

The Problem with the MTA

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Introduction

The Metropolitan Transportation Authority (MTA) is responsible for overseeing the transportation network throughout New York City and its surrounding regions. The MTA consists of New York City Transit, Long Island Railroad, Metro-North Railroad, Staten Island Railway, Regional Bus Operations, and B&T (Bridges and Tunnels). For this project, we focus on the New York City Transit subways provided by the MTA.

In 1979, the subway system was completely deteriorated. In order to revive the system, the MTA needed more funds than the State of New York could provide annually. As a result, the MTA continuously sold bonds and took on several loans to rebuild infrastructure, in hopes that the debt would eventually be paid off by fare revenue. However, many decades later, there is a decrease in subway ridership and an increase in alternative forms of transportation. Due to all these factors, the MTA debt is expected to approach 42 billion dollars by the year 2022 (Walker 1-2).

Since May 2003, the MTA has changed the subway fare 6 times to try to offset the debt (“New York City Transit Fares”). To aggravate the situation, the MTA is hoping to introduce a \$50 billion plan for capital improvements (“Public Can Weigh in on MTA’s \$50 Billion Capital Plan”). They are also in the process of hiring an additional 500 transit cops to deal with the increase in subway assaults and fare evasion (Meyer, David et. al).

Here we take an in depth look at the MTA’s subway services. We also discuss how finances can be re-allocated to assist with the MTA’s ever-increasing debt and in the long run, provide a better transportation system for commuters.

Methods

MTA revenue, expenses, and budget data were found on the “MTA Fiscal Dashboard” of the Citizens Budget Commission website (<https://cbcnny.org/research/mta-fiscal-dashboard>).

Average subway ridership totals for weekdays and weekends were retrieved from the official MTA website (<http://web.mta.info/nyct/facts/ridership/>).

Information in regards to MTA subway train totals, commute times, and incidents was obtained through the “Performance Dashboard” of the MTA website (<http://dashboard.mta.info>).

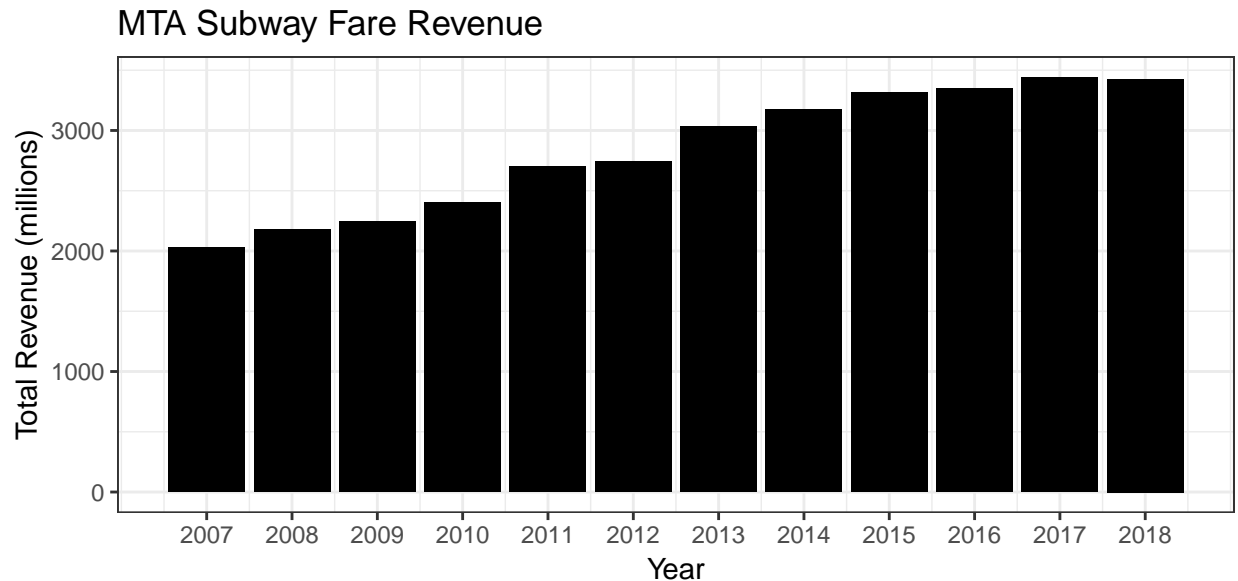
Most of the data was exported in the form of .csv files and uploaded onto GitHub (https://github.com/jessicapadilla/mta_finances). If there was no export option available, data was retrieved from the site using web scraping. This involved extracting tables from the html code within the webpage and converting them into data tables.

