A TWO-STEP MODEL OF SATISFACTION WITH PUBLIC TRANSPORTATION

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ABSTRACT

The purpose of this paper is to present a model of consumer satisfaction with urban trips. This model was first developed for the Paris Public Transportation Authority (RATP) and was later applied to other modes of transportation (railway, automobile traffic, pedestrian walk).

The objective of the model is to measure and analyze satisfaction with a specific consumption experience (one trip from its beginning - leaving home for instance -to its end- arriving destination) and not a general level of satisfaction with the city transportation systems.

The research process included a qualitative survey, a first test on a small sample (100 interviews), a full-scale survey (1,000 interviews: 100 x 10 strata based on transportation modes and combination of modes).

The model consists of a *two-step structuration of the evaluation* of a specific ride:

1. a *perceived performance model* in which elementary events (pleasant or unpleasant feelings that may occur during the ride) are first structured into aggregate (or "synthetic") dimensions (through multidimensional scaling and cluster analysis) ; these events correspond to the level of managerial action ;
2. a *satisfaction model* in which these dimensions play the role of intermediary variables between elementary impressions and overall satisfaction with the ride ; they are integrated into a linear additive model which also includes measurements of disconfirmation and image variables.

Segmentation studies have been conducted to investigate the differences between strata: different satisfaction levels or distinct satisfaction processes?

In the first part of the paper, the general framework of the model and its developmental process are presented.

The second part is devoted to methodological problems encountered in the estimation phase of the second step of the model (linear additive): *interactions among explanatory variables*. A in-depth analysis has been conducted on two strata; methods used include: multitrait--multimethod matrices, factor analysis, two-way ANOVA with interaction, LISREL. Results show that:

1. perceived performance and disconfirmation have additive effects on satisfaction level, and
2. image of transportation modes does not reach discriminant validity from performance evaluation and consequently cannot be used as a generalized expectation level.

INTRODUCTION

The purpose of this paper is to present *a model of consumer satisfaction with urban trips*. This model was first developed for the Paris Public Transportation Authority (RATP) and was later applied to other modes of transportation (railway, automobile traffic, pedestrian walk).

The objective of the model is to measure and analyze satisfaction with a specific consumption experience (a trip from its beginning - leaving home for instance -to its end- arriving at destination) and not a general level of satisfaction with the city transportation systems.

In the first part of this paper, after introducing the managerial objectives of this research, and presenting its developmental process, we will present the general structure of the model which consists of a two-step structuration of the evaluation of a specific ride:

a perceived performance model,
a satisfaction model.

The second part is devoted to methodological problems encountered in the estimation phase of the satisfaction model (linear additive): analysis of interactions among explanatory variables. Results

of this phase may contribute to conceptualization of CS / D.

PART ONE: A TWO-STEP MODEL

Managerial Purposes

The objectives set up by the Paris Public Transportation Authority (RATP) were as follows (cf. Evrard, Barjansky, and Salvy, 1986):

1. developing an instrument for measuring the overall satisfaction of an individual with regard to a trip using one or more modes of transportation which may lead to a general satisfaction level with the city transportation system, which was not the aim of this research.
2. identifying the subjective factors (events that may occur during the trip, as they are felt, positively or negatively, by the consumer) that may influence the satisfaction level
3. building an explanatory model linking the overall satisfaction level to the subjective factors and tracing their relative influence. The model had to help the management to set up its priorities with regard to actions aimed at increasing users satisfaction level. It was also to be used in a continuous way to monitor satisfaction through periodic surveys.

When the research was launched, the dominant representation of consumer satisfaction inside the firm was somewhat unidimensional; it may be summarized as "the quickest the best", i.e. main efforts were devoted to reduce trip duration. A purpose of this study was to check if this view was right, and, if not, to develop a more complex analysis of consumer satisfaction process.

Research Design

This research (and its further extensions to other firms in the transportation area) was conducted by the author with SOFRES (a survey research firm which is the leader in France and which belongs to SEMA Group).

The research process included several phases (cf. table 1):

Literature Review. An inventory of research conducted in the field of measuring and explaining consumer satisfaction was done (cf. Evrard, 1980). This first inventory was further enriched with the continuous development of publications in CS/D (consumer satisfaction / dissatisfaction).

It led to choosing the *"disconfirmation paradigm"* (cf. Oliver, 1980; Oliver and DeSarbo 1988; Tse and Wilton 1988) as the conceptual framework for this research. Briefly, it represents satisfaction as resulting from the joint influence of three broad constructs: performance, expectations, disconfirmation.

