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TECHNICAL REPORT

Study on Appropriate Methodologies to Better Measure Consumer Preferences for Postal Services

Final Report

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Summary

Postal services are an essential means for the delivery of communication, goods and information. They greatly reduce transaction costs between individuals, companies and governments, thereby contributing to the functioning and evolution of relationships, markets and governments. Virtually every citizen relies on postal services as a sender and recipient. Every year, European consumers hand about 135 billion¹ postal items over to postal operators, which deliver them throughout the European Community with over 1.6 million (Copenhagen Economics, 2010) employees.

Postal services have steadily evolved over centuries as the key means for long-distance communication between people (“telecommunication”). Whereas earlier signalling-based telecommunication technologies such as telegraph and fax have influenced the demand for postal items to a limited extent, the age of digitalisation with the invention and evolution of the internet have had, and are still having, a measurable impact on people’s needs to send and receive postal items. On the one hand, letter mail volumes are steadily decreasing in most European countries and there is little doubt that this decline is to be attributed to the substitution of letters by electronic alternatives (“e-substitution”). On the other hand, the delivery of physical goods such as small packages and parcels is likely to be of increasing importance. “E-commerce” has taken off, and in line with globalisation, both personal and business relationships are far more widespread than they used to be. These trends can be seen in the growing parcel volumes in most member states.

Increases in e-substitution and e-commerce are likely to have an impact on consumers’ needs and preferences for postal services. In the case of regulated postal services, however, such developments in consumer demand are not immediately matched by changes in supply, but must be identified and addressed through policy decisions. Given the significant changes brought about by electronic communication, there is a need for better information on how these developments have affected demand for postal services and on what consumers need from a postal service.

The need to understand customers’ preferences is acknowledged by the European Commission’s Postal Directive (Directive 97/67/EC as amended by Directive 2002/39/EC and by Directive 2008/6/EC). While specifying the minimum requirements with respect to the provision of the universal postal service that all member states must ensure, the

¹ http://ec.europa.eu/internal_market/post/index_en.htm.

Directive also states in Art. 5 that the “universal service shall evolve in response to the technical, economic and social environment and to the needs of users”.

Against this background, various member states, such as France and the UK, have started initiatives to better understand their citizens’ needs and preferences for postal services. While every study is very insightful in itself, the methodologies employed in these studies differ in important aspects. As a consequence, the results vary greatly, and comparisons among member states are hardly meaningful.

Moreover, measuring consumer preferences in postal markets that link senders and recipients is a challenging task that needs careful consideration based on a sound economic understanding of the underlying needs of postal consumers. This study aims to help member states to better understand their people’s needs and preferences for postal services. To this end, the study develops a methodology for measuring consumers’ preferences and implements it in three member states: Italy, Poland and Sweden. Based on the findings and lessons learned, the study provides a toolkit for member states that wish to conduct quantitative market research to better understand their citizens’ needs for postal services. The results of the study also help to inform the public debate in Europe on what people expect today from postal services.

Our methodological framework for measuring consumers’ preferences for postal services

For this study we use information collected from consumers regarding choices of hypothetical postal services (called stated preference discrete choice experiments; SPDCEs) to quantify consumers’ preferences for specific aspects of postal services. We recommend the use of this approach because it provides values for attributes of a public good or service when incomplete markets are present. Moreover, the use of stated preference (SP) choice experiments is growing in the postal sector, particularly in the area of quantifying consumer priorities.

Based on an economic analysis of the underlying needs for postal services, we hypothesise that such a study should:

- take account that users are both receivers and senders of post
- take account of competition in the communication market, particularly from e-substitutes
- reflect the services that are provided and experienced by senders and receivers rather than structure oriented features of the postal network, like the number of sorting centres.

Implementing the valuation methodology in three member states

A number of steps were required to develop and implement the SP choice experiments and survey methodology.

Step 1: Defining the attributes to be tested in the choice exercises

A key aspect of such a study is the specification of the attributes and attribute levels to be tested in the choice experiments. Ideally, we would include all meaningful attributes that

describe postal services. However, in practice we are limited to a maximum of around 15 attributes which can be evaluated by any one respondent, and 15 attributes is probably an upper limit, particularly because of the focus of the needs of vulnerable people's postal needs.

In order to be able to compute consumers' willingness to pay (WTP) it is essential that price is included as one of the attributes. Because we are seeking to obtain consumers' WTP for improved services (or compensation required for reduced services), we need to examine price ranges that test consumer' WTP, rather than the actual costs of providing the services. Policy makers may then compare the resulting WTP valuations against the costs of providing the services to determine whether provision of such service levels is justified, but this is outside the scope of this study. For realism we recommended that the prices be varied around current prices in each member state.

In order for consistency and comparison of findings, we tested the same attributes in three member states, although the costs are presented in the appropriate currency for respondents in each member state.

As part of the study, we used four sources to inform our choice of attributes:

- specification of an economic framework for the provision of postal services, and consumers' priorities for these services
- review of attributes (and levels) tested in other studies
- review of current minimum levels of obligation (universal service obligation; USO) for specific postal attributes across member states, to provide information on minimum service attribute levels and how their levels may vary across member states)
- views on postal service elements which are important to consumers from stakeholders in the member states where the quantitative research will be undertaken.

Implications of the underlying needs of postal services

Our analysis of the underlying needs of postal services suggested that the study must ensure that three issues are accounted for appropriately: that users are both senders and receivers (the two-sidedness of the postal market), the different exposure of letters and parcels to competition, and that the services examined in the study should reflect the services experienced by users.

First, the insight that the postal market is a two-sided network calls for an analytical distinction along three main features that interrelate in important ways and hence cannot be analysed separately: the sender and recipient side of the service, and the service platform that links these two sides.