All of the data was, then, imported into R. The rvest package within R was used to obtain data from the .csv files and websites. The tidyverse package was used for data cleaning, analysis, and visualization. The gridExtra, RColorBrewer, and ggpubr packages within R were also used to enhance the aesthetics of the graphs in this paper.

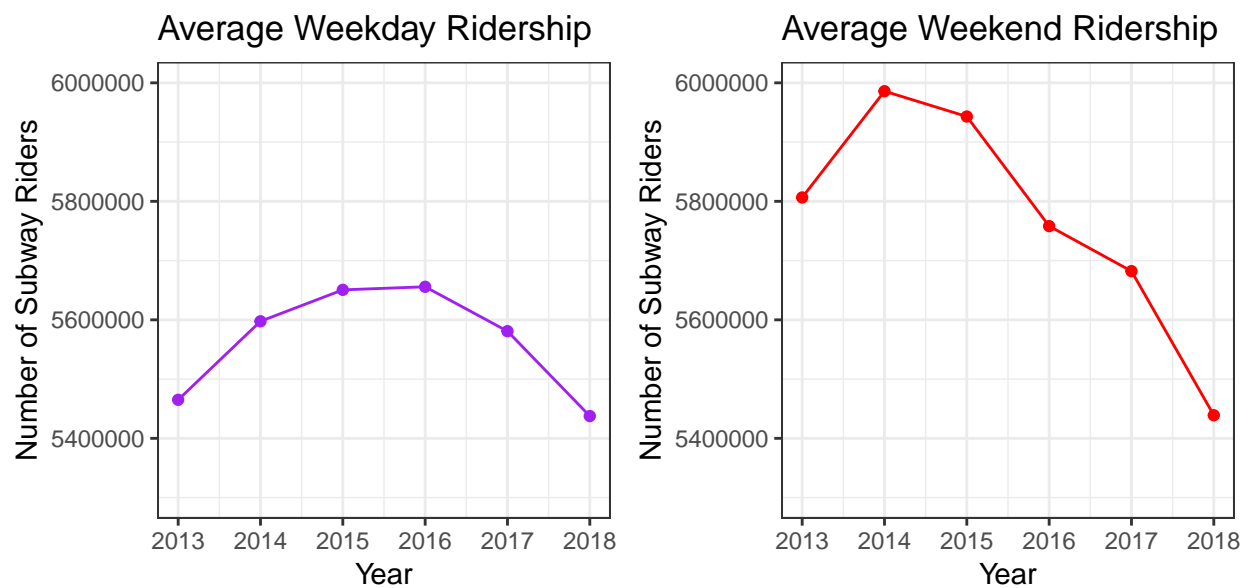
The R code for this project can be found within the Supplementary Materials section of this paper and on GitHub (https://github.com/jessicapadilla/mta_finances/blob/master/code.R).

