



B I P T

**BELGIAN INSTITUTE FOR POSTAL SERVICES
AND TELECOMMUNICATIONS**

**COMMUNICATION BY THE BIPT COUNCIL
OF 24 OCTOBER 2016
ON THE RESULTS OF THE STUDY INTO
ELASTICITIES OF POSTAL PRODUCTS ON THE BELGIAN POSTAL MARKET**

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0. Background information: metadata

As commissioned by BIPT¹ (Belgian Institute for Postal Services and Telecommunications) the Louvain-based company M.A.S. (Market Analysis & Synthesis) has performed an elasticity study about the demand for postal services by means of an online survey among private persons, self-employed persons and SMEs, and a written survey addressed to large companies and public services.

In March 2016, a total of 2,092 private individuals from Belgium from 18 years up, stratified according to region, sex and age, participated in the survey. At the same time 2,153 Belgian professional users, including self-employed persons, SMEs, large companies and public services were interviewed. In this case the stratification was based on type of company, number of employees and sector.

The survey consisted of the following four parts:

- profile of the user;
- use of postal services;
- change in behaviour in case of a change of the price or frequency of delivery;
- price sensitivity.

For private persons the survey focused on the following services offered by the universal service provider (in this case bpost):

- Normal letters (by way of normal collection);
- Registered items (by way of normal collection);
- Postal parcels (2-10 kg) (by way of normal collection).

For professional users the survey focused on the following services provided by the universal service provider (in this case bpost):

- Normal letters (by way of normal collection);
- Registered items (by way of normal collection);
- Postal parcels (2-10 kg) (by way of normal collection);
- Letters through masspost²;
- Registered items through masspost;
- Postal parcels through masspost (2-10 kg);
- Non-addressed items;
- Periodicals.

The next step was to obtain the elasticity figures based on a 'generalised linear model'.

¹ Tender based on specifications: 2015/POST/ELASTICITY

² This means professional users depositing a certain volume of items in masspost centres.

1. Introduction

Meaning of elasticity of demand

Elasticities indicate a measure of sensitivity to changes, e.g. in the case of price elasticity, price sensitivity. As such, price elasticity of demand reflects to what extent the volume demanded for certain goods or services will react to a change in the price of these goods or services.

In most cases a negative link is observed between price and volume demanded.³ Indeed, for most products and services a higher price means that less products or services are demanded. Inversely, in case of a lower price a higher demand is mostly seen.

The degree in which the volume demanded will react to a price change depends on the level of price elasticity. If the absolute value of the price elasticity is less than 1 we speak of inelastic demand; the volume demanded will change relatively less than the change in price. Inversely there is elastic demand if the price elasticity is more than 1; the degree in which demand will change will be relatively stronger than the degree in which the price has changed.

In case of price elasticity of demand the following comparison is therefore involved (Abraham, Buyst, De Bruyne, et al; 2000)⁴:

Price elasticity:

$$E_p^D = \frac{\text{relative change of volume demanded}}{\text{relative change in price}}$$

Or:

$$E_p^D = \frac{\frac{\Delta Q}{Q_1}}{\frac{\Delta P}{P_1}}$$

Above, we have given the example of price elasticity, but it is evident that all sorts of elasticities can be calculated. In this report we also pay attention to the frequency of delivery elasticity. This elasticity represents the extent in which the volume of the quantity of postal services demanded will change following a change in the number of deliveries per week, given a specific fixed price. In this case the comparison therefore is:

Frequency of delivery elasticity:

$$E_f^D = \frac{\text{relative change of volume demanded}}{\text{relative change in frequency of delivery}}$$

³ In exceptional cases, e.g. certain luxury goods, there is a positive link between price and volume demanded; in that case there is a question of "Giffen goods".

⁴ Abraham F, Buyst E., De Bruyne G., De Grauwe P., Heremans D., Moesen W., Schokkaert E., Van Cayseele P. (2000) "Inleiding tot de economie".

Or:

$$E_f^D = \frac{\frac{\Delta Q}{Q_1}}{\frac{\Delta F}{F_1}}$$

Importance of knowledge about elasticity of demand

Not only for companies a profound knowledge of market elasticities is important, e.g. for price optimisation, but also for BIPT it is very useful to have an idea of the (private and professional) consumer's sensitivity.

Insight into the reaction of demand following changes in price or frequency of delivery is essential to BIPT when verifying the viability of the universal service. Moreover, knowledge of the market elasticities is indispensable for the annual verification of a net cost⁵ (if any) of the universal service. A net cost is observed if there is a difference between the net costs of the designated universal service provider operating under a universal service obligation and not operating under a universal service obligation. To that end the real result of the past year is compared with a hypothetical scenario in which the universal services obligations would not apply.⁶ For this hypothetical scenario insight into the sensitivity of demand is of the utmost importance.

That is why the Louvain-based company M.A.S. (Market Analysis & Synthesis), commissioned by BIPT, has performed an elasticity study about the demand for postal services by means of an online survey among private persons, self-employed persons and SMEs, and a written survey addressed to large companies and public services.

2. Price elasticities of postal services

The results obtained by M.A.S. about price elasticity of demand can be found in table 1. Those elasticity figures were obtained by asking respondents questions about changes in their sending behaviour if the current price they paid were to change. These price changes covered an interval from -10% up to and including +40% compared to the current price. The reader is reminded that the survey about products sent through masspost, as well as shipments of periodicals and non-addressed items, logically only took place among business users.

