



WSG 7/90

**Communication Media Choice
Behaviour in a University Setting:
A Conceptual Framework and Some
Empirical Tests**

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WSG-Discussion Paper 7

December 1990

ISBN 3 85037 007 0

1. Introduction

Information and communication economics is a recent, but rapidly evolving field of scientific research exploring a broad spectrum of policy and research issues arising from technological innovation in telecommunication. Scholarly attention has focused on new electronic communication media, such as cable TV, electronic mail, voice mail and various forms of teleconferencing because of the growing pervasiveness and invasiveness of these technologies (see Ferguson 1986, Jussawalla and Ebenfield 1984).

Despite the research conducted in recent years, there is relatively little understanding of the impact of new electronic media on communication behaviour. The paper presents a methodology and empirical results on communication behaviour in a university setting. A general framework for communication behaviour is developed where (tele)communication media choice plays an important role. The media choice component of the conceptual framework is analysed in some more detail.

The formation of communication media preferences is assumed to depend on the communication context (characteristics of the communication activity, attributes of the initiator-recipient relationship), characteristics of the communication initiator as well as on feelings about and perceptions of alternative communication media (electronic mail, facsimile, telephone, courier mail, traditional mail). Situational constraints (i.e. institutional-, time- and cost-related constraints) may orient preferences among the choice options.

Testing the media choice segment of the conceptual framework is being achieved by means of the stated preference approach using experimental design theory. The target population is composed of all scholars associated with an Austrian university. The survey population is restricted to those scholars associated with the University of Vienna, the Technical University of Vienna and the Vienna University of Economics and Business Administration. The sample design used relies on exogenous stratification. The dimensions for stratification were the status of the scholar, the type of university and the type of department. The drawing of observations out of each stratum was done randomly. Empirical results are presented using multinomial logit models for a series of communication contexts.

The paper is organized in four sections. The first presents the conceptual framework for communication media choice. The next section discusses the stated preference data approach, the structure of the experimental design and the discrete choice modelling approach used. The third section describes the empirical context and presents the analysis of the data and discussion of the results. The final section presents some general conclusions.

2. The Conceptual Framework

Up to now there is a lack of conceptual development which explains media choice behaviour at the individual level. The conceptualization needed should attempt to explain under what communication contexts specific media choices are made and how these choices are made. The design of the integrated framework for communication choice within an university setting outlined in Figure 1 was strongly influenced by Moore and Jovanis (1988). Figure 1 depicts the interaction of a department's supply of communication facilities (media such as telephone, facsimile, electronic mail, courier mail, traditional mail etc.) with the demand for communication in a simplified manner. The demand for communication evolves from the organisational structure of the department including the department's objectives (especially with respect to research) as well as formal and informal rules governing individual behaviour. Supply and demand result in the need for a certain quantity and type of communication activity. Most of the communication needs are met by communication within the existing contact network, either by using communication media or by travel to face-to-face meetings (conferences, workshops, lectures etc.), while others may be satisfied only by establishing new contacts. An important feature of the conceptual model is the feedback from communication outcomes to both the supply of communication facilities and the demand for communication.

The communication media choice segment of the conceptual framework is expanded in Figure 2. The choice process is conceptualized as including the following stages.

Figure 1: Integrated Framework for Communication Choice within a University Setting