Results

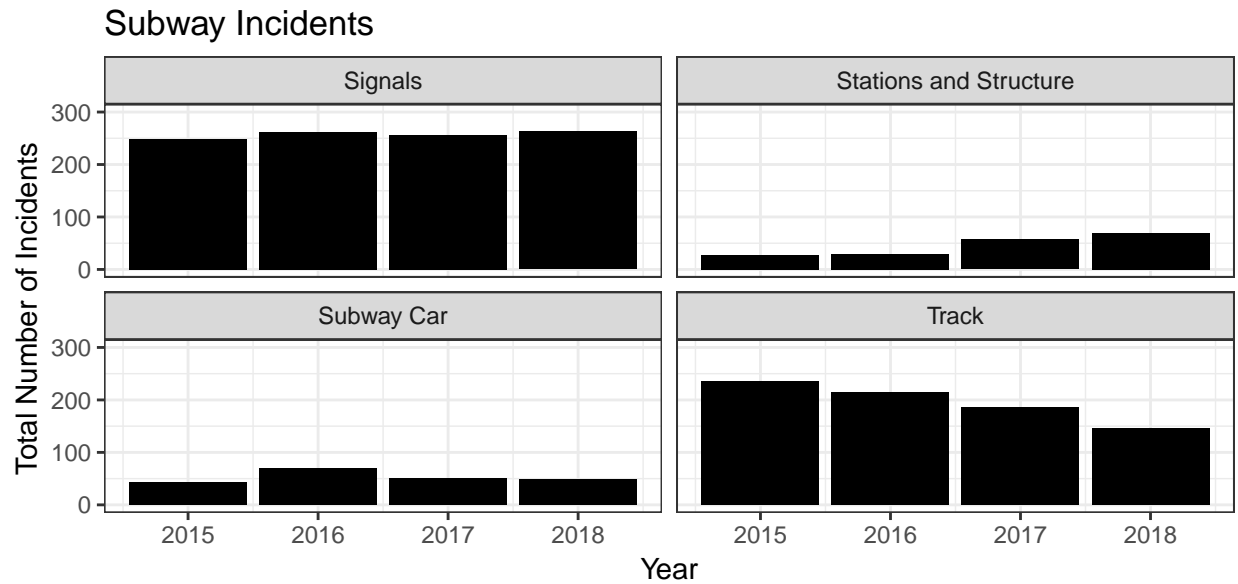
The debt of the MTA has grown significantly over the years and is projected to reach \$42 billion by the year 2022 (Walker 1-2). While fare revenue has been able to offset a bit of the debt, fare revenue has reached a standstill. The MTA Fiscal Dashboard data obtained from the Citizens Budget Commission shows that although the fare revenue is much larger than what it was in 2007, the amount of fare revenue has slowed down since 2013. In fact, there was a slight decrease in fare revenue in 2018.



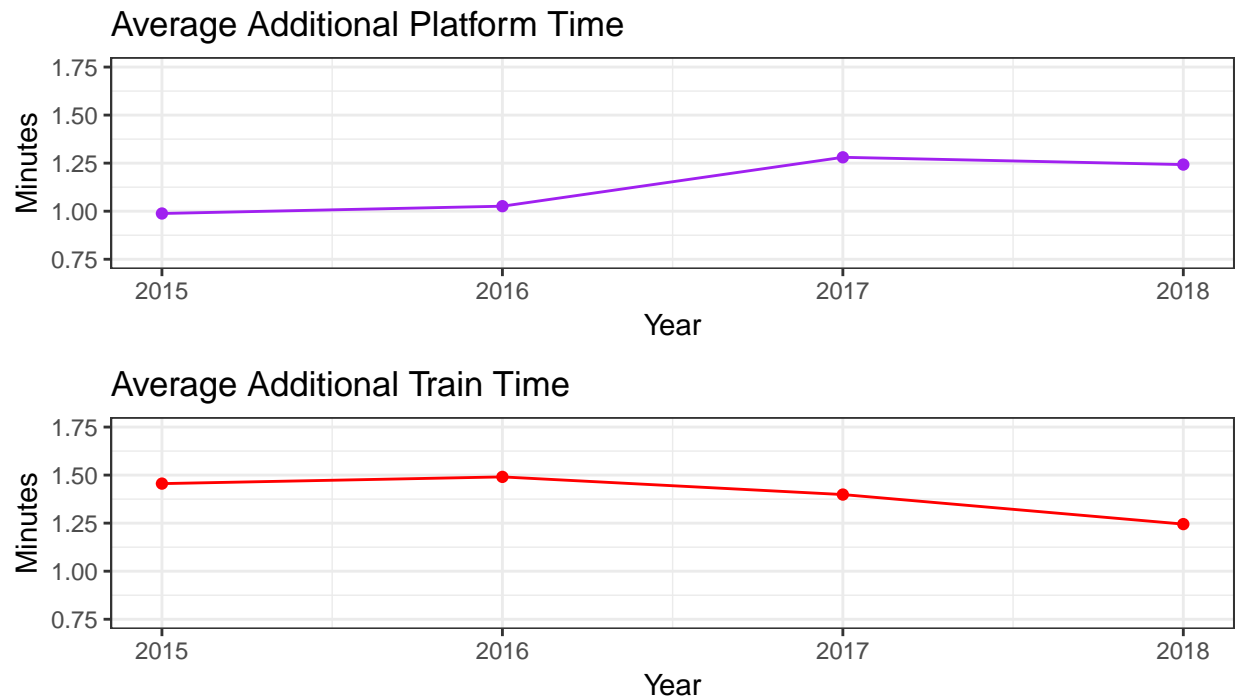
The decrease in fare revenue in 2018 can be explained by the downward trend in subway ridership. Data obtained from the MTA site showed that average weekday ridership was 5,465,034 in 2013, but declined to 5,437,587 in 2018. Average weekend ridership also declined significantly from 5,806,517 in 2013 to 5,438,947 in 2018.