When looking at table 1 it is immediately clear that all elasticity figures are negative. As was to be expected, this means that price and demand move in opposite directions. If the price rises demand will fall and vice versa. The majority of the elasticities in table 1 are situated around -1, meaning that a change in price will cause, relatively speaking, an equally strong reverse effect in demand for the product concerned.

⁵ Article 144undecies, § 1, of the Act of 21 March 1991 on the reform of certain economic public companies.

⁶ Further information about the net cost model used for the annual verification can be found on the BIPT website:

<http://www.bipt.be/en/operators/postal/universal-and-non-universal-postal-services/communication-by-the-bipt-council-of-21-may-2014-on-the-verification-of-the-calculation-of-the-postal-universal-service-net-cost-in-belgium>

Table 1: Price elasticity of demand for postal services

Letters (by way of normal collection)	-1.51
Letters through masspost*	-0.95
Registered items (by way of normal collection)	-0.28
Registered items through masspost*	-0.81
Postal parcels (by way of normal collection) (2-10 kg)	-1.45
Postal parcels through masspost (2-10 kg)*	-1.12
Periodicals*	-0.97
Non-addressed items*	-0.98

* Only for professional users

For some products however, deviating elasticity figures are observed; specifically letters by way of normal collection, postal parcels (2-10 kg) by way of normal collection and registered items by way of normal collection. In case of these products a difference is thus noticeable between the price sensitivity of shipment by way of normal collection (in this case private and business users with a limited number of items), or through masspost (in this case business users with a certain volume of items).

For letters by way of normal collection, posted by means of a red letter-box or the postal service point, the elasticity figure of -1.51 shows us that in the interval under consideration, the change in demand is one and a half times stronger than the extent in which the price will change. In this instance a 10% price increase would for example cause demand to decrease by 15.1%. Inversely a price decreasing by 10% would hypothetically entail a 15.1% increase of demand. A similar effect is also seen with postal parcels by way of normal collection; the elasticity figure of -1.45 means for instance that a 10% price increase would cause demand to fall by 14.5%. If the price went down the opposite effect would again occur.

For registered items by way of normal collection the price elasticity is only -0.28; here, throughout the interval considered, the reaction of the demand is almost four times weaker than the degree in which the price has changed. If the price dropped by 10%, demand would go up by a mere 2.8%. Inversely, a 10% price increase would cause demand to go down by hardly 2.8%.⁷

For all other products throughout the interval considered the reaction of demand will therefore have, in relative terms, about the same order of magnitude as a change in price, if any.

⁷ It is important to take note of the fact that at the time the study was delivered there was not any act on the electronic registered item yet. Indeed, the low elasticity figure suggests that there is no substitution for the product. The introduction of the electronic registered item is very likely to have an impact on this elasticity figure.

3. Frequency of delivery elasticities of postal services

In addition to price elasticity the frequency of delivery elasticities were also studied; those figures can be found in table 2.

Whereas price elasticity measures the sensitivity of demand to price changes, here the reaction of demand to changes in frequency of delivery are studied, given the price currently paid. The current five days a week delivery was taken as the point of departure, whereby the potential scenario was chosen according to the type of product. As such, given recent domestic and international evolutions, it was judged more logical to consider for letters, periodicals and non-addressed items a possible decrease of the frequency of delivery to three or even two days a week. For registered items and postal parcels, by contrast, we considered the potential scenario of an increase of the frequency of delivery from five to six days per week. This also corresponds with the current trends.

In table 2 we notice that the highest elasticity figure, considered in absolute terms, amounts to -0.46 (letters by way of normal collection). This means that in case of a hypothetical decrease of the frequency of delivery from five days to three, i.e. -40%, demand would go down by 18.4% (or 40% multiplied by -0.46). In case of masspost letters the reaction is more limited too.

For registered items and postal parcels (2-10 kg) we consider an increase of the frequency of delivery from five to six days a week. The highest elasticity seen here is for parcels sent by business users through masspost. The elasticity figure of 0.45 indicates that an increase from a five days per week delivery to six days per week (+20%) would cause demand to increase by 9% (i.e. 20% multiplied by 0.45). The conclusion is that business users sending parcels, most likely driven by an increasing importance of e-commerce, are the ones most interested in a six days per week frequency of delivery. On condition however that the price remains the same.

It is striking that the elasticity figures for sending periodicals and non-addressed items are slightly positive, despite the scenario considered of a decreased frequency of delivery. This seems counterintuitive as it means that demand would go up if the number of deliveries were to drop from three to two deliveries a week. A possible explanation is that the business users of those products attach no importance to the number of deliveries a week, among other things because of the fixed day of delivery every week these products typically have.

Table 2: Frequency of delivery elasticity of demand for postal services

	5 ⇒ 3 of 2	5 ⇒ 6
Letters (by way of normal collection)	-0.46	
Letters through masspost*	-0.27	
Registered items (by way of normal collection)		0.36
Registered items through masspost*		0.21
Postal parcels (by way of normal collection) (2-10 kg)		0.28
Postal parcels through masspost (2-10 kg)*		0.45
Periodicals*	0.24	
Non-addressed items*	0.32	

* For professional users

4. Conclusion

A profound knowledge about market elasticities is important for all stakeholders on the Belgian postal market. This study makes it possible to gain the necessary insight into changes in price or frequency of delivery. To BIPT this information is essential for the verification of viability of the universal service and indispensable for the annual verification of a potential net cost caused by the provision of the universal service.

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