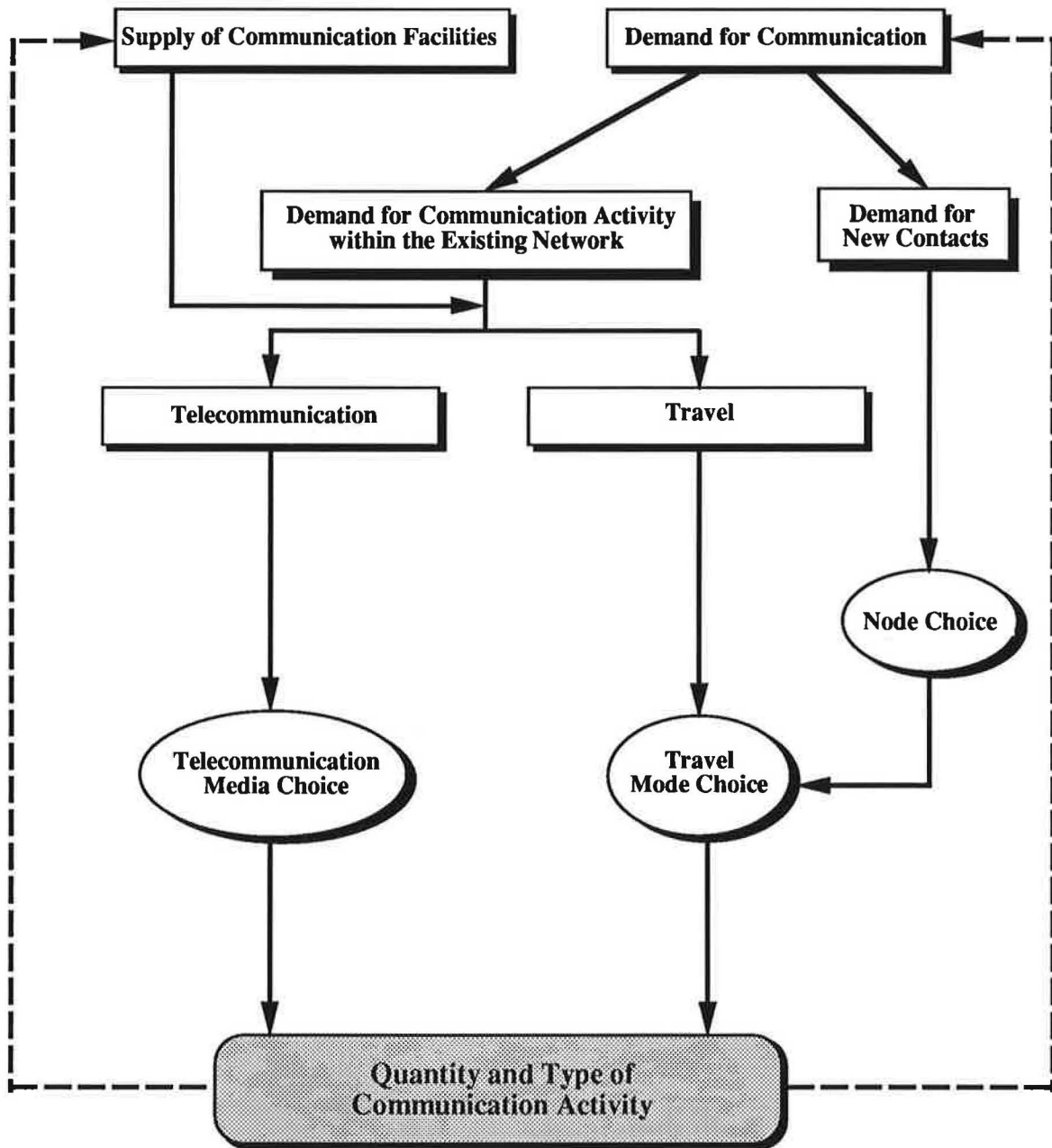
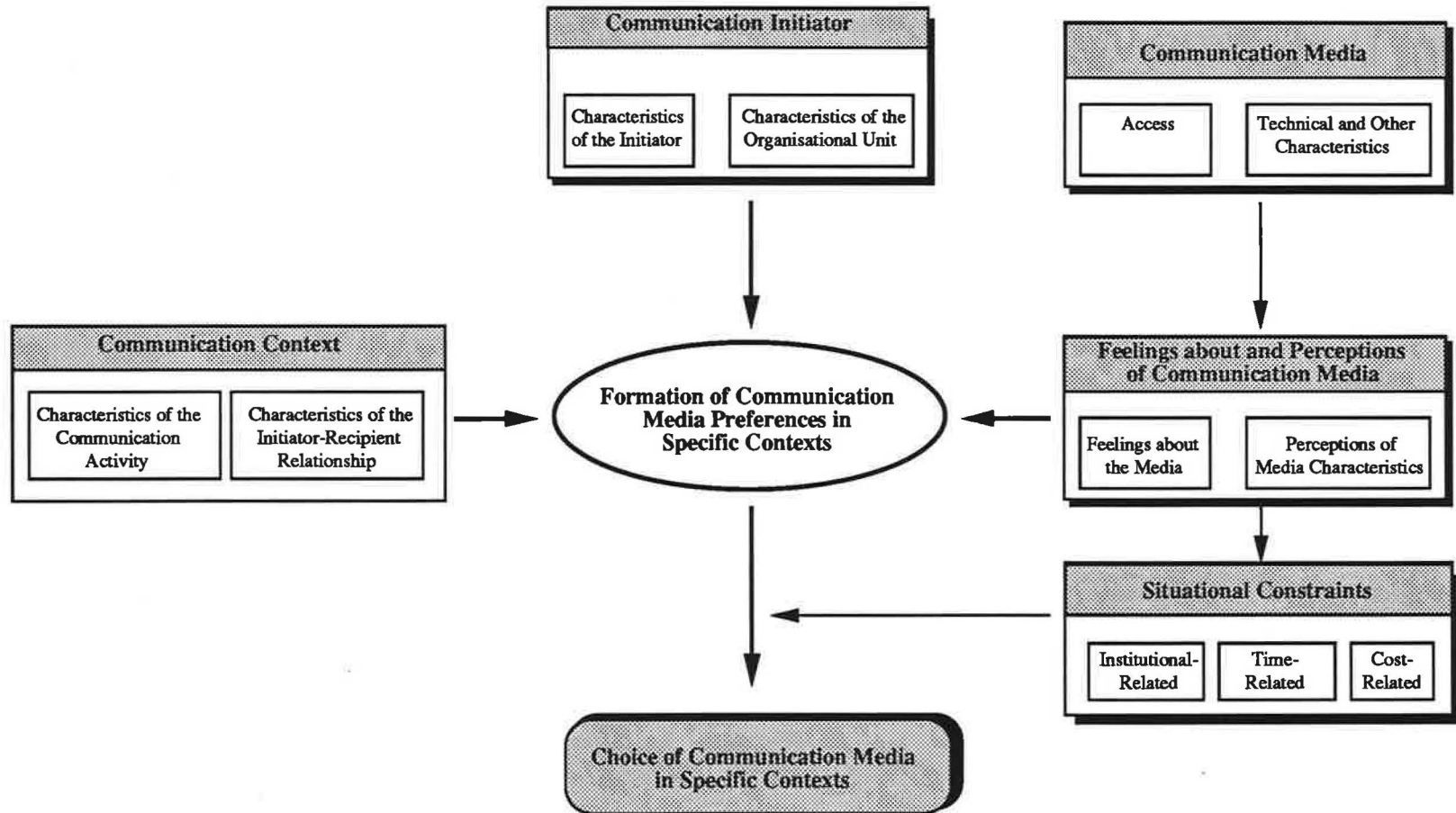