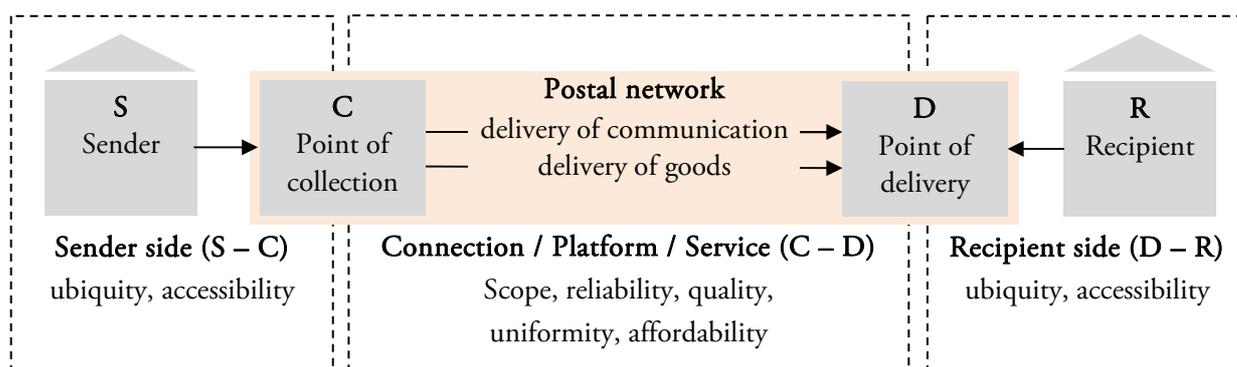


Figure S.1 Two sides, one platform, based on Jaag and Trinkner (2011b)

The two dimensions ubiquity and accessibility may be crucial issues on the sender and recipient side. In the services platform (C-D), relevant dimensions include the scope of services provided (e.g. letters, parcels) and their reliability, quality, uniformity and affordability. It is a challenge to incorporate the two-sidedness of the postal market in the study design. In this study we therefore felt that it was important:

- to assure that the preferences of both sides (senders and recipients) were reflected while avoiding double counting
- to compute the WTP jointly for both sides
- to frame the choices such that respondents viewed themselves simultaneously both as senders and recipients
- to collect socio-economic information regarding respondents' usage of the postal network both as sender and recipient and to distinguish businesses and private consumers.

Second, digital options are also likely to change the underlying needs of consumers. For example, fast letter services might diminish in value to consumers as digital alternatives offer instantaneous delivery. While digital competition may result in less WTP for some services, there may be increases in value for other services; for example the delivery of parcels resulting from to online shopping. Consumers' WTP for postal service elements may therefore depend crucially on the availability and usage of digital alternatives. We therefore felt that it was important to:

- select member states with differing levels of digital penetration and e-commerce usage
- distinguish in choice experiments the delivery of communication (letters, newspapers) and goods (parcels, packages)
- collect socio-economic information on respondents' internet availability and usage
- control for the availability of substitutes.

Third, some attributes such as frequency of delivery may be important to operators providing postal services, but may have less direct relevance to users. We therefore focused on service attributes which are directly experienced by users, for example the speed of delivery – “output-oriented” attributes rather than “input-oriented” attributes that relate to

the provision of postal services such as the number of sorting and collection facilities or the number of collection and delivery days.

Review of attributes tested in other postal valuation studies

A number of other studies have been undertaken to examine consumer preferences for postal services and USO attributes. From examination of these studies we see that previous studies have focused on a wide range of attributes including:

- speed of delivery and number of classes of services
- delivery frequency
- collection frequency
- time of delivery
- service standards
- evening delivery and Saturday delivery
- access to post offices
- presence of registered and insured services
- opening hours
- uniform pricing
- price.

Many of these attributes are relevant for this study, but many are also focused on input-oriented features, which may not impact the service actually experienced by users, e.g. collection frequency. Moreover, most of the studies focus on quantifying consumer preferences for letter post, although some studies have looked at the value of parcel services in general (Accent, 2008).

Levels of USOs across member states

The minimum levels of USO attributes for specific postal attributes across member states provide information on current minimum service attribute levels and how these vary across states. Therefore the USOs across member states were reviewed to inform the decision of attributes (and attribute levels) to be tested in the choice experiments.

Views of stakeholders

In order to understand stakeholder views about the importance of postal service attributes, views were sought from representatives of the postal provider, the postal regulator, relevant consumer bodies, other postal operators and other interested parties in the three member states. This took the form of conference calls and a follow up questionnaire.

Selected attributes

The attributes to be tested were guided by the economic framework, but also took into account findings from other studies, information regarding specification of USO conditions and stakeholder views.

Given the growing importance of parcel services, we recommended that two separate exercises be undertaken, by business and resident consumers, to examine the importance of the following attributes separately for letter and parcel services:

- delivery time, including single class services (J+1, J+2, J+3) and two-class services (J+1 and J+3); we also tested a non-uniform service specification, specifically J+1 (locally) and J+3 (nationally)
- reliability (% of mail delivered on time), with levels between 80% and 95%

- guaranteed time of latest daily delivery
- percentage of lost items, with levels between no lost items, 5% and 10% lost items
- delivery location: at home, a post-office box or the local postal service centre
- price, based on current stamp prices (for letters and packets) and an average parcel price for parcels.

We have included guaranteed time of delivery, on the basis that this could be important to customers and may have an important impact on costs for postal providers. We have not included time of collection, on the basis that this is likely to be less important to consumers. In turn, we have put greater emphasis on the speed of delivery attribute, which is a direct indication of the time that it takes for an item to reach the recipient.

We tested the importance of Saturday delivery in the pilot survey but this attribute was dropped for the main surveys, on the basis that too many respondents indicated that they found the choice exercises too demanding in the pilot survey (nearly 20% of respondents reported that they could not undertake the choice experiments in the pilot and cognitive survey tests, which is a rather high figure based on our experience).

We also recommended a third experiment to quantify the importance of the following service attributes:

- uniform pricing
- proportion of the network covered by postal services
- accessibility of postal points of contact (measured as distance)
- available services
- opening hours
- price.

We have not tested provision of specific services, e.g. “track and trace” services, on the basis that these are provided commercially in many markets.

We also haven’t included electronic collection and delivery, on the basis that such services may be unfamiliar to many customers presently.

For consistency and comparison of findings, we tested the same attributes in the three member states. Although the costs were based around current price levels in the member state and were presented in the appropriate currency for each member state. We recommended testing six price levels in the design, including price reductions and increases, to ensure a wide range of costs are tested in the experiment, facilitating reliable estimates of WTP.

Step 2: Defining key market segments, sample sizes and the survey methodology

Key market segments

Postal service preferences and priorities may vary by country and customer type. It was therefore crucially important to reflect the views of different customer types within the survey design.