Problems encountered at this level were as follows:

1. performance had to be understood in depth: judgments of the trip on broad dimensions would not have been precise enough to lead to managerial actions,
2. it was difficult to think that consumers developed specific expectations for each urban trip. This hypothesis was confirmed through qualitative survey (cf. next section), and has been accepted for other frequently consumed products or services for which it is suggested that a generalized level of expectations based on the accumulation of previous experiences may lead to a norm used as a standard of reference (cf. Woodruff et al., 1983, Cadotte et al., 1987). So, it was necessary to develop alternative comparison standards. The choice was to include in the questionnaire general opinions on the various transportation modes and on the firm as a whole (these questions had been tested in other surveys with which they could constitute a link). They will be labelled *"images"* in the rest of this paper.
3. it was consequently decided to operationalize disconfirmation as a distinct psychological construct (vs. the algebra approach which defines disconfirmation as a difference between performance and expectations).

Qualitative Survey. A qualitative survey was designed to understand in-depth how users live their urban trips and identify what their feelings are during that time.

It included two techniques of information

gathering: protocol interviews (travels with the interviewer accompanying the interviewee) and semi-directive interviews (conducted at interviewee's home).

This phase led to a list of *"subjective events"* (the feelings of the consumer: pleasures and annoyances) that may occur during the trip, and influence, positively or negatively, the overall satisfaction level. It has to be structured that these events are not factual reports of what occurred during the trip, but consumers internalizations (analogous to affective responses as proposed by Westbrook, 1987).

Test Survey. A first survey included 100 interviews of users of public transportation during the last 12 hours. This phase was designed to reduce and structure the list of "subjective events" identified during the qualitative survey:

1. the final list of "events" was decided upon on the basis of two criteria: frequency of occurrence and/or significance level of their univariate relationship with the overall satisfaction. Forty items were selected on this basis. The format of the question for each event was 0/1 (felt or not felt during the specific trip under study) ; a pre-test had been done on the opportunity to include an intensity level of the feelings but it had shown that the incremental information was not worth the increased complexity of the questionnaire.
2. these items were then structured into "synthetic" dimensions on the basis of multidimensional scaling mapping and cluster analysis; four such dimensions, characterizing the performance evaluation, were identified and labelled to be included into the final questionnaire with a five points scale-format.

This presurvey was also used to make a rough test of the hypothesized model.

Full-scale Survey. The full scale survey was conducted on a sample of 1 032 interviews. This sample was stratified in 10 subsamples defined on the basis of modes or combination of modes. The interview was bearing on the last trip (within the preceding 24 hours, to avoid memorization problems).

The next parts of the paper deal with the data gathered during this survey.

Table 1
Research Design

Phases	Results
Literature review	Disconfirmation paradigm
Qualitative survey	List of subjective events (s.e.)
Test survey	Reducing and structuring the list of s.e.
Full-scale survey	Model-building

Model-Building

List of variables. The variables included in the final questionnaire may be grouped into four main sections:

1. The description of the trip part concerns the modes used and the circumstances of the trip, (i.e. *situational* variables) such as: motive (professional, private, ...) ; flow (geographical areas) ; moment of day (distinguishing between peak hours and other periods) ; duration (total time from departure to arrival, not limited to the public transportation part).
2. The evaluation of the trip part is central to the model-building process. It includes; overall satisfaction level (on a 11 point scale), disconfirmation (two 5-point scales), "synthetic" performance assessment (four 5-point scales), "subjective events" (pleasures and disagreements:40 items).
3. The relationship to transport section included two groups of variables that characterize the relationship of the interviewer with the urban transportation world (and were thought of as leading to general expectations level):
   a. declared habits of frequency of usage (including private car),
   b. images of the transportation modes and of the firm (these opinions may be considered as resulting, at least partially, from the accumulation of satisfaction arising from previous consumption experiences ; they will be used as proxy variables to operationalize a general level

of expectations with public transportation).
4. The individual characteristics section included usual demographic variables and a small battery of psychographic items.