Figure 2: A Conceptual Framework for Media Choice Behaviour



First, the communication initiator becomes aware of a need to communicate in a specific context. The initiator has individual characteristics (especially characteristics such as profession and status, age, keyboard and typing skills, attitude towards computer technology) and works in a Department with specific characteristics (especially concerning cost control norms, media access and usage rules etc.).

Second, given the initiator's awareness of the communication context it is assumed that characteristics of the communication activity itself (such as the complexity of communication, volume of communication, urgency and confidentiality of the message) and characteristics of the initiator-recipient relationship (such as status effects, location of the recipient, familiarity with the recipient, awareness of recipient's media dislikes) influence the formation of communication media preferences.

Third, the initiator is assumed to have knowledge of the characteristics of the communication media. The conceptualization focuses on perceptions and feelings related to media characteristics rather than objective characteristics (such as cost of use, accessibility, ease of use, reliability of time delivery, reliability of success delivery). The link between objective and perceived characteristics is very difficult to analyse and outside the scope of the study.

Finally, there are situational constraints and barriers (such as institutional-related, time-related and cost-related ones) which may influence the choice outcome.

Table 1 presents details of the variables considered to be important for modelling communication media choice.

Table 1: Important Variables Characterizing the Media Choice Situation

Communication Context	Communication Initiator	Communication Media
<p>A. Characteristics of the Communication Activity</p> <ul style="list-style-type: none"> * Complexity of Communication * Volume of Communication * Urgency * Confidentiality 	<p>A. Characteristics of the Initiator</p> <ul style="list-style-type: none"> * Profession and Status * Age * Sex * Keyboard and Typing Skills * Attitude towards Computer Technology 	<p>A. Feelings about the Communication Media</p> <ul style="list-style-type: none"> * Trendiness of the Media * Familiarity with the Media
<p>B. Characteristics of the Initiator-Recipient Relationship</p> <ul style="list-style-type: none"> * Status Effects * Location of the Recipient * Familiarity with Recipient * Awareness of Recipient's Media Dislikes 	<p>B. Characteristics of the Organisational Unit</p> <ul style="list-style-type: none"> * Cost Control Norms * Secretarial Availability * Media Access and Usage Rules 	<p>B. Perceptions of Communication Media Characteristics</p> <ul style="list-style-type: none"> * Cost of Use * Accessibility * Ease of Use * Reliability of Time Delivery * Reliability of Success Delivery