Businesses’ postal needs may vary depending on the size and type of business. Larger businesses will tend to have direct contact with the postal service provider, possibly even an account manager. The impact of changes to postal service provision of the platform and on the recipient side is likely to be very important to them, whereas the public accessibility of

the platform for senders may be less of a concern. Smaller businesses will have less of a voice and may be smaller users of the postal service. Consequently, their preferences for the accessibility on the sender side may be more accentuated. We therefore specified quotas for large businesses and small and medium enterprises (SMEs) within each member state.

The survey design aimed to reflect the demographic profile of the member state's residential customers, measuring age, gender and household income. Additionally it took account of more vulnerable members of society, notably the elderly, disabled and those on low incomes – those who may be more dependent on postal services and likely to be more heavily impacted by any change to postal service provision. We felt that it was also important to represent those living in more rural areas and those without internet access as their reliance on and usage of postal services could be different from those who live in urban areas and those who have access to email and online services.

Survey sample sizes

We proposed to undertake 475 interviews in each member state:

- 3 member states:
 - 350 residential consumers:
 - 100 vulnerable users
 - 250 non-vulnerable users
 - 125 business customers:
 - 75 SMEs
 - 50 large businesses.

These were the maximum sample sizes that were feasible given the project budget. Our aim was to be able to compare the resulting valuations between vulnerable and non-vulnerable residential consumers and between SMEs and large businesses.

Survey methodology

It is essential in research where complex choice experiments are undertaken that the choice experiment options are clearly presented for the respondent to see as part of the survey. This has implications for the survey methodology, and within the report we discuss the benefits and shortcomings of different methodologies.

Our recommended approach was to use a Phone–Post/Email/Fax–Phone methodology. This meant that the interviews were undertaken by telephone with an interviewer. Respondents with email access (most businesses and a proportion of residential respondents) could be sent the SP material during the course of the initial phone call, allowing the respondent to view it while they were on the phone so that the telephone interview could continue uninterrupted. However, those who were unable or unwilling to access the internet as part of the survey could have the material either faxed or posted to them and the interview completed at a future date. The inclusion of a postal option ensured that those without internet access were also included within the research.

Step 3: Choosing the member states for testing the study methodology

We selected three member states for testing the study methodology, providing a wide range of variation across key background characteristics that might influence postal services and consumers' preferences for postal services, e.g. size of country, letter volume, degree of urbanisation, market experience, digital penetration, state ownership, and so on. To do this we ranked each member state into three clusters (low, medium and high) across the key criteria, as shown below.

Table S.1: Summary of postal characteristics across member states

	Low	Medium	High
Size ¹	MT,LU,CY,EE,SI,LV,LT,IE,FI	SK,DK,BG,AT, SE ,HU,CZ,PT,BE	EL,NL,RO, PL ,ES,IT,UK,FR,DE
Letter volume ²	BG,RO,LV,LT, PL ,EL,SK	CY,HU,EE,CZ,IT,PT,ES,MT	IE,DE,SI,DK, SE ,NL,LU,FI
Urbanisation ³	EE,CY,LU,SI,RO,SK,BG,HU,SE	DK,CZ,LT,FI, PL ,IE,AT,FR, IT	DE ,EL,LV,PT,ES,BE,NL,UK,MT
USO ⁴	RO,FR,SI,BG,CZ,IT,LV,UK	AT,CY,DK,HU,LU,MT, PL ,SK,EE,DE,IE,LT,NL	BE,EL,FI,PT, SE ,ES
Perception of affordability ⁵	FI, SE , PL ,ES,CZ,DK,DE,IT,HU	EL,EE,LV,AT,PT,SI	FR,LU,BE,CY,MT,SK,NL,LT,UK,IE
Market experience (letters) ⁶	AT,BE,CY,FI,FR,EL,HU,IE,LV,LU,MT, PL ,PT,SK	CZ,DK,EE, IT ,RO,SI	BG,DE,NL,ES, SE ,UK
Market experience (parcel) ⁶	BG,CZ,DK,MT,SK,SI	CY,IE,LT,PT	AT,BE,DE,HU, IT ,LV,LU,NL, PL ,RO,ES, SE ,UK
Digital penetration ¹	BG, PL ,SK,RO,EL,HU,CZ,PT,CY	LT,LV, IT ,SI,IE,ES,MT,AT,EE	FR,DE,BE,LU,UK,FI, SE ,NL,DK
E-commerce ¹	RO,BG,LT,EL,PT,IT,EE,LV,CY	HU,ES,SI,CZ, PL ,SK,IE,MT,BE	AT,FR,FI,DE,LU, SE ,NL,UK,DK
State ownership ⁷	DE,NL,MT	BE,AT, IT	DK,IE,FR,LU,FI, SE ,UK,CZ,RO,BG,EE,LV,LT,HU, PL ,SI,SK,CY,EL,ES,PT

Source: 1) Eurostat (2010); 2) DG Internal Market & Services (2010); 3) DG REGIO; 4) PwC (2006) (under review); 5) Eurobarometer (2007); 6) Based on Van der Lijn et al. (2006); 7) Copenhagen Economics (2010). Selected member states are in bold.

We note that there was no combination of member states which allowed for maximum variation across every criterion, whilst covering 20% of the EU population and including one member state from western, southern and eastern states (a requirement of the study brief).

After much deliberation we concluded that Sweden, Italy and Poland offered a very good level of variation across key dimensions and therefore the surveys were undertaken in those countries.

Consumers' preferences for postal services

The results from the choice experiments provide estimates of consumers' WTP for the different attributes tested in the experiments undertaken in Sweden, Italy and Poland. The key findings are summarised below. The detailed attribute valuations, in purchase price standard (PPS) units, are presented in three summary tables at the end of this section.

Big businesses value letter services more than SMEs or residents whereas all consumers value parcel services

We observe that big businesses value letter services more than SMEs or residents – and this is not surprising because big businesses are more likely to be senders of large volumes of mail – over 60% of big businesses in our sample send over 500 pieces of mail per month compared with 14% of SMEs. Thus they appear to have a vested interest in good letter services and are willing to pay for those services.

