

The Effects of Municipal Waste Disposal Method on Diversion Attitudes – Survey results



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Research Problems

- Stability of attitude over time and space
- Low diversion rates – unclear what motivates diversion



Waste to Energy incinerator
Burnaby, BC [Vancouver Sun](#)

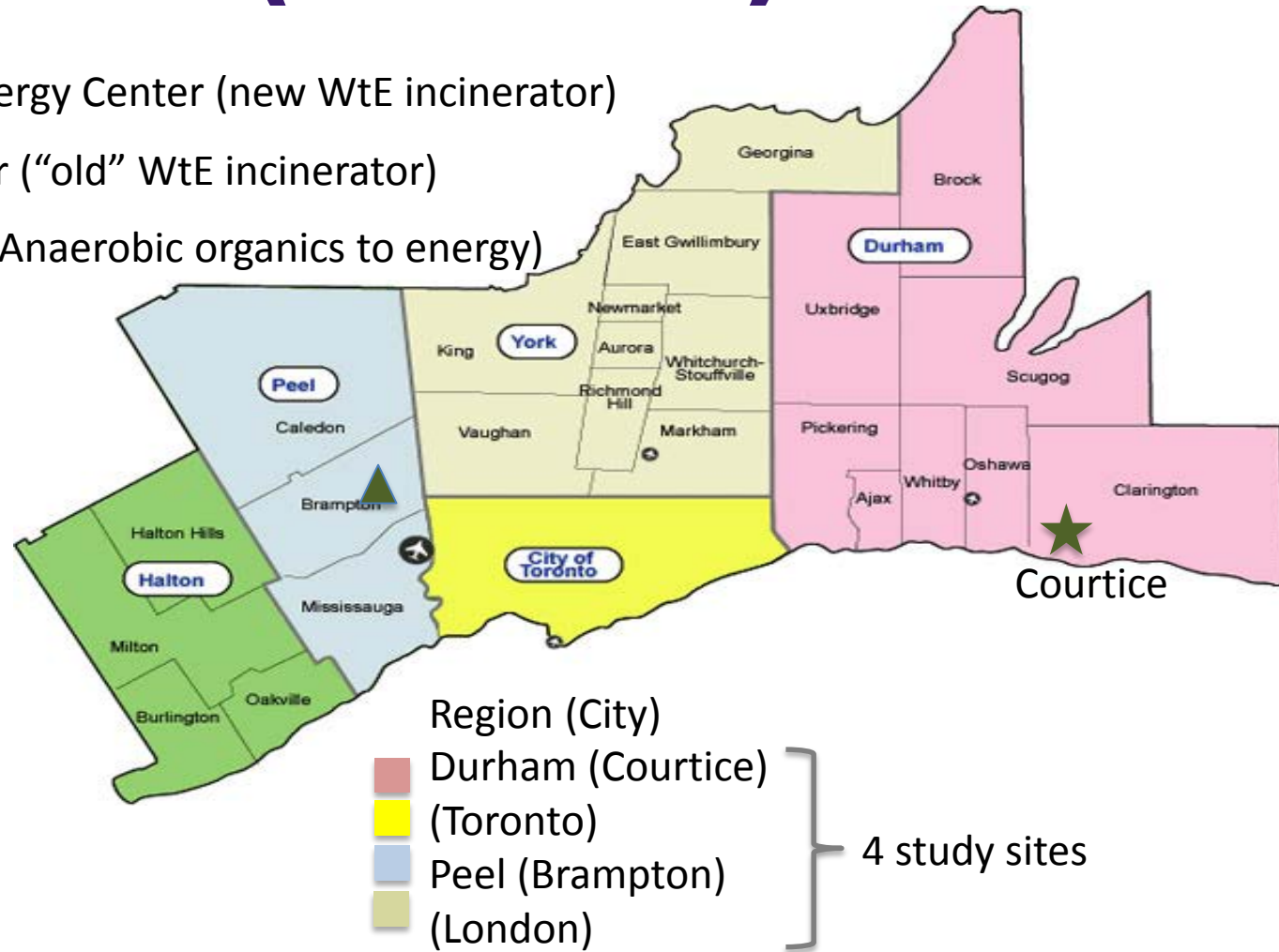
Hypotheses

Survey Findings Presentations – Division of Hypotheses

#	Hypothesis	Jamie + Yvonne H. (survey waves)	Jason (survey wave)
1	Preferred destination for discards is WTE	(1,2,3)	
2	Divert less if sent to WTE	(1,2)	(3)
3	Support for WTE facilities predicted by community	(1,2,3)	
4	Motivation to divert is environmental		(3)
5	Expressed diversion is less near WTE		(3)