3. Methodology

There is a wide range of analytical procedures available to select from for specifying a statistical approach, a functional form associated with the statistical approach, and the type of individual data input. During the last decade the range of data options has expanded widely. It has become common practice to view data as falling into two broad categories, revealed preference and stated preference data. Revealed preference data concerns the observation of choice behaviour in real world choice contexts, while stated preference data are typically based on behavioural responses to hypothetical choice experiments in the form of either a preference ranking/rating or choice selection (see Hensher et al. 1988).

The stated preference data approach widely used in market research and transportation research provides an attractive empirical setting in which individual communication behaviour can be analysed within the context of discrete choice modelling. The approach enables to analyse different communication situations while allowing to determine the influence of contextual variables and barriers. A key feature of this approach is that individuals are exposed to a set of choice experiments generated by some controlled experimental design procedure so that the independent variables can be made truly independent. Of course, it is important that the choice experiments realistically approximate actual communication situations.

There are three major types of stated preference procedures: ranking preference designs, rating preference designs and choice designs. Preference designs using a rating response require the individual to assess each combination of attributes, one at a time. Many people have great difficulties in this task, especially when the rating scale is complex. Designs using a ranking procedure are easier to complete than rating exercises, but become exponentially more difficult as the number of alternatives to be ranked is relatively large.

Choice designs used here are the easiest to complete and the best understood. Survey respondents responded to multiple communication contexts, each described by several carefully chosen independent variables. Behavioural responses were then measured in reference to these

experimentally designed choice contexts rather than in actual communication situations.

The structure of the experimental design used for the media choice is displayed in Table 2. Theoretical reasoning and exploratory analysis revealed that confidentiality of communication, urgency of communication, complexity of the content of communication and volume of the message were important contextual variables to be used to design the questionnaire contexts. Each of the variables (with two predefined attribute levels) were incorporated into an experimental design for the media choice situation with $2^4 = 16$ different hypothetical choice contexts.

Table 2: Context Design Used in the Empirical Research for the Media Choice

Variables to be Controlled to Two Levels	
Confidentiality of Communication	Confidential Not Confidential
Urgency of Communication	Urgent (within one day) Not Urgent (up to two weeks)
Complexity of the Content of Communication	Complex (with figures and tables) Simple (text only)
Volume of the Message	Long (about 10 - 12 pages) Short

Each questionnaire contained two media choice contexts. Each choice context was presented on a card, in terms of a short description of each context variable and - if possible - a pictorial or graphical representation. An example of the wording of one of these contexts is presented below:

*It is 10.00 am and you receive a request to communicate a **simple and not confidential** message regarding the proofs of your paper to the publishers. He/she expects to have this information by **10.00 am tomorrow** in a concise formate, at most the equivalent of **half a page message** or few minutes of conversation.*

The second context in this pair was composed of exactly the opposite set of levels on each of the four variables (complex, confidential, not urgent and long message). Each of these pairs of contexts were equally distributed throughout the questionnaire and randomly assigned to the interviewers.

It is very important to mention that a face-to-face interview has to be conducted to ensure that the task is fully understood. Choice designs are difficult to control if self-administered, since each response should be random. Moreover, it is crucial that the levels of the design variables have to be related to the current levels of experiences.

Interviewers reported few problems with the choice experiment. Respondents were also asked a variety of personal background questions.

Testing of the media choice segment of the conceptual framework is based upon the discrete choice modelling approach, with economic random utility theory as the underlying theoretical rationale, using stated rather than revealed preference data. Discrete choice models have been applied almost exclusively to observed choices. Such an approach has obvious limitations for predicting demand for a new event, such as the introduction of radically new telecommunication media. There is, however, no logical reason why the discrete choice modelling approach cannot be applied to analyse data from an appropriately designed choice experiment. Experimental design procedures for choice models have been considered recently by Louviere and Hensher (1983). Discrete choice models such as multinomial logit, nested multinomial logit and multinomial probit models are now well established model approaches which are applied in a wide range of fields (see Ben-Akiva and Lerman 1985, Fischer and Nijkamp 1985). Thus, it is not necessary to review the discrete choice modelling approach in detail, except for some specifics of the application in the empirical section of this paper.

