



Introduction

Coin parking meters are becoming a rarity in today's technologically advanced era, so why at Carnegie Mellon **University** has there not been a technological improvement in terms of parking on its campus since CMU is known for being such a big tech hub?

Parking Meters at Carnegie Mellon University is a census of all 224 parking meters regarding on campus parking meters to determine if there is a high frequency in unpaid meters.

Margaret Morrison St	5
Tech St	29
Frew St	168
University Center	6
Behind Morewood	16

Methods

Since parking meter fees apply between 8:00am and 10:00pm for the Skibo/Baker parking meters, 8:00am until 5:00pm for the meters behind Morewood, and 24 hours at the University Center meters, two surveying groups were comprised in order to administer the census.

In each of the subgroups, a full sample of all parking meters on campus (Frew Street, Tech Street, Margaret Morrison Street, University Center, behind Morewood Gardens) was recorded. The schedule of data collection times is below:

Monday, Wednesday, Friday census collection		
JungMoon/Nancy (helped after 10:20pm on M W) & Victor (helped F)	Morning	9:00-12:00pm
Victor/Nancy	Afternoon	3:30-6:30pm
Tuesday and Thursday census collection		
Jeff	Morning	9:30-12:00pm
Kaylee/Nancy	Afternoon	12:00-3:00pm

Possible Errors of the Census

Ineligible Units:

- 1) cars parked in between spaces
- 2) vehicles that were parked, but being attended
- 3) CMU Transportation cars parked in parking spaces behind Morewood

4) cars parking at meters that we passed already and marked as not present **Possible Errors from:**

- 1) making best judgment on colors (basic colors used)
- 2) missing values

3) higher non-response rate from drivers driving away because they noticed we were taking notes on their cars and whether they paid the parking meters or not

- 4) can't tell if the meter is broken or not
- 5) Mon/Wed afternoon: meters behind Porter were unpaid

Are Parking Meters at Carnegie Mellon University efficient? Nancy Geronian, JungMoon Jang, Jeff Lee, Kaylee Makel, Victor Wilczynski Carnegie Mellon University, Pittsburgh, Pennsylvania





Results

Surprising Results

Upon conducting our census survey, the lack of vehicles parked at the parking meters was overwhelming and quite surprising. Furthermore, an even greater surprise came from the proportion of those vehicles that were parked at a campus parking meter and did not pay. We found that only 40% of the parking meters on campus were being used, and of that forty percent, over 30% did not put money in the meter they were parked at.

Meaningful Results

Possible explanations for our findings can be drawn from the increase in price per hour for parking and the time limitations now in place that does not allow one to park in a given parking zone for more than four hours a day are quite evident. Both of these aspects, along with various other stipulations now being enforced on those who chose to park on campus, are ultimately affecting the effectiveness of parking on campus. The next logical step to take is to find what other options Carnegie Mellon University can offer its campus community.





Conclusion

Assuming our variables are all independent variables: Parking Tickets cost \$30

Parking Meters cost 8 minutes for \$0.25

If we say the average commuter parks for about 2.5 hours it costs about \$4.69

On any given length of weekday at Carnegie Mellon (Monday

Predicted Meter Revenue: \$3723.86

Predicted Lost Meter Revenue: \$6781.74

Predicted Lost Meter Revenue on Broken Meters: \$347.06

Predicted Ticket Revenue: \$900.

Chances of Commuters receiving a ticket: 14.08% Expected cost of risk: **\$4.23**

Therefore, some commuters find that it is worth it to run the risk of not paying for meter, since \$4.23 is less than \$4.69.

How frequent do people not pay meters: **9.5089%**

The use of parking meters at Carnegie Mellon University is less efficient than we initially anticipated.

Relevance of Parking Meter Census

As a result, Carnegie Mellon and Pittsburgh Parking Authority need to find new ways to allow commuters to easily pay for meters. An average commuter who utilizes parking meters correctly will in fact boost meter revenue whereas resorting to ticketing and enforcing meters will result in long-run gross loss.

For Further Information

Contact us through email with any questions, comments, or suggestions: ngeronia@andrew.cmu.edu