Study sites (Ontario)

- ★ Durham-York Energy Center (new WtE incinerator)
- ▲ Algonquin Power (“old” WtE incinerator)
- ◆ Harvest Power (Anaerobic organics to energy)



Survey Methodology

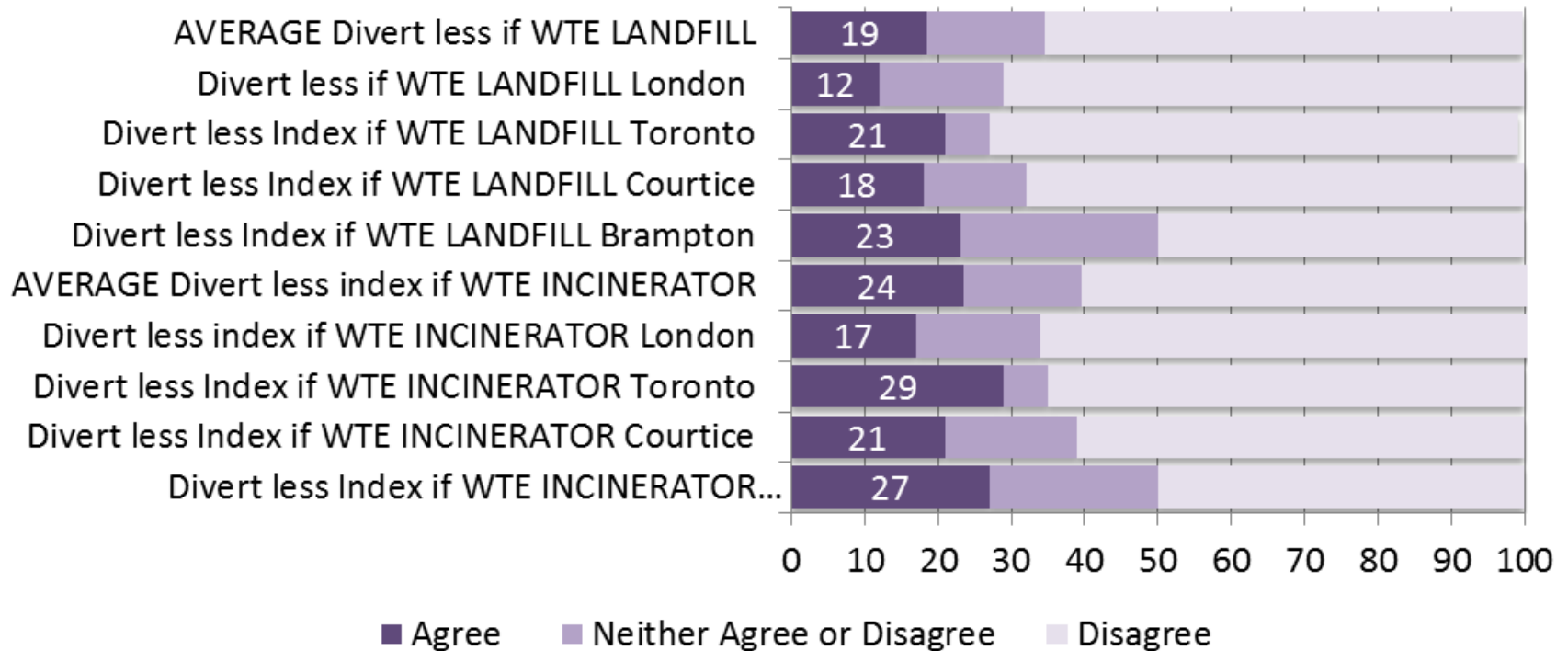
Table 1: Sample for survey (online and mailback) n = 107

Community	2015	WTE-I	n	♀	Resp. Rate
Durham (Courtice)	October	yes	29	52%	26%
Peel (Brampton)	October	yes	21	43%	20%
Toronto	October	no	33	45%	31%
London	October	no	24	57%	23%
Total/Avg			107	49%	25%

Self-selection = slight “concerned citizen” bias

Findings – H1 Divert less (4-item) Index?