It is assumed that an individual's preferences among the available communication media alternatives (traditional mail, courier mail, telephone, facsimile and electronic mail) can be described by a utility function and that the individual selects the alternative with the greatest utility. The utility of an alternative is represented as the sum of a deterministic component and a random component:

$$U_{ia} = V(x_{ia}, \theta) + \epsilon_{ia} = v_{ia} + \epsilon_{ia} \quad (1)$$

where V is the deterministic component of utility, x_{ia} is a vector of observed characteristics of the individual i and the communication media alternative a , θ is a vector of parameters and ϵ_{ia} is the random component relating to faulty perception of the choice options, idiosyncratic preferences, neglected choice-relevant attributes etc. The parameters are estimated from the data by means of the method of maximum likelihood.

In general, it is assumed that the choice structures are compensatory in nature, i.e. V is linear in θ :

$$V(x_{ia}, \theta) = \sum_k \theta_k x_{iak} \quad (2)$$

where θ_k is the k -th component of θ and x_{iak} is the k -th component of x_{ia} .

In this study we assume that the ϵ 's are independently and identically Gumbel distributed and, thus, confine ourselves to the linear-in-parameters multinomial logit (MNL) model, the simplest and most convenient functional form of a discrete choice model:

$$P(a | x_{ia}, \theta) = \exp v_{ia} / \sum_{b \in A} \exp v_{ib} \quad (3)$$

where $P(a | x_{ia}, \theta)$ denotes the probability that a randomly chosen individual i will choose alternative a from the set of communication media. The details of the data and model specifications are discussed later.

In order to clarify the effects of context variation on media choice preferences several context-specific MNL models were estimated. The base model estimated on the full sample size provides a useful base against which the stratified models can be contrasted.

4. Analysis and Results

The target population of this study is all scholars associated with an Austrian university. The survey population is restricted to those scholars engaged in one of the three major universities in Vienna: University of Vienna, Technical University of Vienna, Vienna University of Economics and Business Administration. The sample design used relies on exogenous stratification. The dimensions for stratification were the status of the scholar (full professor and assistant professor/docent), the type of university and the type of department. The sampling fractions were chosen to be equal to the population shares. The drawing of observations out of each stratum was done randomly. The survey was carried out in winter 89/90 (November 89 - February 90) and produced a total of 186 questionnaires.

The sample likelihood of a general stratified sample with non-overlapping strata can be expressed as (see Ben-Akiva and Lerman 1985, p.235):

$$L = \prod_{b=1}^B \prod_{i=1}^{N_b} \prod_{a \in A} (P(a | \mathbf{x}_i, \theta) \cdot (p(\mathbf{x}_i) / F_b) \cdot H_b)^{y_{ia}} \quad (4)$$

where

$P(a | \mathbf{x}_i, \theta)$ conditional probability (generated by the linear-in-parameters MNL-model (3))

$p(\mathbf{x}_i)$ marginal probability

H_b ($b = 1, \dots, B$) fraction of sample in stratum b

F_b ($b = 1, \dots, B$) corresponding fraction in the survey population

N_b ($b = 1, \dots, B$) total of sample individuals in b

$y_{ia} = \begin{cases} 1 & \text{if individual } i \text{ chooses option } a \\ 0 & \text{otherwise} \end{cases}$

When the sample fractions H_b are chosen to be equal to the population shares F_b (4), i.e. $H_b = F_b$ (proportionate stratification), the general sample likelihood reduces to that of random sampling.

The MNL models were estimated on a sample size of 367 observations, composed of two contexts per person. The reduction from a sample size of 372 observations (2 x 186 questionnaires) was due to missing data on media perceptions. Börsch-Supan's HLOGIT program was used for estimating the models. HLOGIT estimates maximum likelihood parameters, utilizing a Marquardt-type modified Newton-Raphson procedure. All MNL-models require one alternative in the choice set to serve as a base of the utility scale. The traditional mail option is deliberately chosen as the base alternative.

