

HOW GOOD ARE
RETAILERS IN
PREDICTING
TRANSPORT PROVIDERS'
PREFERENCES FOR
URBAN FREIGHT
POLICIES?... **AND VICE**
VERSA?



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New developments in transport
economics: balancing economic
growth, environmental
sustainability and social
inclusiveness

AGENDA

1. Introduction
2. Research questions
3. Survey & Data description
4. Results & Discussion
5. Conclusions & Future research

Introduction (1/2)

- The success of urban freight transport measures crucially depends on local policy makers' knowledge of stakeholders' preferences (Lindholm & Blinge, 2014; Lindholm & Browne, 2013).
- The behavioural approach calls for stakeholder-specific data acquisition and modelling (Holguín-Veras, et al. 2007; Holguín-Veras, et al. 2008).
- These needs coupled with limited research budgets suggest investigating innovative data acquisition procedures to cut time and costs while extracting the same information from data (Marcucci et al. 2013; Gatta & Marcucci, 2013).

Introduction (2/2)

- Stated preference data are useful but costly when adopting face-to-face interviews.
- Heterogeneity among stakeholders can be extremely important when acquiring data and estimating policy impacts.
- It is difficult and time consuming to get high-quality data from TPs due to the time pressure characterizing their work.



Research questions

- Can we intelligently economize in the data acquisition process?
- How can one assesses and use stakeholders' forecasting capabilities?
- Who can better reproduce its counterparts' policy evaluations (WTP measures)?
- Who, between Rets and TPs (if any), is more capable of predicting each other's preferences ? If so, how good are they?



Survey & data description (1/2)

- 66 TPs (1164 Nobs) & 90 Rets (1629 Nobs)
- ... “Now, please rank the options trying to forecast how your most relevant business partner would order them”
- Multi-stage (4) d-efficient experimental design
- Attributes = LUB (400, 800, 1200), PLUBF (10%, 20%, 30%); EF (200€, 400€, 600€, 800€, 1000€)



Survey & data description (2/2)

	Policy 1	Policy 2	Status Quo
Number of loading bays	400	800	400
Probability of finding loading bays free	20%	10%	10%
Entrance fee	1000 €	200 €	600 €
Policy ranking (OWN)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Policy ranking (YOUR COUNTERPART)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Results ... Retailers

- Rets seem capable of predicting, with a good level of accuracy, TPs' preferences for a given UFT policy (...while the opposite is not true).

Variable	ACTUAL	PREDICTED	WTP measures (€)		
	TPs' pref.	TPs' pref. predicted by Ret	Actual	Predicted	Delta
N° loading bays	0.0014	0.0010	0.24	0.22	-0.02
Prob. of free loading bays	0.0435	0.0307	7.43	7.15	-0.28
Entrance fee	-0.0058	-0.0043			
Alt1 constant	0.6860	0.6106			
Alt2 constant	0.7086	0.4388			
Pseudo-R ²	0.25	0.19			
Log-likelihood	-690.6266	-1046.8210			
Observations	1128	1629			

(All coefficients are statistically significant at least at 1%)

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N° of loading bays	Coefficient 0.0006	Coefficient 0.0013	0.18	0.25	+0.07
Prob. of free loading bays	0.0347	0.0356	9.93	6.84	-3.09
Entrance fee	-0.0035	-0.0052			
Alt1 constant	0.8244	0.5451			
Alt2 constant	0.6579	0.6623			
Pseudo-R²	0.15	0.23			
Log-likelihood	-1126.9350	-715.2422			
Observations	1624	1164			