However, differences in parcel sending between big businesses and SMEs are much less marked – with 15% of SMEs and 17% of big businesses sending over 100 parcels per month – and here we see more similar valuations of postal service attributes between big businesses and SMEs.

Both big businesses and residents tend to place higher valuations, absolutely and relative to base prices, on parcel services than on letter services.

When we looked at specific service attributes, we found the following results.

Reductions in the number of lost letters or parcels have been identified as the most important service attribute for business and resident consumers

The experiments tested three levels of loss for letters and parcels: no lost letters or parcels, 5% loss and 10% loss. We recognise that these are very large loss levels. However, 5% and 10% loss levels require very large levels of compensation, particularly for parcels, to all consumers. These findings are inconsistent with the qualitative findings, where reduction of lost items was not ranked as highly as improvements in speed of service – but perhaps respondents were not considering loss levels of 10% when considering the qualitative questions.

All consumers also value reliability

All consumers valued improvements in reliability (measured as the percentage of letters or parcels delivered on time). Big businesses placed the highest value on reliability for letter services. SMEs and residents placed high values on reliability for parcel services.

Businesses, particularly big businesses value speed of delivery for letter services

We observed that businesses, particularly big businesses, value speed of delivery for letter services, whereas SMEs and resident consumers seem to place less value on this postal service attribute. We find that a single service with a two-day delivery may be acceptable to SMEs and residents, but would be less acceptable to large businesses. Alternatively, a non-uniform speed of delivery option, where local letter deliveries are made by the next day but national deliveries are made within three days, may be an acceptable compromise to both business and resident consumers, although this contradicts findings from the qualitative findings, where two-thirds of respondents indicated that mail should be delivered as quickly to rural location as to urban locations. The non-uniform option seems to be less acceptable when it applies to parcels, particularly for businesses. We do not observe any

preference for a two-class service offering both next day and within three-day deliveries, compared with a single next day service.

Generally, speed of delivery is perceived to be more valuable for parcels than letters, particularly for businesses.

Delivery to the home or work location is important for businesses and residents

Business and resident consumers required compensation for letter and parcel delivery to secure boxes away from their work or home locations. In Sweden we found some evidence that delivery location matters to vulnerable people over 44 years of age (where travelling may be more difficult) and non-vulnerable people, although vulnerable people younger than 44 years of age did not see this as an important issue.

Early morning guaranteed time of delivery was not highly valued by consumers

The evidence from this work suggests that businesses would be willing to accept a 13:00 guaranteed time of delivery without much compensation relative to a 09:00 guaranteed time of delivery, although, they would require substantial compensation for a move to a guaranteed time of delivery at 17:00. Resident consumers seemed to value later deliveries more positively in general, which was counter-intuitive to what we were expecting but may reflect that many respondents do not require delivery during the day when they are not at home.

Regarding general characteristics of the postal service, we find the following.

All consumers want to access services nearer their home or work and with longer opening hours

Businesses and resident consumers are willing to pay for having postal services nearer their work or home, and there are surprising levels of consistency in the valuations across businesses and resident consumers, and across countries. Consumers also value service locations with longer opening hours. In this study we observed lower WTP for a wider range of postal services or financial services.

Consumers value higher levels of coverage of the postal network

We observe that business and resident consumers value full coverage of the network – delivery to all addresses in a country – with SMEs valuing this more than larger businesses.

Consumers have a preference for uniform pricing for letter and parcels within the country, but the value is relatively small compared with other postal service attributes

Generally, we observe that business and resident consumers have a small preference for uniform pricing for letter and parcels within a country, although the value attached to uniform pricing is relatively small (non-vulnerable residents in Poland are the exception here, as they do not value uniform pricing positively).

The following tables summarise the resulting values for each attribute level, for the business and consumer segments. All valuations are measured relative to a base attribute level (which is explicitly labelled) and are measured in PPS units, for comparison purposes. Positive values indicate WTP for service improvements; negative values are willingness to accept (WTA) compensation for service deteriorations. A value of zero indicates that the service level is valued the same as the base service level. Values in light grey are not significantly different from zero at the 95% confidence level.

We note that for letter services, the valuations are measured relative to the price of a stamp (20 g), and therefore to obtain the total WTP for service improvements (or compensation required for service decrement) *the total volume of letter mail has to be considered*. For example, if consumers are willing to pay €0.1 on the stamp price for a service improvement, then the total WTP within the market will be €0.1 multiplied by the total volume of mail. For parcel services, the valuations are measured relative to the price of a 1 kg parcel. *In order to compute the total WTP for service improvements (or compensation required for service reductions), the total volume of parcel mail has to be considered*.

Table S.2: SME and large business valuations for letter and parcel services (PPS units)

Domain level	Letters		Parcels	
	SME WTP (PPS)	BB WTP (PPS)	SME WTP (PPS)	BB WTP (PPS)
Number of classes and speed of service				
One class: delivery by next working day (base)	0.00	0.00	0.00	0.00
One class: delivery within 2 working days	0.00	-0.53	-0.97	-3.85
One class: delivery within 3 working days	-0.19	-0.85	-6.89	-5.56
One class: local deliveries by next working day; national deliveries within 3 working days	-0.15	-0.33	-3.84	-2.27
Two classes: next working day and within 3 working days	0.00	0.00	0.00	0.00
Delivery location				
Delivered to business during work hours only (base)	0.00	0.00	0.00	0.00
Delivered to secure mail box 100m from business	-0.29	-0.59	-4.04	-4.17
Delivered to secure mail box 1 km from business	-0.41	-0.64	-6.32	-4.17
Guaranteed time of delivery				
Delivered by 9:00 (base)	0.00	0.00	0.00	0.00
Delivered by 13:00	-0.11	0.00	0.00	0.00
Delivered by 17:00	-0.25	-0.37		
Delivered by 17:00 (not advertising material)			0.00	0.00
Delivered by 17:00 (advertising material)			-4.57	-4.12
Percentage of mail delivered on time				
80% of letters / parcels delivered on time (base)	0.00	0.00	0.00	0.00
90% of letters / parcels delivered on time	0.06	0.62	0.00	0.00
95% of letters / parcels delivered on time	0.11	0.71	2.28	0.00
Percentage of letters lost				
No lost letters / parcels (base)	0.00	0.00	0.00	0.00
5 out of 100 letters / parcels lost	-0.33	-0.99	-9.24	-9.40
10 out of 100 letters / parcels lost	-0.85			-14.10
10 out of 100 letters lost (not magazines / newspapers)		-2.41		
10 out of 100 letters lost (magazines / newspapers)		-1.11		
10 out of 100 parcels lost (visit post office once a year or less)			-21.07	
10 out of 100 parcels lost (visit post office several times a year or more)			-13.28	