A base model and three types of context-specific models (location-split contexts models, urgency-split contexts models and complexity-split contexts models) were estimated. The base model makes use of all the data. The context-specific models rely on segments of the data corresponding to specific communication contexts in order to clarify the effects of context variation on media preferences. Three standard goodness of fit measures were used: Rho-squared, rho-squared bar and the prediction success. Rho-Squared is the standard likelihood ratio index which indicates how well the model explains preferences relative to the market shares model where all parameters in the model except the alternative specific constants are set to zero. Rho-squared (ρ^2) is defined as

$$\rho^2 = 1 - L^*(\hat{\beta}) / L(C)$$

where $L^*(\hat{\beta})$ denotes the value of the log likelihood function at its maximum and $L^*(C)$ the value of the log likelihood function when only alternative-specific constants are included. This measure is useful in comparing two specifications. Even if there are no general guidelines for when a ρ^2 -value is sufficiently high, McFadden (1974) has suggested that values of between 0.2 and 0.4 can be considered to represent a very good fit. A major shortcoming of this measure, however, lies in the fact that it will always increase or at least stay the same whenever new variables added to the utility function. For this reason we also use the adjusted rho-squared bar

$$\rho^2 = 1 - L^*(\hat{\beta}) / L^*(C) \tag{6}$$

with K denoting the number of parameters. Another informal goodness-of-fit measure refers to the percentage of correct ex-post predictions (the so-called prediction success) which counts those observations for which the model predicted the same communication medium choice as was actually observed.

Three types of variables are taken into consideration. The first type of variables attempts to measure the influence of feelings about and perceptions of communication media characteristics. The generic variable (familiarity with the communication media, in short: FAM) and the alternative-specific variable accessibility (ACCESS), specific to e-mail, are included. The second type of variables refers to characteristics of the communication context, such as the alternative-specific variables confidentiality (CONFID) and volume (VOLUME) of communication as well as the alternative-specific variables urgency (URGENCY) and complexity (COMPLEX) of communication. The latter two variables are included in the location-split only. The third type concerns alternative specific constants. They are introduced for all alternatives except traditional mail which is used as the reference alternative. They capture the effects of unobserved factors and individual idiosyncracies influencing choice decisions.

The results of the seven models are presented in Tables 3 and 4. Table 3 shows the coefficient estimates and the goodness of fit statistics used for the base model and the urgency-split contexts and the complexity-split contexts models. The urgency-split contexts models compare urgent and non-urgent communication contexts, while the complexity-split contexts models compare the importance of variables for complex and simple communication contexts. The findings for the location-split contexts are outlined in Table 4, which compare the influence of variables for communication situations in different organizational environments. The base and the split contexts models perform reasonably well according to the performance measure used. All the significant coefficients (0.05 level of significance) have the anticipated sign. However, not all the coefficient estimates are significantly different from zero. Positive coefficients reflect positive marginal utilities and negative coefficients negative marginal utilities.

Table 3: Results of the Communication Media Choice Models: The Base Model, the Urgency-Split Context and the Complexity-Split Context Models
(t-values in parentheses)

