



6th European Transport Research Conference
MOVING FORWARD:
Innovative Solutions for Tomorrow's Mobility

PGE Narodowy, Warsaw, Poland - 18-21 April 2016



Région
Hauts-de-France
Nord Pas de Calais - Picardie

COACH AND TRAIN : DIFFERENCES IN INDIVIDUALS PERCEPTION OF THESE MODES

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MINISTRY
OF INFRASTRUCTURE
AND CONSTRUCTION



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des Directeurs des Routes
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European Road Transport
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Logistics Innovation
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ECTP
INNOVATIVE BUILT
ENVIRONMENT

BACKGROUND



- **The coach market in France :**
 - recent liberalization of medium and long distance services (2015)
 - Regional coach services implemented in complementary of regional rail services by Regional councils
- **A poor public image of the coach**
 - « A mode of the 60s and 70s »
 - « an unloved mode »
 - « a mode for disadvantaged people »



COACH AND TRAIN USE

- Regional mobility in Picardie Region (>10km) :
 - 1,3M of regional travels each day
 - 2,4 trips/day/person



84,4 %



7,4 %



3,4 %



How can we explain the differences of perception of both coach and train? → implementing a logistic regression model :

$X_i(w)$: **explanatory variables** related to an **individual w** (*mobility practices, socio economic features, spatial living environment*)

$Y(w)$: **modality of the image** taken for an individual w (*positive or negative value*)

$P_+(Y(X_i(w)))$: **likelihood** that an individual w may have a **positive image** of the mode

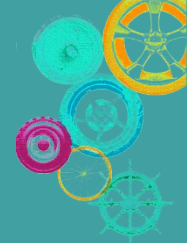
$$\ln \left[\frac{P_+(Y(X_i(w)))}{1 - P_+(Y(X_i(w)))} \right] = a_0 + a_1 X_1(w) + \dots + a_i X_i(w)$$

TRAIN AND COACH ATTRIBUTES



Functional criteria	CONVENIENCE	29% <i>convenient / constraining</i>	29% <i>convenient / not convenient / constraining</i>
	PERFORMANCE	26% <i>fast / not reliable</i>	22% <i>slow / inadequate</i>
Feelings	UTILITY	16% <i>useful / unsuitable</i>	23% <i>useful / unsuitable</i>
	EMOTIONAL FACTORS	18% <i>comfortable / pleasant / relaxing / crowded</i>	17% <i>comfortable / uncomfortable / pleasant / not pleasant / secure</i>

OUR REGRESSION MODEL



- Reconstructing about 60% of the field survey observations for each mode

Confusion matrix	model		
survey	negative	positive	sum
negative	35%	16%	
positive	24%	25%	
sum			100%

COACH IMAGE MODEL



Step	<i>mobility practices</i>	Forward selection score Chi-square	Maximum likelihood analysis estimated value	Odds ratio estimates
1	Coach use frequency = never	97.5392	-0.5926	0.553
2	Profession = executive/full time	86.9321	-0.6100	0.543
3	Profession=intermediate professions/full time	43.9401	-0.3011	0.740
4	Car use frequency = every day	15.3505	-0.1794	0.836
5	Age = 40-54 years	14.0955	0.0346	1.035
6	Profession = workers/full time	9.5139	0.2597	1.297
7	Age = 18-24 years	7.0237	-0.3136	0.731
8	Age = 25-39 years	5.6765	-0.1788	0.836
9	Profession = inactive people	6.4706	0.2087	1.232
10	Cars number in the household = 0	4.1177	0.2536	1.289

COACH IMAGE MODEL



Step	<i>Socio-economic features</i>	Forward selection score Chi-square	Maximum likelihood analysis estimated value	Odds ratio estimates
1	Coach use frequency = never	97.5392	-0.5926	0.553
2	Profession = executive/full time	86.9321	-0.6100	0.543
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COACH AND TRAIN IMAGE MODEL



			
Use frequency	Coach or Train car	Never : -- Every day : --	Never : - / Occasional : + Every day : --
Profession	Executives	--	--
	Intermediate professions	--	--
	Workers	+	--
	Inactive people	+	
age	11-17 years		+
	18-24 years	--	--
	25-39 years	--	
	40-54 years	+	
Cars number	No car	+	
Place of residence	Small and medium sized towns		+

MAIN FINDINGS



- A quite similar structure of the image of both train and coach :
Convenience / Performance / Utility / Emotional factors
- The main differences of perception relate on :
Performance = *slowness of the coach*
Emotional factors : *the coach is not comfortable, not pleasant*
- Implementing some target actions according to population strata
Executives, intermediate professions - generations
- May we expect an influence of the coach market growth?

