>Post Secondary Card Abuse</td>
<td>8.7%</td>
</tr>
<tr>
<td>Senior/Youth Incorrect Fare Abuse</td>
<td>2.9%</td>
</tr>
<tr>
<td>Expired Legacy Transfers</td>
<td>1.7%</td>
</tr>
<tr>
<td>Employee Card Abuse</td>
<td>0.6%</td>
</tr>
<tr>
<td>Senior/Youth Card Abuse</td>
<td>0.6%</td>
</tr>
</tbody>
</table>

Fraudulent Use of Child PRESTO Card

- Bus

Above results are based on ARC’s Fare Evasion Study conducted from November to December 2019.
2019 ARC Study – Subway Fare Evasion Analysis

Main Entrance Fare Evasion by Type

1.9% Fare Evasion Rate

- Fraudulent Use of Child PRESTO Card: 44.2%
- Illegal Entry through Collector Fare Gate: 27.8%
- Senior/Youth Card Abuse: 11.1%
- Tailgating: 9.1%
- Post Secondary Card Abuse: 4.1%
- Other*: 3.7%

Secondary Entrance Fare Evasion by Type

4.9% Fare Evasion Rate

- Tailgating: 56.5%
- Fraudulent Use of Child PRESTO Card: 30.5%
- Pushing through the Gate: 3.9%
- Going through Gap in the Gate: 3.9%
- Hopping over the Gate: 2.6%
- Opening the Gate for Another Person to Enter: 2.6%

Above results are based on ARC’s Fare Evasion Study conducted from November to December 2019.

*Other includes: Illegal entry through bus bays and Employee card abuse and Pension card abuse.
Adaptable Strategies to Align with Revenue Protection Targets

- Conduct a behavioural study to understand root causes that contribute to customer fare evasion behaviour
- Emphasize fare evasion as a serious crime with consequences in public TTC communications
- Increase use of plain clothes inspections to reduce inspection predictability and intentional customer avoidance
- Develop corporate and institutional programs that offer PRESTO card volume incentives to promote transit use as part of corporate social responsibility and Green initiatives

Operational Agility to Suit Changing Evasion Conditions

- Leverage TTC Special Constable Service’s initiatives to collaborate with school authorities to address student fare evasion behaviour and provide increased support to surface personnel
- Re-assess future plan to implement all-door-boarding on buses in light of increased fare evasion risk
- Improve PRESTO reader device and fare payment machine availability/reliability, and offer new payment options (e.g., open payment)

Technological Improvements and Active Use of Big Data

- Work with Metrolinx to improve the performance of Handheld Point of Sale (HHPOS) devices
- Refine fraud event codes to better represent instances of fare gate fraud
- Continue to leverage big data, improve its accuracy, correlate to inform risk-based revenue protection decisions, and identify vulnerabilities based on tracked results
- Monitor and publicly report the impact of fare evasion reduction and revenue protection strategies by measuring changes in evasion trends
Final Comments

The Challenge

- Changes implemented since 2010 to improve operational efficiencies and modernize the customer experience have inadvertently contributed to fare compliance challenges.

- Revenue losses contribute to the need for fare increases and create inequities for our paying customers.

Customer Behaviour

- To disrupt negative customer behaviour, a culture shift towards fare compliance and a reset of social norms are needed.

- The success of a Revenue Control Strategy is highly dependent on building a fare compliant culture and therefore, such matters need to be considered and incorporated into all revenue protection initiatives.