Variables	Generic or Alternatives Specific to	Base Model		Urgency-Split Models		Complexity-Split Models					
				Urgent Message	Not-Urgent Message	Complex Message	Simple Message				
Familiarity with the Communication Media	generic	0.26	(3.70)*	0.34	(3.11)*	0.36	(3.01)*	0.16	(1.54)	0.39	(3.74)*
Accessibility (1 if located in the organis. unit 0 otherwise)	e-mail	1.95	(3.09)*	2.44	(2.28)*	1.24	(1.51)	36.62	(0.00)	1.62	(2.39)*
Confidentiality of the Communication (1 if confidential, 0 if otherwise)	courier mail	1.31	(2.47)*	- 0.56	(- 0.58)	14.16	(0.02)	0.82	(1.30)	2.21	(2.01)*
	telephone	0.79	(2.42)*	- 0.54	(- 0.63)	0.71	(1.52)	2.92	(2.76)*	1.07	(1.96)*
	fax	- 1.24	(- 4.08)*	- 2.86	(- 3.36)*	- 2.49	(- 2.34)*	- 1.21	(- 3.33)*	- 1.50	(- 2.73)*
	e-mail	- 1.10	(- 2.45)*	- 2.86	(- 2.88)*	- 0.99	(- 1.54)	- 0.60	(- 0.72)	- 1.00	(- 1.69)
Volume of the Message (1 if long, 0 if short)	courier mail	1.71	(2.66)*	2.57	(2.71)*	0.24	(0.13)	1.81	(2.68)*	12.73	(0.09)
	telephone	- 3.71	(- 6.00)*	- 2.75	(- 3.28)*	- 17.65	(- 0.02)	- 33.44	(0.00)	- 4.61	(- 6.46)*
	fax	0.59	(1.95)	1.33	(1.89)	0.51	(0.78)	0.76	(2.07)*	0.82	(1.27)
	e-mail	0.10	(0.23)	1.39	(1.59)	- 0.60	(- 1.00)	1.05	(1.19)	- 0.91	(- 1.58)
Alternative Specific Constant	courier mail	- 3.16	(- 4.30)*	0.15	(0.13)	- 16.53	(- 0.02)	- 2.86	(- 3.67)*	- 14.90	(- 0.03)
	telephone	- 0.36	(- 1.36)	2.17	(2.75)*	- 1.27	(- 3.35)*	- 3.26	(- 3.17)*	0.80	(2.05)*
	fax	0.14	(0.49)	3.35	(4.19)*	- 1.42	(- 2.51)*	0.08	(0.24)	- 0.11	(- 0.18)
	e-mail	- 2.13	(- 3.17)*	- 0.16	(- 0.12)	- 1.87	(- 2.25)*	- 38.52	(0.00)	- 0.38	(- 0.49)
Log-Likelihood at Zero		- 590.66		- 294.53		- 296.14		- 297.75		- 292.92	
Log-Likelihood at Constant		- 533.62		- 255.32		- 187.61		- 245.05		- 264.37	
Log-Likelihood at Convergence		- 426.15		- 178.55		- 144.71		- 198.48		- 177.54	
Rho-Squared		0.20		0.30		0.23		0.19		0.33	
Rho-Squared Bar		0.18		0.25		0.15		0.13		0.28	
Prediction Success (in %)		45.2		59.0		66.9		48.6		59.3	
Number of Observations		367		183		184		185		182	
Observed (Predicted) Media Preferences (in %)											
Courier Mail		7.6 (0.0)		13.7 (11.5)		1.6 (0.0)		9.7 (0.0)		5.5 (1.7)	
Telephone		22.9 (31.9)		29.0 (33.3)		16.8 (4.9)		11.4 (4.3)		34.6 (43.4)	
Fax		24.3 (18.2)		41.5 (50.3)		7.1 (0.5)		31.9 (28.7)		16.5 (8.2)	
E-Mail		8.4 (2.5)		9.3 (4.9)		7.6 (1.1)		3.8 (0.0)		13.2 (9.9)	
Traditional Mail		36.8 (47.4)		6.6 (0.0)		66.9 (93.5)		43.2 (67.0)		30.2 (36.8)	

* significant at the 0.05 level

Table 4: Results of the Communication Media Choice Models : The Base Model and the Location-Split Context Models (t-Values in parentheses)

Variables	Base Model	Technical Univ. of Vienna	Other Universities in Vienna
Familiarity with the Communication Media	0.26 (3.70)*	0.20 (1.84)	0.35 (3.59)*
Accessibility (specific to E-mail)	1.95 (3.09)*	14.95 (0.02)	1.70 (2.56)*
Confidentiality (specific to courier mail)	1.31 (2.47)*	0.78 (1.09)	1.80 (2.25)*
(specific to telephone)	0.79 (2.42)*	1.30 (2.62)*	0.34 (0.78)
(specific to fax)	- 1.24 (-4.08)*	- 1.27 (- 2.79)*	- 1.18 (- 2.88)*
(specific to e-mail)	- 1.10 (- 2.45)*	- 1.14 (- 1.53)	- 1.14 (- 1.99)*
Volume of the Message (specific to courier mail)	1.71 (2.66)*	2.01 (1.86)	01.59 (1.97)*
(specific to telephone)	- 3.71 (6.00)*	- 2.89 (- 4.29)*	- 16.25 (- 0.04)
(specific to fax)	0.59 (1.95)	0.49 (1.12)	0.67 (1.59)
(specific to e-mail)	0.10 (0.23)	0.45 (0.63)	- 0.13 (- 0.23)
Constant 1 (specific to courier mail)	- 3.16 (- 4.30)*	- 3.30 (- 2.91)*	- 3.13 (- 3.03)*
Constant 2 (specific to telephone)	- 0.36 (- 1.36)	- 0.83 (- 1.97)*	0.02 (0.05)
Constant 3 (specific to fax)	0.14 (0.49)	- 0.04 (- 0.11)	0.39 (0.92)
Constant 4 (specific to e-mail)	- 2.13 (- 3.17)*	- 15.82 (- 0.02)	- 1.21 (- 1.65)
Log-Likelihood at Zero	- 590.66	- 262.34	- 328.33
Log-Likelihood Constant	- 533.62	- 231.56	- 301.45
Log-Likelihood at Convergence	- 426.15	- 188.65	- 228.58
Rho-Squared	0.20	0.19	0.24
Rho-Squared Bar	0.19	0.17	0.23
Prediction Success (in %)	45.2	44.2	47.1
Number of Observations	367	163	204
Observed (Predicted) Media Preferences (in %)			
Courier Mail	7.6 (0.0)	7.4 (0.0)	7.8 (1.5)
Telephone	22.9 (31.9)	22.1 (23.9)	23.5 (44.1)
Fax	24.3 (18.2)	24.5 (20.9)	24.0 (22.1)
E-Mail	8.4 (2.5)	6.7 (0.0)	9.8 (4.9)
Traditional Mail	36.8 (47.4)	39.3 (55.2)	34.8 (27.4)