Table S.3: Resident valuations for letter and parcel services (PPS units)

Domain level	Letters			Parcels		
	Sweden	Poland	Italy	Sweden	Poland	Italy
	WTP (PPS)	WTP (PPS)	WTP (PPS)	WTP (PPS)	WTP (PPS)	WTP (PPS)
Number of classes and speed of service						
One class: delivery by next working day (base)	0.00	0.00	0.00	0.00	0.00	0.00
One class: delivery within 2 working days	0.00				-0.85	0.00
One class: delivery within 2 working days (vulnerable)		-0.19				
One class: delivery within 2 working days (non-vulnerable)		0.00				
One class: delivery within 2-3 working days			-0.25			
One class: delivery within 2-3 working days (vulnerable)				-0.78		
One class: delivery within 3 working days	-0.22				-1.90	-2.16
One class: delivery within 3 working days (vulnerable)		-0.92				
One class: delivery within 3 working days (non-vulnerable)		-0.28				
One class: local deliveries by next working day; national deliveries within 3 working days	0.14	0.02	0.06		0.00	
One class: local deliveries by next working day; national deliveries within 3 working days (vulnerable)				-0.98		-12.54
One class: local deliveries by next working day; national deliveries within 3 working days (non-vulnerable)				0.90		0.00
Two classes: next working day and within 3 working days	0.00	0.00	0.00		0.85	1.36
Two classes: next working day and within 3 working days (vulnerable)				-1.01		
Two classes: next working day and within 3 working days (non-vulnerable)				0.82		
Delivery location						
Delivered to home during work hours only (base)	0.00	0.00	0.00	0.00	0.00	0.00
Delivered to secure mail box 100m from home		-0.52	-0.70		-0.76	
Delivered to secure mail box 100m from home (vulnerable * age ≤ 44 years)	0.00					
Delivered to secure mail box 100m from home (vulnerable * age > 44 years)	-0.46					
Delivered to secure mail box 100m from home (non-vulnerable)	-0.40			0.00		
Delivered to secure mail box 1 km from home		-0.86	-0.96		-2.49	
Delivered to secure mail box 1 km from home (vulnerable * age ≤ 44 years)	0.00					
Delivered to secure mail box 1 km from home (vulnerable * age > 44 years)	-0.90					
Delivered to secure mail box between 100m and 1 km from home						-3.77
Delivered to secure mail box between 100m and 1 km from home which you can access at any time (vulnerable)				-1.84		
Delivered to secure mail box 1 km from home (non-vulnerable)	-0.91			-1.12		
Guaranteed time of delivery						
Delivered by 9:00 (base)	0.00	0.00	0.00	0.00	0.00	0.00
Delivered by 13:00	0.13	0.28	0.00	0.00	0.30	1.67
Delivered by 17:00	0.00	0.46	0.00	0.00	1.85	3.22
Percentage of mail delivered on time						
80% of letters / parcels delivered on time (base)	0.00	0.00	0.00	0.00	0.00	0.00
90% of letters / parcels delivered on time	0.16					3.83
90% of parcels delivered on time (vulnerable)					0.00	
90% of parcels delivered on time (non-vulnerable)					0.00	
95% of letters / parcels delivered on time	0.23					5.03
95% of parcels delivered on time (vulnerable)					0.00	
95% of parcels delivered on time (non-vulnerable)					1.68	
More than 90% of letters / parcels delivered on time		0.54	0.40	0.43		
More than 90% of parcels delivered on time (vulnerable)				0.43		
More than 90% of parcels delivered on time (non-vulnerable)				0.98		
Percentage of letters lost						
No lost letters / parcels (base)	0.00	0.00	0.00	0.00	0.00	0.00
5 out of 100 letters / parcels lost						-9.85
5 out of 100 letters / parcels lost (vulnerable)	-0.31	-0.35	-0.82	-3.48	-2.25	
5 out of 100 letters / parcels lost (non-vulnerable)	-0.65		-1.14		-7.10	
5 out of 100 letters / parcels lost (non-vulnerable, never sent letters)		0.00				
5 out of 100 letters / parcels lost (non-vulnerable, sent letters)		-0.72				
5 out of 100 parcels lost (non-vulnerable, age < 60 years)				-5.23		
5 out of 100 parcels lost (non-vulnerable, age ≥ 60 years)				-2.06		
10 out of 100 parcels lost						-18.12
10 out of 100 letters / parcels lost (vulnerable)	-0.66	-0.48	-1.63		-3.45	
10 out of 100 parcels lost (vulnerable, use parcel service to return goods)				-8.03		
10 out of 100 parcels lost (vulnerable, do not use parcel service to return goods)				-3.64		
10 out of 100 letters / parcels lost (non-vulnerable)	-1.22		-1.54		-11.05	
10 out of 100 letters lost (non-vulnerable, never sent letters)		0.00				
10 out of 100 letters lost (non-vulnerable, sent letters)		-1.63				
10 out of 100 parcels lost (non-vulnerable, age < 60 years)				-9.65		
10 out of 100 parcels lost (non-vulnerable, age ≥ 60 years)				-2.36		

Table S.4: Business and resident valuations for general postal service attributes (PPS units)