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Actual TP
0.24
7.43

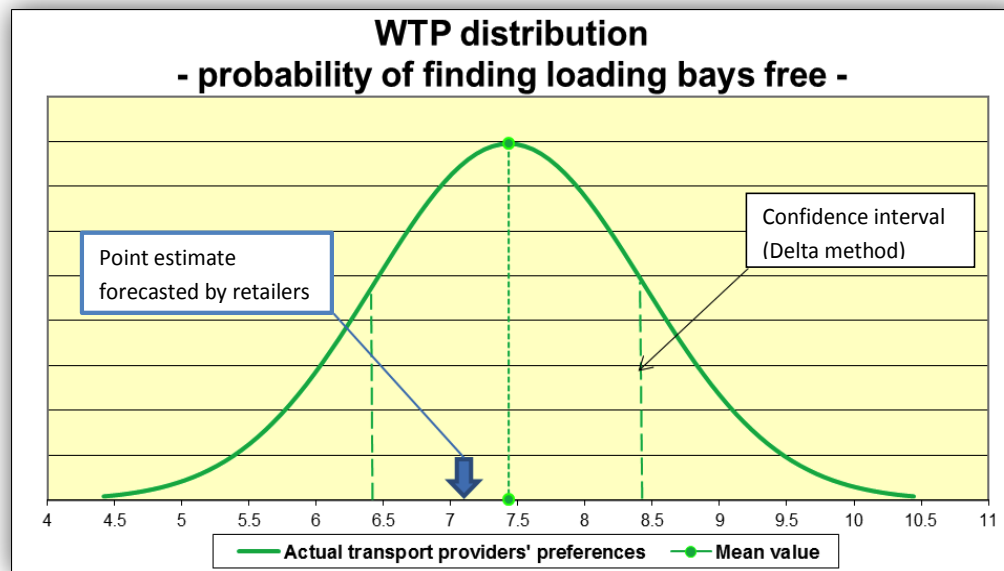
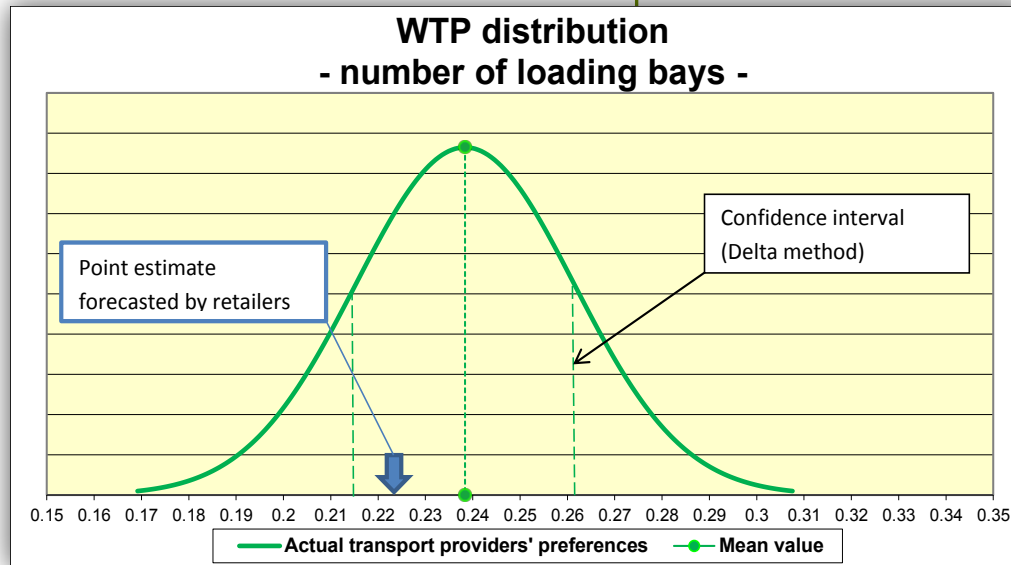
(All coefficients are statistically significant at least at 1%)