Data Analysis. Data analysis included three main steps:

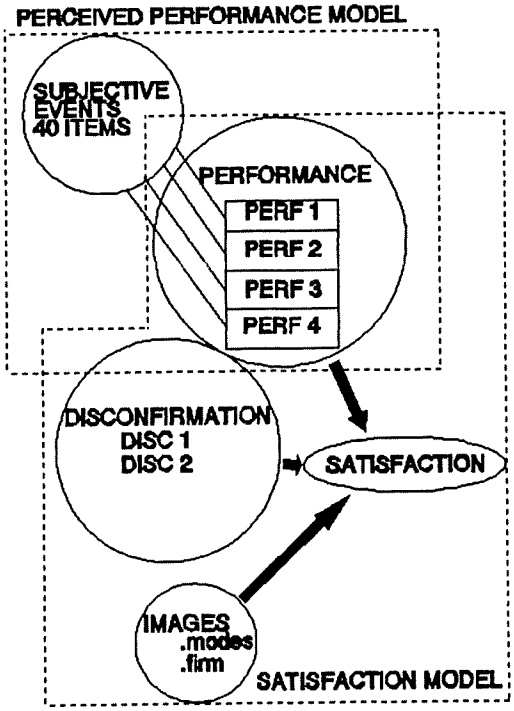
1. *exploratory* investigation of bivariate relationships linking overall satisfaction rating to other variables, which shows the amplitude of variations of satisfaction induced by each variable taken in isolation (i.e. ceteris paribus)
2. *multivariate analysis* (based on variables of sections a.2 and a.3) leading to the elaboration of a two-step model which will be exposed in the next section,
3. *segmentation*: several segmentation analysis were conducted: their objective was to track not only variations of the level of satisfaction, but also of mechanisms of its formation which may vary according to the *situation* (transportation modes, types of trips,...) or to users *individual* characteristics. These segmentation studies go beyond the scope of this article format: let us only indicate that *the larger differences were observed at the situational level and not at the individual level.* The results presented in the next section bear on the total sample level.

Model Structure. The general structure of the final model is presented in figure 1. It splits the structuration of evaluation into two components. It is interesting to note that a slightly analogous approach has been recently proposed to study the links between satisfaction and quality (cf. Bolton and Drew, 1991).

In the perceived performance component the 40 subjective events (positive or negative impressions: pleasures and disagreements) are linked to the 4 dimensions which constitute the performance measurement. Elaboration of this submodel was grounded on checking the hypothesized structure found in the pretest survey. This intermediate structuration permits to avoid the problem of high interrelations among the 40 items which would have made difficult the modelization of their direct links with satisfaction, but it also leads to a more comprehensive view of the process.

The links between elementary events and synthetic dimensions give the latter interpretative meaning. Quantification of these links may lead to managerial decisions (for instance, if we increase the percentage of seated travellers, what is the impact on the comfort level, which itself influences satisfaction level).

Figure 1
A Two-Step Model of Satisfaction



The satisfaction component includes three main explananda of the satisfaction level.

1. Performance. Measured by 4 dimensions
2. Disconfirmation. (2 scales)
3. Images. This group of variables includes image of modes (4 scales each) and image of the firm (1 scale).

The first analysis consisted to fit a linear additive model to the data through regression analysis bearing on the total sample. To take account of colinearities among independent

Table 2A
Correlation Matrix (Metro)

	016	017	018	019	IMMETRO1	IMMETRO2	IMMETRO3
PERF1	100000						
PERF2	-007749	100000					
PERF3	015549	-045713	100000				
PERF4	02039	-042111	039078	100000			
IMMETRO1	012539	-041621	036241	041853	100000		
IMMETRO2	018839	-006218	013817	006541	024968	100000	
IMMETRO3	015203	-017839	018059	021614	036400	017090	100000
IMMETRO4	-001136	-014870	016532	028119	029670	016988	024151
IMRER1	-006895	-023924	016133	022155	032002	016479	029121
IMRER2	-010830	-012475	003245	011205	016014	016988	019717
IMRER3	001286	-026046	015370	023101	035335	007564	093646
IMRER4	-008161	-023477	012367	027048	026383	010460	020440
IMRATP	007184	-020832	030833	021346	047288	020093	034492
DISCONF1	055449	-015044	017849	008022	019040	009386	012326
DISCONF2	-006163	024327	-028334	-021232	-010029	-024940	-008309

	IMMETRO4	IMRER1	IMRER2	IMRER3	IMRER4	IMRATP	OPLON1	012
IMMETRO4	100000							
IMRER1	032098	100000						
IMRER2	019356	001308	100000					
IMRER3	025945	066384	058395	100000				
IMRER4	039008	070391	071723	059122	100000			
IMRATP	022464	026757	008223	027800	006229	100000		
DISCONF1	000594	-002321	-007044	006007	-010027	016693	100000	
DISCONF2	-005394	-009720	-003534	-008172	001919	-012636	-011764	100000

variables, a stepwise procedure was used. This led to a model which accounts for 31.2 % of satisfaction variance and includes 7 explicative variables performance (4), disconfirmation (2), image of firm (1). The same analysis was done for each of the 10 strata defined by modes and combination of modes. It led to R2 varying from .195 to .508. Sets of explicative variables differ slightly from one strata to another ; most of these subsample models included components of images of the mode.