Domain level	Business		Residents		
	SME WTP (PPS)	BB WTP (PPS)	Sweden WTP (PPS)	Poland WTP (PPS)	Italy WTP (PPS)
Accessing postal services					
<i>- Distance to travel</i>					
1 km from home / business (base)	0.00	0.00	0.00	0.00	0.00
3 km from home / business	-0.23	-0.44	-0.56	-0.71	-0.47
5 km from home / business	-0.57	-0.44	-0.90	-0.99	-1.12
10 km from home / business	-1.39	-1.36	-1.46	-1.58	
10 km from home (vulnerable)					-2.19
10 km from home (non vulnerable)					-1.61
<i>- Opening hours</i>					
open 2 hours per day (base)	0.00	0.00	0.00	0.00	0.00
open 4 hours per day	0.69	0.95	0.57	0.70	
open 4 hours per day (vulnerable)					0.76
open 4 hours per day (non vulnerable)					1.13
open 8 hours per day		1.76	1.24	1.32	
open 8 hours per day (no internet access at home)	1.73				
open 8 hours per day (internet access at home)	1.27				
open 8 hours per day (vulnerable)					1.73
open 8 hours per day (non vulnerable)					2.49
<i>- Services available</i>					
Basic postal services available (base)	0.00	0.00	0.00	0.00	0.00
Full range of postal services available, e.g. including registered and insured	0.36	0.28	0.29	0.31	0.25
Full range of postal services and additional financial services	0.36		0.29	0.40	0.42
Full range of postal services and additional financial services (visit post office once a fortnight or less)		0.76			
Full range of postal services and additional financial services (visit post office once a week or more)		0.00			
Postal network					
Delivery to 100% of addresses (base)	0.00	0.00	0.00	0.00	0.00
Delivery to 99% of addresses	-0.40	-0.28	-0.34	-0.29	-0.69
Delivery to 95% of addresses	-0.84	-0.66	-0.47		-1.00
Delivery to 95% of addresses (vulnerable)				-0.60	
Delivery to 95% of addresses (non vulnerable)				-0.88	
Pricing					
Same price to deliver to any destinations within the country	0.24	0.28	0.22		0.18
Same price to deliver to any destinations within the country (vulnerable)				0.25	
Same price to deliver to any destinations within the country (non vulnerable)				-0.27	
Different prices to deliver to different destinations within the country (base)	0.00	0.00	0.00	0.00	0.00

What the findings mean for policy and regulation

What do people expect from postal services in Europe today? The methodology developed and applied to Italy, Poland and Sweden reveals a series of important findings and allows for selected conclusions.

Discussion of results

Generally, we have found high values of WTA and WTP for the individual elements of postal services. The values exhibit the expected sign with rather large confidence intervals. In important aspects, consumer preferences overlap among customer segments and countries.

Categorised along the economic framework presented earlier, the main findings can be summarised as follows (WTA and WTP interpreted relative to the price of baseline product):

- On the sender side, it is very important for all customers to be reached within a reasonable distance (not more than 3 km) and to have a postal contact point with opening hours of at least four or, even better, eight hours. This is despite the fact that most customers agree with the statement that they rarely go to a postal

contact point. To a lesser extent, customers care about the scope of services offered in these contact points and prefer having a full range of postal services (as compared to basic services only). Financial services are valued from some big businesses as well as from households in Poland and Italy.

- On the recipient side, businesses and households clearly dislike postal services that do not deliver letters or parcels to the doorstep. All customer groups also dislike services that do not deliver to all addresses in the country. Businesses prefer delivery to take place during office hours (before 17:00), whereas households in Italy and Poland favour the latest delivery option, suggesting that households prefer to be at home when delivery takes place (after office hours).
- For the service connecting the sender and recipient side, customers value first and foremost a service where no letters or parcels are lost. The attribute can be interpreted as a proxy for the value of the information or goods that are handed over to the postal operators. The very high estimates (up to over 500% of base price in Sweden and Poland) highlight the importance of postal services and indicate that customers indeed trust postal services in delivering valuable items. Moreover, customers reveal important preferences for services that include a next day delivery option (same WTP as long as a next day service is offered). This is in line with the qualitative questions where respondents suggested faster delivery services in countries with slower services (Italy, Poland). The WTP for a next day service is, in absolute and relative terms, generally higher for parcels than for letters. For the latter, a next day option seems to be predominantly important for big businesses. Businesses, and in particular businesses, expect uniform delivery standards throughout the country for letters and parcels, whereas households prefer a priority (J+1) treatment of local letters only. SMEs exhibit an important WTP for uniform prices. To a lesser extent, Swedish and Italian households favour uniform prices. Big businesses care more about the punctuality (percentage delivered on time) of letters than parcels; small businesses prefer punctual parcel services. For households, the WTP for on-time delivery seems to be higher where the actual service levels are lower (Italy, Poland).

The following figure summarises the key findings from the study.

Overall, the various consumer groups tend to have rather similar preferences on the sender and recipient side (end), whereas there are important differences with respect to the services connecting the two sides (ends). Big businesses have a higher relative WTP for delivery quality (speed, on-time delivery) than SMEs and households. This may be an indication that big businesses depend much more on letter mail services to communicate with their customers. This is consistent with empirical letter mail volumes originating largely from big businesses.