Discussion: actual vs. predicted/TP vs. Ret

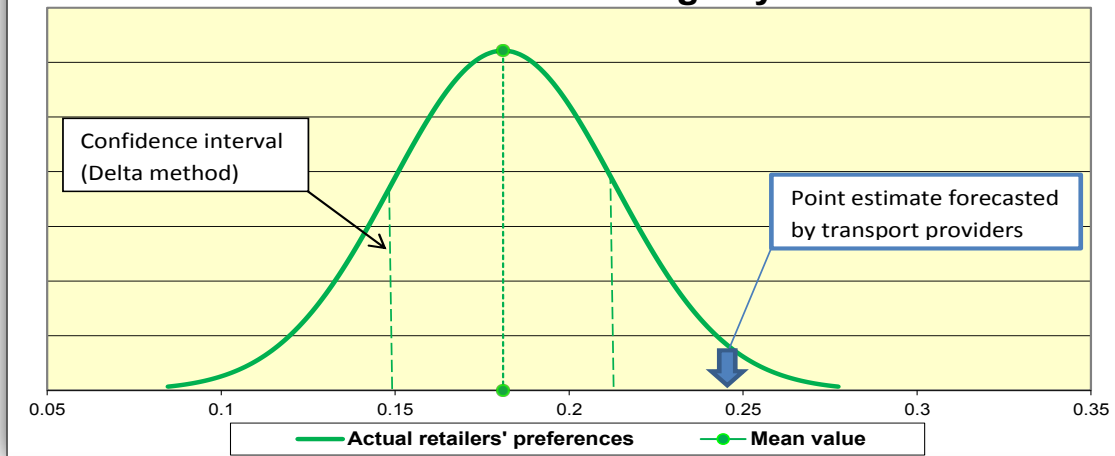
- TPs are more interested in LUB and less in PLUBF with respect to Rets (0.24€ vs. 0.18€ & 7.43€ vs. 9.93€)
- TPs when predicting always take the “wrong direction”
 - LUB(**own** 0.24€, **estimated** 0.25€ but **is** 0.18€)- Rets would pay more. This is wrong.
 - PLUBF (**own** 7.43€, **estimated** 6.84€ but **is** 9.93€) – Rets would pay less. This is wrong.
- Rets when predicting always take the “correct direction”
 - LUB(**own** 0.18€, **estimated** 0.22€ but **is** 0.24€)-TPs would pay more. This is correct.
 - PLUBF (**own** 9.93€, **estimated** 7.15€ but **is** 7.43€) - TPs would pay less. This is correct.

How big are the mistakes in practice?

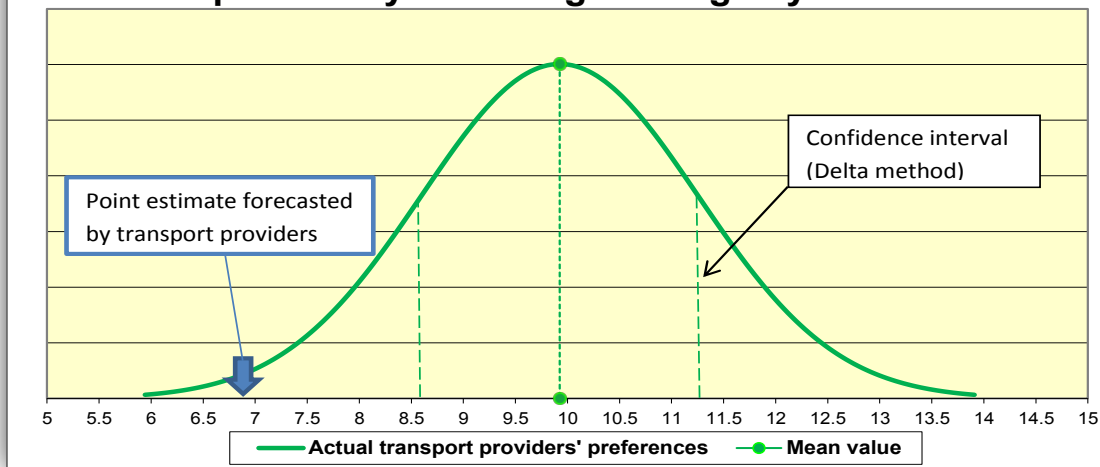
Scenario	RET Act	TP Pred	% Bias	TP Act	RET Pred	% Bias
+400 LUB	72€	100€	+39%	96€	88€	-8%
+10% PLUBF	99€	68%	-31%	74€	72€	-3%



WTP distribution - number of loading bays -



WTP distribution - probability of finding loading bays free -



Conclusions and future research

- Rets can dissociate from their own preferences when responding from a TPs' point of view and can predict their counterparts' preferences.
- One could confidently interview Rets alone to elicitate TPs' preferences (... in our case).
- When only substitution rates (WTPs) between attributes are of interest a *simpler, faster and less expensive* questionnaire administration process could be used without loss of information.
- Verify the robustness of results and their transferability.

Thanks for your attention!

Questions are welcome

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