"I would put fewer recyclable materials in the blue box if I knew it went to: "



Findings – H1 Divert Less WtE LANDFILL

Linear Regression Divert Less (INDEX) for WtE Landfill (n=107)	
(only variables significant in bi-variate analysis)	
Divert Less WtE Landfill Index	Beta
Concerned about Environmental Impact Landfill	0.235**
Recycling (In)convenience	0.058
Composting (In)convenience	0.152*
Diversion Behaviour	0.083
Solution to Waste is Technology	-0.049
Standardized regression coefficients, ** = $p < 0.01$ * = $p < 0.05$	

*“My composting is inhibited by (I do not compost when): it takes too much time/it is **inconvenient**”*

“I am concerned that pollutants released from landfills will do irreversible damage to the **environment**”

Findings – H1 Divert Less WtE INCINERATOR

Linear Regression Divert Less (INDEX) for WtE Incinerator (n=107)	
(only variables significant in bi-variate analysis)	
Divert Less WtE Incinerator Index	Beta
Environmental Impact Incinerator with WtE	0.201
Recycling Convenience	0.022
Composting Convenience	0.134
Diversion Behaviour	0.128
Solution to Waste is Technology	-0.144
65+	-0.047
Post Secondary	0.235**
I Don't Vote	0.249**
Standardized regression coefficients, **= p<0.01 *= p<0.05	

*"I generally vote for the following party in
provincial elections"*

Findings – H2 Expressed Diversion Behaviour

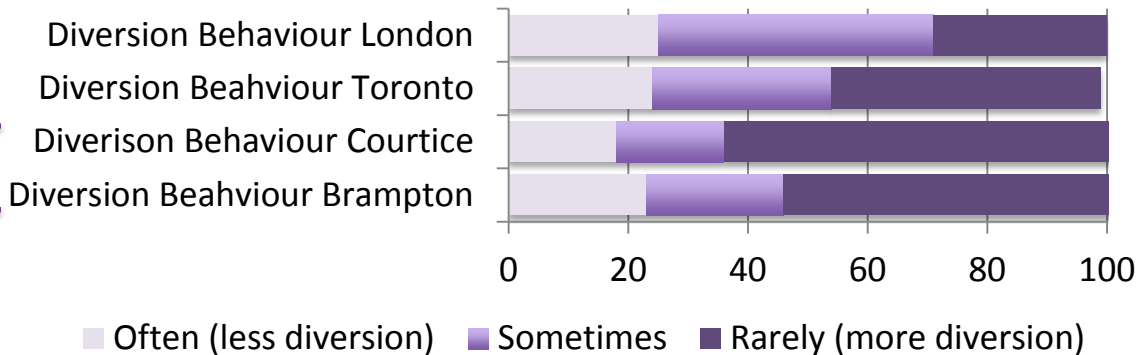
7 item index:
How often these items end up in the trash bin:

1. Reusable materials
2. Paper
3. Metal
4. Plastics
5. Food

Have WTE-I

- + 6. I consciously minimize waste (reverse scale)
7. I go out of my way to use the recycling bin (reverse scale)

