Recycling Accuracy and Contamination of the Blue and Green Refuse Districts in Binghamton, NY

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Introduction

- Household curbside recyclable contamination has increased in Broome County, prompting havior complaints and customer notifications (Broome County, 2018).
- Historically, a large portion of paper and plastic recyclables from the United States has been sold to China. However, China has recently created stricter standards for accepting recyclables from the US due to increased contamination from materials, most commonly plastic bags, Styrofoam and leftover food (Broome County, 2018).
- Contaminated recyclables result in increased costs for municipalities due to material processing and landfill fees (Broome County, 2018). These costs could impact residents through increased local taxes.
- The City of Binghamton mandates all residential garbage must be placed in Official City Garbage Bags at a cost of $6.95 per (5) 30 gallon bags. Recycling is free for all City residents and is managed by the Broome County Solid Waste Management Division (Recycling, 2018).
- There is little research investigating the relationship between neighborhood characteristics and recycling accuracy at the district level.

Hypothesis

1. Recycling contamination will correlate with district characteristics including median age, household income and home value.
2. Garbage will be the most common contaminant in recycle bins.

Methods

- Used random sampling to collect contents of (10) residential 32 gallon Broome County recycling bins from each of the East and West Refuse districts the night before collection.
- Sampled districts based on differences in age, income, and home value.
- Sampled locations with trash bag or trash can present to signify conscious resident choice in material disposal.
- Measured findings by weight, material, contamination type, and quantity.
- Compared findings between districts.
- Analyzed findings with residential recycling resources, Broome County Recycling Brochure and Broome County Recycling website.

Analysis

Part 1: Findings show the majority of both district samples erroneously recycle. No correlation was found between district characteristics and the frequency of accurate bin recycling. Although the Blue Refuse District had fewer instances in pieces of contamination, it exceeded the Green Refuse District in contamination weight. Garbage was the most common contaminator; however, economic incentive of pay-per-use garbage bags could be theorized.

Part 2: Analyzing the Broome County Recycling Guide and website revealed that residential recycling guidance put out by the County is not clear, specific, and leaves too much room for resident interpretation. For example, some Styrofoam trays were labelled recyclable #6, however, are not accepted by the County. Common contamination issues are not emphasized. There is no County guide to plastic bag recycling locations.

Discussion

- There are District differences in contamination behavior, however motivation remains unclear.
- Broome County needs more studies on resident recycling knowledge, equity, and relationship to refuse behavior.
- Broome County needs to enhance residential resources and communication for more accurate recycling.
- Benefits of accurate recycling should be highlighted.

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Literature Cited