This simple model was of considerable managerial relevance: it was possible to use the model in two ways, either *forward* (testing the influence of an action, - expressed as modifying the level of subjective events, for instance number of seated passengers -, on satisfaction level) or *backward* (looking for the actions which would have the largest effect on satisfaction level ; this approach may include data on the costs of actions). But, from a methodological point of view, it was useful to investigate more deeply the interrelationships among explanatory variables at the satisfaction model level ; these results are presented in part two of the paper.

PART TWO: INTERACTIONS AMONG EXPLANATORY VARIABLES

The purpose of this section is to investigate the internal validity of the additive model presented in part one, through an analysis of the interactions among explanatory variables of the satisfaction model. This analysis was done, on a comparative basis, on two strata: METRO (i.e. "normal" subway) and RER (a faster railway launched more recently). Three groups of variables are included in the analysis: PERFORMANCE (4 scales),

Table 2B
Correlation Matrix (Metro)

	016	017	018	019	IMMETRO1	IMMETRO2	IMMETRO3
PERF1	100000						
PERF2	-009995	100000					
PERF3	031616	-021910	100000				
PERF4	024214	-040465	023384	100000			
IMMETRO1	009449	003025	003429	002278	100000		
IMMETRO2	000169	-003734	004629	005447	040518	100000	
IMMETRO3	003504	-005302	002866	011120	022946	019535	100000
IMMETRO4	-004940	-004958	000598	002459	031317	043747	020387
IMRER1	015226	-020012	033294	016886	017007	008025	004771
IMRER2	026040	-016619	037296	014784	-005931	016045	010050
IMRER3	018839	-016378	025830	014640	007314	002681	045409
IMRER4	016181	-000504	033659	007270	-001259	009385	002359
IMRATP	009843	-012990	016364	012108	013576	013307	008547
DISCONF1	027013	-013190	022812	015741	003709	001098	006383
DISCONF2	-020252	028846	-019147	-028313	-002299	-002028	-001556

	IMMETRO4	IMRER1	IMRER2	IMRER3	IMRER4	IMRATP	OPLON1	012
IMMETRO4	100000							
IMRER1	009661	100000						
IMRER2	010040	091916	100000					
IMRER3	-005303	028016	017901	100000				
IMRER4	034437	042335	042333	022123	100000			
IMRATP	004603	022074	023992	014039	010694	100000		
DISCONF1	007497	009288	011989	012026	017994	005734	100000	
DISCONF2	-008208	-010630	-001697	-008316	-007010	008553	-028118	100000

DISCONFIRMATION (2 scales), and IMAGES (which, as aforementioned may be considered as a generalized level of expectations, and include 9 scales, 4 on METRO, 4 on RER, and 1 on the firm IMRATP) ; the analysis is conducted both between groups of variable and within groups. These groups must be considered as multifaceted conceptual domains and not as unidimensional constructs (for instance, the 4 scales of performance have been chosen to represent different aspects of consumer evaluation of the trip).

Four levels of analysis have been developed:

1. an exploratory analysis of bivariate relationships among explanatory variables is done through correlation matrix analysis,
2. interaction effects of the influence of performance and disconfirmation scales on satisfaction level are then examined through two-way ANOVA, with interaction,
3. the interactions between images of the modes and the two other groups of variables are examined, also through one-way ANOVA.
4. finally a confirmatory analysis of the relationships among the explanatory variables is done, through LISREL.