Expressed *Lack of* Diversion Behaviour by community

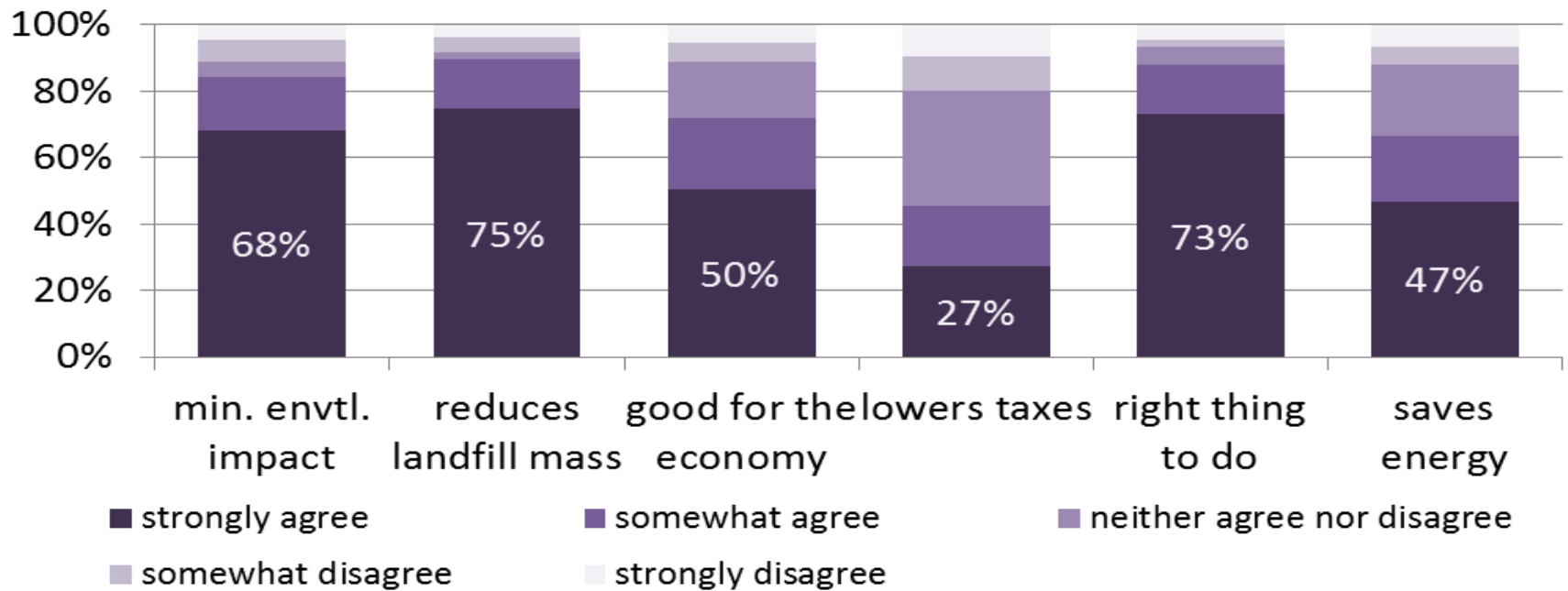


Findings – H2 Diversion Behaviour Index

Linear Regression Diversion Behaviour (7-item INDEX) (n=107)	
(only variables significant in bi-variate analysis)	
7-item Index of Diversion Behaviour	Beta
Divert Less WtE Landfill	0.171
Health Concern Landfill	0.000
Health Concern Incinerator	0.012
Health Concern AD	0.228
Economic Issue AD	0.113
Household income \$110,000-\$139,999	0.174*
Liberal	0.135
Standardized regression coefficients, ** = $p < 0.01$ * = $p < 0.05$	