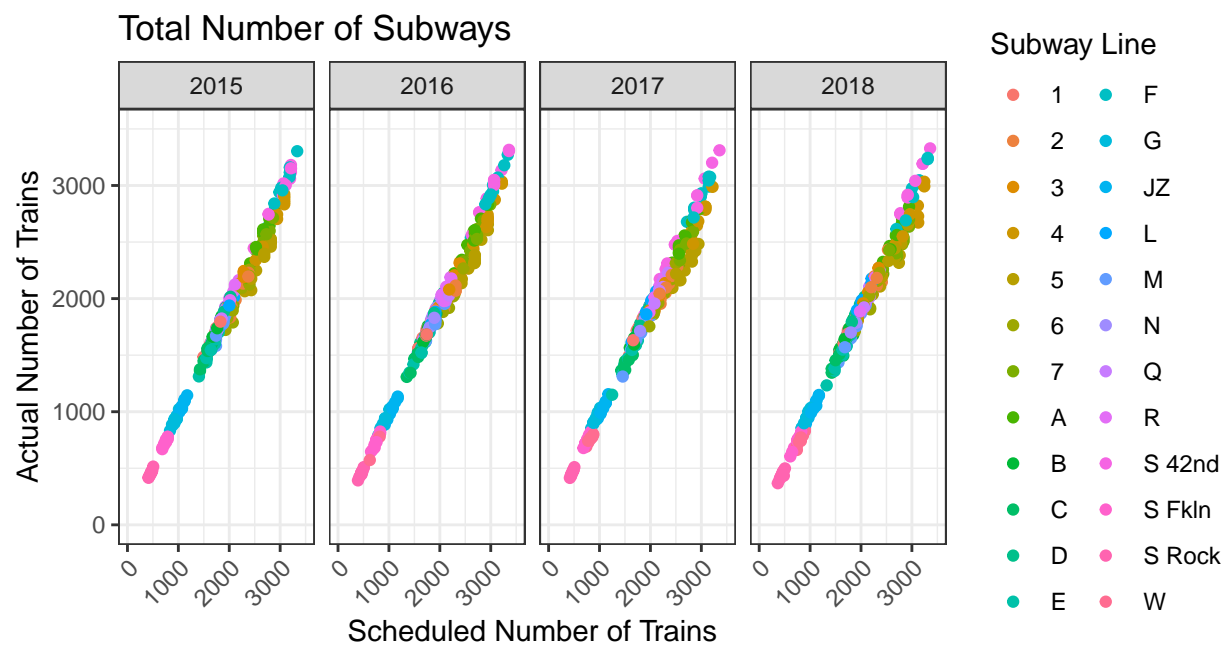
Over the years, subway riders have expressed their discontent over the number of subway incidents that delayed their commutes. The MTA Performance Dashboard shows that signal incidents have not improved and occur approximately 250 times every year. The number of station and structure incidents have also increased from 27 in 2013 to 70 in 2018. Subway car incidents have stabilized to about 40 per year, while track incidents have improved (235 in 2015 versus 146 in 2018) but still remain a significant problem.