Correlation Matrix

The first step of the analysis is the study of the correlation matrices in a way analogous to multitrait-multimethod matrices. The correlation matrices among the 15 variables for the two strata

Table 3
Correlations Among/Between Domains

DOMAIN(s)	Number of correlations	METRO	RER
Performance	6	3 (3)	2 (5)
Disconfirmation	1	-	1
Immetro	6	2 (4)	3 (5)
Imrer	6	6 (6)	4 (5)
Immetro/Imrer	16	8 (9)	2 (2)
Imratp/immetro	4	2 (4)	-
imratp/imrer	4	2	- (2)
Images (subtotal)	16	20 (25)	9 (14)
performance x disconfirmation	8	2 (4)	3 (5)
Immetro x performance	16	4 (5)	-
Imrer x performance	16	2 (6)	5 (6)
Imratp x performance	4	1 (3)	-
Images x performance (subtotal)	36	7 (14)	5 (6)
Immetro x disconfirmation	8	-	-
Imrer x disconfirmation	8	-	-
Imratp x disconfirmation	2	-	-
images x disconfirmation (subtotal)	18	-	-
TOTAL	105	32 (50)	20 (32)

Numbers of coefficients significative at .01 or .05* levels. * figures between brackets

under study are shown in tables 2a and 2b.

Each matrix includes 105 coefficients which may be classified according to the fact that they represent relationships among scales belonging to the same domain (three domains, the latter being subdivided into three subdomains) or between domains (cf. table 3 which shows the number of coefficients which reaches .01 or .05 levels of significance).

It shows that:

1. correlations among domains are proportionately more important than between domains (50 or 30 % of significant coefficients vs 10 %) which supports the discriminant validity of the three domains considered.
2. correlations are particularly important among images of modes (especially for the strata composed of Metro users),
3. interactions between performance and disconfirmation are present at a moderate level; they will be examined in next section,
4. there is no significant correlations between disconfirmation and images,
5. links between performance and images come mainly even exclusively in the case of stratum RER from correlations between the performance of a mode and the image of the same mode, which suggests the possibility of a halo effect between measurements of these two domains.

INTERACTIONS BETWEEN PERCEIVED PERFORMANCE AND DISCONFIRMATION

The presence of moderate but significant links (as measured by correlation coefficients) between perceived performance and disconfirmation leads to question the appropriateness of their simultaneous inclusion in an additive model.

Two-way ANOVA with main effects and interaction term has been used to answer this interrogation. Due to sample size considerations, analyses have been done successively on each combination of two variables. Dependent variable is satisfaction level ; independent variables are each couple of scales belonging to performance or disconfirmation groups. In addition to studying interactions, ANOVA may also detect non linear -or even non monotone- relationships.

Results (cf. table 4) show that only one interaction effect (out of 28) is significant at .05 level. These results lead to accepting of the

Table 4
Interactions Among PERFORMANCE and Between PERFORMANCE and DISCONFIRMATION

Studied combinations X_1/X_2	METRO			RER		
	X_1	X_2	$X_1 \times X_2$	X_1	X_2	$X_1 \times X_2$
DISCONF 1 x PERF 1	n.s.	n.s.	n.s.	.033	.001	n.s.
DISCONF 1 x PERF 2	.035	.000	n.s.	.030	.007	n.s.
DISCONF 1 x PERF 3	n.s.	.000	n.s.	.020	.000	.011
DISCONF 1 x PERF 4	n.s.	.000	n.s.	.042	.004	n.s
DISCONF 2 x PERF 1	.004	.042	n.s.	.027	.002	n.s.
DISCONF 2 x PERF 2	n.s.	.000	n.s.	n.s.	.042	n.s.
DISCONF 2 x PERF 3	n.s.	.000	n.s.	.012	.000	n.s.
DISCONF 2 x PERF 4	n.s.	.000	n.s.	n.s.	.020	n.s.
PERF 1 x PERF 2	n.s.	.000	n.s.	.000	.002	n.s.
PERF 1 x PERF 3	n.s.	.000	n.s.	.027	.000	n.s.
PERF 1 x PERF 4	n.s.	.000	n.s.	.003	.008	n.s.
PERF 2 x PERF 3	.000	.000	n.s.	.019	.017	n.s.
PERF 2 x PERF 4	.002	.000	n.s.	n.s.	.038	n.s.
PERF 3 x PERF 4	.000	.000	n.s.	.000	.027	n.s.

(ANOVA Results, figures indicate the level of significance of the effect; n.s. = not significant at .05 level)

hypothesis of *additive effects of perceived performance and disconfirmation on satisfaction level*. It also confirms that performance items constitute different facets of the same domain and may be used in an additive fashion in the satisfaction model.

INTERACTIONS BETWEEN IMAGES AND PERCEIVED PERFORMANCE

Correlation analysis (cf. table 3) shows the existence of a significant amount of covariation between image scales (and more specifically images of transportation modes) and perceived performance. A further analysis of their links is based on one way ANOVA between each image component (criterion variable) and each performance component (predictor variable) ; this analysis was extended to disconfirmation scales for the sake of symmetry and was done on two strata, i.e. 96 ANOVA. Results (cf. tables 5A and 5B) show that more numerous significant relationships are detected through ANOVA than through correlation analysis. 36 bivariate relationships were shown significant at .05 level through ANOVA, vs 16 through correlation coefficients.