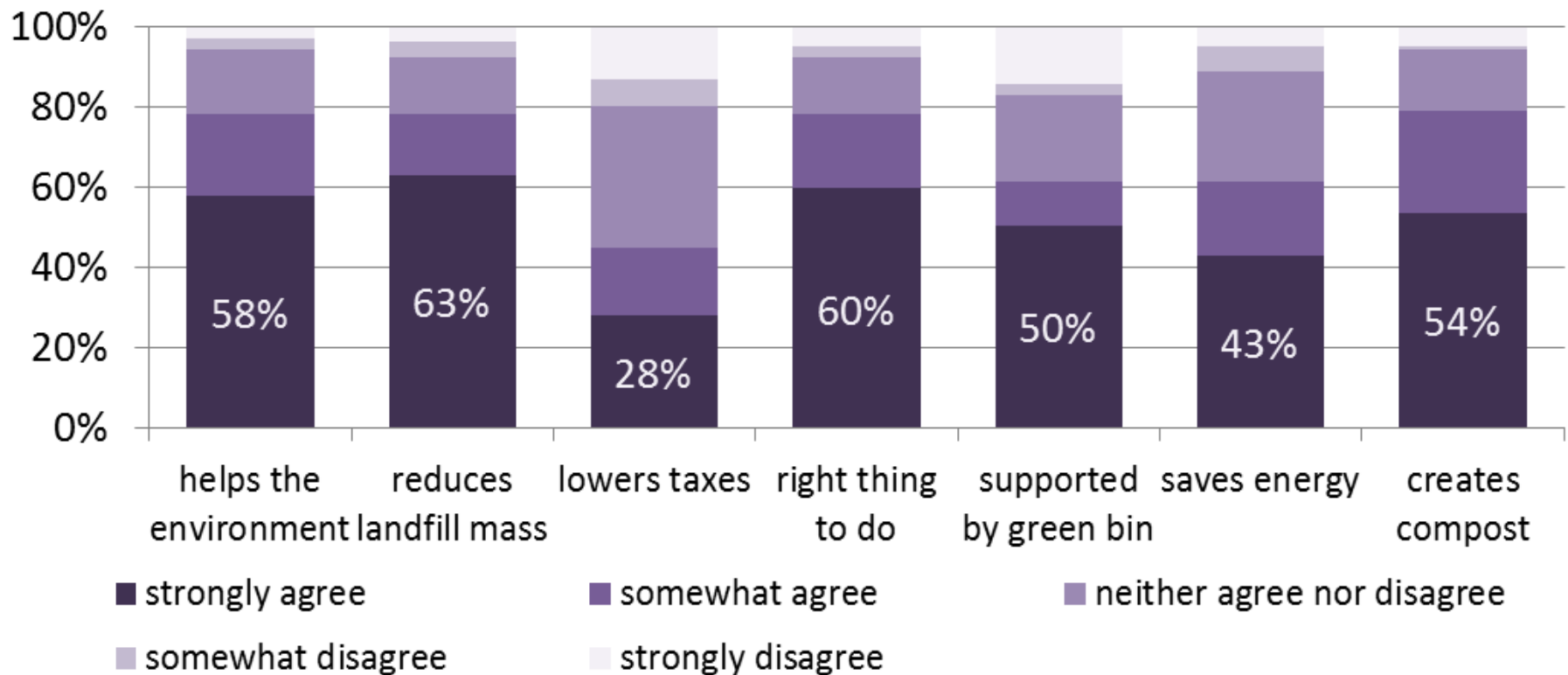
Findings – H3 Motivation to divert recyclables?

Reasons residents recycle Wave 3 2016



Findings – H3 Motivation to divert organics (e.g., green bin)?

Reasons residents compost Wave 3 2016



Findings – H3 Motivations to divert as predictors of diversion index

Linear Regression (7-item) Diversion Index (n=107)	
(only variables significant in bi-variate analysis)	
7-item Expressed Diversion Index (Dependent Variable)	Beta
Recycling reduces landfill mass/ material going to incinerators	0.118
Recycling saves energy	0.006
Composting helps the environment	0.073
Composting reduces landfill mass/ material going to incinerators	-0.063
Composting is simply the right thing to do	0.465*
Composting is supported by a green-bin system	0.029
Composting generates compost	-0.207
Standardized regression coefficients, **= $p < 0.01$ *= $p < 0.05$, R^2 0.184	

Summary/Conclusions

Hypothesis		Support
H1:	Residents less inclined to divert if sent to a WTE facility	Yes (but no community effect)
H2:	Residents near a WtE facility will say they divert less	No (maybe the opposite)
H3:	Strongest motivation to recycling and composting is environmental	No (mainly “right thing to do”)



Emerald Energy From Waste facility in Brampton (“Algonquin Power” in Wave 1 of survey)

Implications

- Incentivize diversion targets when regime includes WTE?
- Harness place-specific networks for increased diversion (re: local views, local waste policy history)
- Leverage messaging: links between WTE, “energy”, “environment” and “the right thing to do”



The challenge:

Feedstock for power + divert *more*

Durham -York Energy Center Incinerator (opened 2015) requires 140K tonnes/yr to maximize energy production capacity – but these regions currently have among highest diversion rates

<https://www.durhamyorkwaste.ca>