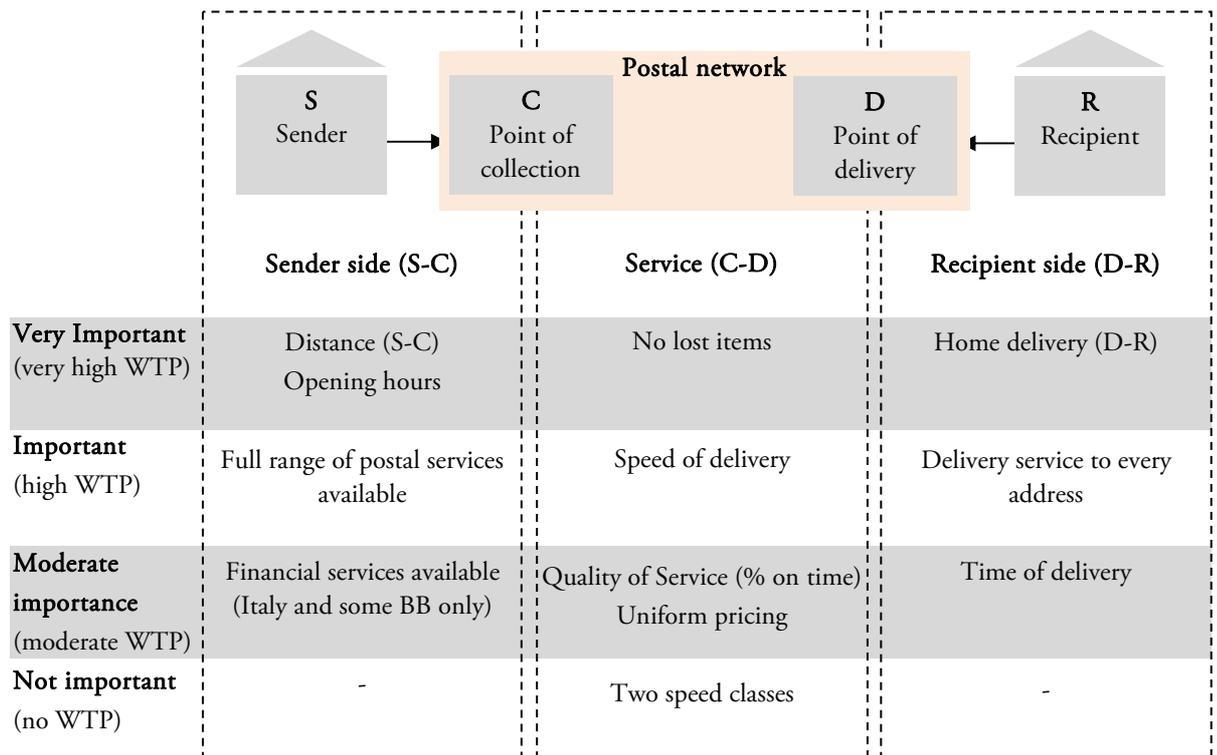


Figure S.2 Importance of key postal service attributes for consumers

The findings are in line with the prediction of the economic framework. All attributes that provide either direct utility (reduce transaction costs) or indirect utility (network externalities in the two-sided postal market) have revealed substantial WTP estimates. In particular, all output-oriented attributes are valued by the customers, and these results support the economic framework as a baseline to understand the expectations from postal services. Looking more closely at the data collected from the background questions, two issues deserve special attention.

First, it is of interest that WTP appears to be independent of sending and receiving patterns within consumer groups; net senders have about the same preferences as net recipients. This underpins the view that postal markets are two-sided and that network externalities are very important in this industry. Senders do care about the comfort provided on the recipient side, and the services offered on the sender side are important to recipients. Otherwise, net-senders would set higher priorities for service attributes that are relevant on the sender side and vice versa with net-recipients.

Second, we were interested in understanding whether e-substitution has affected consumer preferences. To account for the different degree of intermodal competition between letters (against electronic communication, “e-substitution”) and parcels (no alternatives) we have presented separate, but otherwise identical choices to the respondents (Experiment 1, letters; Experiment 2, parcels). In addition, we have collected extensive background information. In absolute terms, the WTP is much higher for parcels than for letters. In relative terms (against the price of the baseline product), there are still significant differences, albeit not that accentuated. As highlighted above, traditional letter service attributes such as speed and on-time delivery remain important for big businesses mainly.

This may indicate that SMEs and consumers already use different channels than big business to satisfy their most important communication needs.

Moreover, in our sample only 2% of business respondents and 6% of consumers had no internet access at all. The lowest figures are 19% for vulnerable people and 22% for ages over 65. Hence, a very large majority of every consumer group can use electronic substitutes to communicate. Against these rather high internet penetration rates, the result that big business still exhibit relatively high WTP for letter services is somewhat surprising. If this valuation persists, then this may be interpreted as good news for postal operators, as the substitution potential from sending households is limited (mainly a generational effect within small C2X flows).

A somewhat surprising side result is that e-substitution has not eroded the WTP for next day letter services. This could have been expected since electronic delivery takes place instantaneously. The results are confirmed by the background questions where faster delivery was suggested as a service improvement in the first place, with respondents under 35 being most likely to suggest faster deliveries. It remains open, however, whether respondents had letters or parcels in mind. An interpretation may still be that people who are used to instantaneous electronic delivery expect the same for physical deliveries.

People under 35 from Sweden and living in rural regions are most likely to buy goods online. This is consistent with internet penetration rates (99% under 35, 97% in Sweden) and the high opportunity cost of shopping for residents living in rural regions. We see that Italians are least likely to purchase goods online, which may be because of their relatively low WTA for lost items (low trust in domestic parcel services, see above). Based on our results and anticipated generational shifts, further increases in internet purchases and hence parcel flows are likely to happen.

Regulatory implications

Postal services are to be understood as a platform for the exchange of information and goods between citizens, consumers, businesses and governments. This platform will provide the highest utility for the economy if it ensures ubiquity and adequate accessibility on the sender and recipient side with a quality service connecting the two sides of the market. On the sending side, customers expect postal collection points within reasonable distance with customer oriented opening hours. On the recipient end, the focus is on a service to all addresses, preferably to the doorstep. The quality service should avoid any loss of items and, as a second priority, allow for fast deliveries throughout the country, possibly next day, at uniform prices. It can be expected that such services will be offered in the market place where the WTP (accept) of customers for a service attribute exceed the additional (avoided) cost of the postal operator for the foreseeable future. Where this is not the case (e.g. because of too high costs or problematic market forces), policy makers may opt for universal service regulations. Such interventions may be considered in particular in those market segments where the operators do not offer a service element even though its WTP exceeds its cost. As cost considerations are beyond the scope of this study, thus its implications for regulation remain on a high level.

Generally speaking, we have found rather minor differences in the basic valuation of postal service elements between small and medium businesses, and non-vulnerable and vulnerable households. These are the consumer groups that can expect the least protection from a

fully liberalised European postal market. As a consequence, we recommend that a postal service policy should be focused around SMEs and households altogether. It is important to note that these two segments overlap in important aspects with the preferences of big businesses, including accessibility and uniformity on the sender and recipient ends of the market. Interestingly, big businesses even exhibit the highest WTP for on-time next day letter services.

This may allow for rather light generic regulatory requirements.