* significant at the 0.05 level

Analysis of the media perceptions showed that traditional mail, with over 36 % of the preferences, was the dominant medium. Fax and telephone were preferred in about 24 % and 23 % of the cases, respectively, while e-mail and courier mail, each with about 8 %, were preferred relatively infrequently. However, there are significant variations in preferences across contexts illustrating the influence context has on preferences (see Tables 3 and 4).

Tables 3 and 4 clearly indicate the influence of context on preferences for communication media through varying levels of significance of the explanatory variables. There is no variable significant in all contexts presented here. Familiarity with the communication media is important in most situations, although the estimated parameter is insignificant in complex communication situations at the 0.05 level. This unexpected result appears to occur because there are few alternatives available to satisfy complex communication, and thus the familiarity variable is unable to differentiate these choice options and consequently to explain preferences.

The second variable attempts to measure the influence of the accessibility to e-mail as perceived by the recipients. This alternative-specific variable seems to have an important influence on preference formation (see base model), especially in urgent rather than in non-urgent communication situation.

The communication context variables tend to have an important influence on preference formation. Urgency of communication (specific to courier mail, telephone and fax) and complexity of communication (specific to telephone) are the only variables highly significant in all three organisational environments. This indicates that these variables are important regardless of the specific organisational environment of the three universities. The positive signs of the URGENCY parameter estimates indicate an increase in the odds of selecting courier mail, telephone, fax and - except the Vienna University of Economics and Business Administration - also e-mail, if the message is urgent, while the negative signs of the COMPLEX (specific to telephone) parameter estimates point to a decrease in the odds of choosing telephone if the message is complex (see Table 4). Confidentiality of communication (specific to fax) is significant in most communication situations. The negative signs of the parameter estimates indicate a decrease in the odds of selecting fax if the message is confidential. The context variable volume of

communication seems to be less important, especially in the environment of the Vienna University of Economics and Business Administration.

The coefficients of some alternative specific constants (in the base model, for example, those specific to courier mail and specific to e-mail) are significantly different from zero which indicates that some choice-relevant influences have not been captured. It is worthwhile to mention that several other variables had been considered such as cost of use and reliability of success delivery, but they were found to be totally unimportant in virtually all contexts. Cost is unimportant in determining media preferences in Austria. Poor experiences with reliability of new electronic media tends to have no detrimental effect on their future usage.

The results clearly indicate the value of the conceptual framework and the methodology suggested to estimate context-specific models. The most important empirical finding is the significant variation in the relative importance of the variables across contexts.

5. Summary and Conclusions

The paper presents a conceptual framework for communication behaviour where (tele)communication media choice plays a prominent role. The methodology discussed in this paper for testing the media choice component of the conceptual framework provides a suitable approach to analyse the context-specific nature of the communication media choice process. The methodology allows for the influence of context at two levels:

- * first, a range of contexts is chosen at the data collection stage, with contexts created by the use of experimental design procedures,
- * second, the experimental design allows for choice models to be estimated on context-specific segments of the data by dividing the data set across some context variables of interest.

The major methodological aim of this paper was to integrate the experimental design procedure into a discrete choice framework and to apply the integrated methodological approach to the problem of communication media choice. The empirical results obtained illustrate that this approach is useful to analyse the context-specific nature of telecommunication media choice behaviour.

Aknowledgement. The authors wish to thank the Austrian National Science Foundation (Fonds zur Förderung der wissenschaftlichen Forschung) for funding this research (P 7516-SOZ).

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