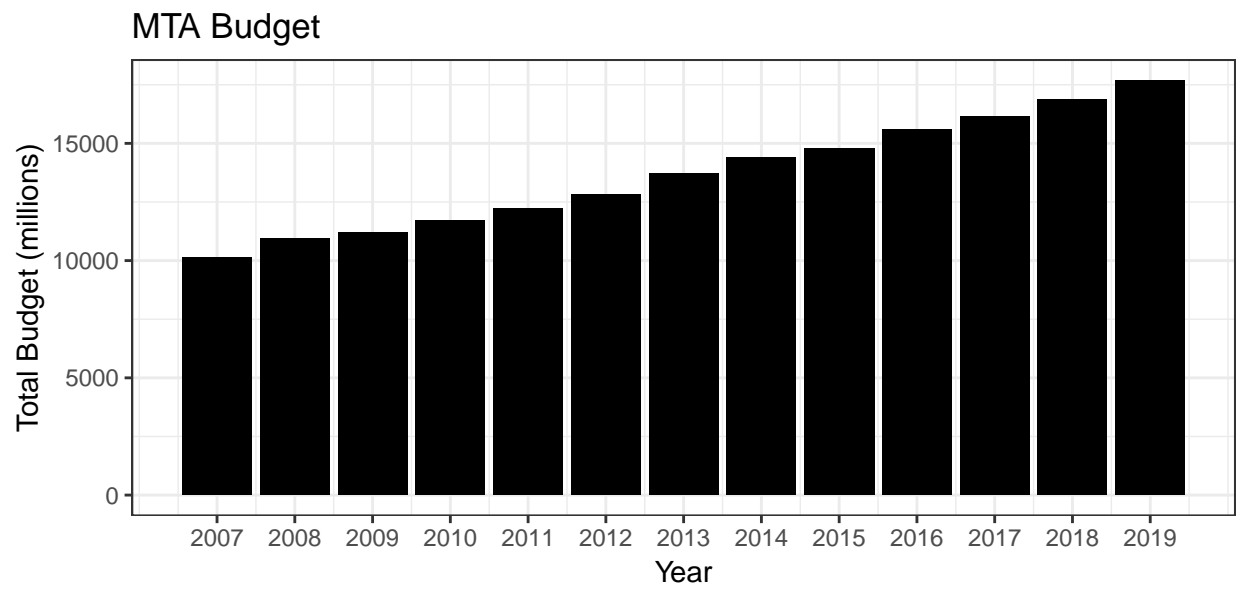
The problematic subway infrastructure has led to passengers waiting on the platform for approximately an additional 1.00 to 1.25 minutes and waiting on the train for approximately an additional 1.25 to 1.50 minutes.



Data from the MTA site showed that the MTA also had a number of train cancellations throughout the years. To demonstrate this, the number of scheduled trains was plotted against the number of actual trains. If the number of scheduled trains equalled the number of actual trains, the plotted dots would overlap and form a perfect line. However, as seen in the graphs below, the imperfect line indicates that the number of scheduled trains rarely equalled the number of actual trains. This also means that there were fewer actual trains in service.



In the midst of all the problems with subway service, the MTA hopes to utilize another \$50 billion to repair subway stations, to add new signal systems for improved train speed, and to modernize the look of subway cars. This is in addition to the escalating MTA budget (Meyer, David et. al). Is such a massive new expense necessary?



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