As all output-oriented attributes exhibit significant and predominantly high WTP estimates, we recommend formulating any regulatory service requirements in an output-oriented way² so the regulations are directly relevant to the customers. Moreover:

- Given the importance of proximity and convenience to customers, on the sender side regulations may give floors for the distance (or time) of citizens to postal services and opening hours of those services.
- Given the importance of home delivery for recipients, regulators need to be careful when considering derogations on home delivery on the recipient end. Exceptions for home delivery (but not for the delivery per se) may apply where incremental delivery costs of a household exceed a certain ceiling.
- With regards to the service from the point of collection to the point of distribution, our study shows that low levels of lost items are extremely important to consumers. In member states where lost items are an issue, a first priority may be regulations that reflect the consumer needs in this area.
- If regulation is required to the speed of service, our findings would suggest that such regulation could focus on one speed class as compared to two or more.

Methodological considerations

One of the objectives of this study was to develop a methodology and learn lessons from the application of that methodology. Below we consider methodological successes of the study and considerations for future studies.

Methodological successes

We identify the following successes of the methodology employed for this study:

- We felt that it was essential to have an overarching economic framework for understanding consumers' underlying needs for postal services to ensure a coherent study design; this framework was helpful in informing the attributes to be included in the choice exercises, which was particularly challenging, given the range of postal services available to consumers. We believe that it is important to focus on service attributes experienced by consumers, e.g. speed of delivery, rather than input-oriented features, which may not impact the service actually experienced by users, e.g. frequency of delivery.

² As proposed in Jaag and Trinkner (2011b).

- The survey methodology by phone–post/e-mail/fax-phone approach worked well, ensuring that all respondents, including those without internet access, were able to participate in the study; also it meant that all respondents were able to see the choice exercises and have the support of an interviewer, if required.
- We found that respondents were able to consider a broad range of postal service attributes for letter and parcel delivery in the choice exercises.
- The cognitive and pilot testing were important parts of the survey design process and the resulting questionnaire and choice exercises were improved as a result of the pilot testing process.
- The background information collected in the questionnaire provided useful and interesting supplementary data, which allowed a more nuanced understanding of the resulting valuations in some contexts.
- The results from the choice exercises provide monetary values (and their significance) for each of the different service levels tested in the choice experiments for Swedish, Italian and Polish business and resident consumers, providing detailed information on the value of these attributes for policy makers.

Considerations for future studies

As a result of applying the methodology developed in this study we have identified a number of issues, which may also be relevant for future studies. These are discussed below.

Were the sample sizes big enough?

The standard errors of the resulting valuations generally are quite large, particularly when we take into account that respondents have provided multiple choice observations as part of the survey. In this report we present both the resulting valuations and their 95% confidence interval, on the basis that these are the usual standards for academic publications, but perhaps this level of confidence is more stringent than what is required by policy makers in this domain. However, even 90% confidence levels would still remain large.

In addition to having a wide range of possible values, having large standard errors also means that we are less likely to observe significant differences in valuations for specific attributes across different market segments. More precise estimates would mean that studies would be more likely to identify differences in preferences for different segments, for example by age or income group, and understanding such differences may be important for policy makers.

We therefore would recommend larger sample sizes in future studies, particularly for businesses, given their importance in the postal market. We recommend specifying quotas for SMEs and larger businesses and for vulnerable and non-vulnerable residents.

We note that the valuation measures would also be improved with better measures of cost sensitivity, which may have occurred with investigation of a larger price range.

Did we test a large enough cost range?

Detailed examination of the choices that respondents made in the survey indicated that a substantial proportion of resident and business respondents were choosing the most expensive options in the SP choice exercises. This means either that the resulting cost

sensitivity may be too low, with a risk that the resulting valuations are then too high, or that other attributes have dominated the choice experiments (e.g. percentage of lost items). Moreover, better estimates of cost sensitivity would reduce the standard errors of the resulting WTP valuations. In future studies we therefore recommend considering testing larger price differences as well as looking at the influence of dominant alternatives, which is discussed further below.

Were the respondents able to deal with the two-class options?

The results from the first and second experiments indicate that businesses prefer next day delivery or a two-class service including next day delivery. Businesses, particularly large businesses, place a reasonably negative value on two-day and three-day services where no next day option is in place. However, speed of delivery seems to be less important to residential consumers. Also, we see that large businesses do not favour non-uniform delivery options, whereby letters or parcels in an urban area may be delivered the next day whereas deliveries to more rural areas may take longer, compared with a single class next day service; residential respondents and SMEs are more ambivalent on this issue.

However, we were somewhat surprised to see that neither business nor residential respondents showed a preference for a two-class service including a next day service option, compared with a next day only service. One reason may be that respondents found these options more complex than the one-class options. This is something that could be tested in future studies through qualitative research with groups of business and residential consumers. We also saw this pattern in the pilot survey analysis and at that stage amended the calculation of costs for the two-class options to ensure that we presented options where the two-class costs would be both less expensive and more expensive than the one-class options. Reviewing the costs in the main survey confirms that the costs of the two-class options were indeed sometimes cheaper and sometimes more expensive than the one-class costs.

The operators in Europe with the highest volume per capita all have two-class options, so this is an important issue that requires more research.

Was the percentage of lost letters and parcels dominant in the choice exercises?

The most important service attributes in the experiments were the percentage of letters and parcels which are lost. We increased the range of lost letters and parcels tested in the experiments after the pilot survey to make the choices “more different” after comments from respondents that too many of the choices looked the same. Perhaps in future smaller ranges could again be tested (because we made other changes after the pilot survey, including dropping the Saturday delivery attribute). Alternatively, increasing the prices in the experiments may help to make the lost letters and parcels less dominant, but clearly the level of lost letters and parcels is very important to consumers.

Did the survey include enough respondents who did not have internet access?

Although as part of the model analysis we examined whether internet access influenced consumers’ preferences for postal services, we did not find any significant differences between those respondents with internet access and those without.

However, we also observe that only 2% of business respondents did not have access to the internet at work and 6% of consumers had no internet access at all, with nine out of ten

having access at home. Although this varied somewhat across the countries, e.g. in Sweden 96% of consumers had internet access at home (in Italy the figure was 91% and in Poland only 86%), in general the levels of internet access were higher than we were expecting, particularly in Poland and Italy. This may have been because people with internet access were more amenable to undertaking the surveys (because they could complete them within one single telephone call). Therefore, if using a phone-fax/post/e-mail-phone approach in future we recommend specifying a quota for respondents who do not have access to the internet, both for vulnerable and non-vulnerable consumers, which would allow a better chance of identifying differences in postal needs between those with and without internet access.