These results are summarized in table 6 which shows the number of significant relationships between groups of variables, for each strata,according to whether image and evaluation bear on the same transportation mode or on different modes.

The results confirm that:

1. links between images and disconfirmation are weak or negligible,
2. links between performance evaluation of a mode and image of this same mode are strong; this observation casts doubts on the discriminant validity of these two domains and reinforce the hypothesis of a halo effect between image and performance, when the same mode is observed in the same survey.

STRUCTURAL MEASUREMENT ANALYSIS

The final step of analysis studies the links between the 3 domains simultaneously through a measurement model. LISREL VI was used for that purpose.

Table 5A and 5B
Interactions between Image of Modes and Performance

5A. METRO

	PERF 1	PERF 2	PERF 3	PERF 4	DISC 1	DISC 2
IMMETRO 1	n.s.	.000	.000	.000	.042	.050
IMMETRO 2	.001	n.s.	.046	n.s.	n.s.	n.s.
IMMETRO 3	n.s.	.023	.002	.016	.049	n.s.
IMMETRO 4	.049	.001	.007	.000	n.s.	n.s.
IMRER 1	n.s.	.007	.011	.002	n.s.	n.s.
IMRER 2	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
IMRER 3	n.s.	.002	.028	.001	n.s.	n.s.
IMRER 4	n.s.	.007	n.s.	.001	n.s.	n.s.

5B. RER

	PERF 1	PERF 2	PERF 3	PERF 4	DISC 1	DISC 2
IMMETRO 1	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
IMMETRO 2	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
IMMETRO 3	n.s.	n.s.	n.s.	n.s.	.035	n.s.
IMMETRO 4	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
IMRER 1	.026	.018	.000	.002	n.s.	n.s.
IMRER 2	.001	n.s.	.000	n.s.	n.s.	n.s.
IMRER 3	.026	.034	.004	n.s.	n.s.	n.s.
IMRER 4	n.s.	n.s.	.044	n.s.	.007	.002

(Figures show level of significance up to .05)

The model includes 3 constructs: perceived performance (4 scales), Immetro (4 scales), Imrer (4 scales). As said before the purpose of analysis was not to test the psychometric properties of each construct which, at least in the case of performance, are supposed to be low "by construction", as this domain was operationalized by a multi-facet concept, but to focus on investigating the relationships between constructs.

The first test compared an orthogonal model with an oblique model. As hypothesized the oblique model was significantly superior, as shown by testing the difference of chi-square between the two models, with the appropriate degrees of freedom.

Table 6
Number of Significant Relationships Between Groups of Variables (ANOVA Analysis)

	METRO		RER	
	perf (/16)	disc (/8)	perf (/16)	disc (/8)
Image (same mode)	12	3	10	2
Image (different mode)	8	-	-	1

Results of the oblique model are shown in table 7 (which also includes indicators of quality of LISREL results). It shows a strong covariation between performance evaluation of a trip in the Metro and image of this same mode. This result may be considered as a final confirmation that *image of a mode does not reach discriminant validity from perceived performance of this same mode and consequently may not be used as a generalized level of expectations for a satisfaction model.* Same conclusion has been observed for strata RER through a different calculation method (SAS Procustes factor analysis) which shows a correlation coefficient of .70 between RER performance and RER image

Table 7
Correlations Among Constructs
(LISREL Results/Strata Metro)

Correlations Among Constructs (phi)	
PERF / IMMETRO	.662
PERF / IMRER	.282
IMMETRO/IMRER	.522
Quality of Results	
coeff. of determination	.976
GFI	.875
RMR	.077

CONCLUSION

A *two-step model* of satisfaction with public transportation was presented which includes:

1. *a perceived performance model* based on a detailed subjective description of the trip, close to the level of managerial action, which is linked to performance components,
2. *a satisfaction model* which links this performance evaluation to the general level of consumer satisfaction ; this model includes complementary influences of disconfirmation and image of the firm.

The analysis of interactions among explanatory variables shows that:

1. performance and disconfirmation have additive effects on satisfaction level,
2. image of a mode does not reach discriminant validity from performance of this same mode and consequently may not be used as a generalized level of expectations for a satisfaction model.

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