An Post Price Control

A REPORT PREPARED FOR COMREG

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Section 30 of the Communications Regulation (Postal Services) Act 2011 ("the 2011 Act") requires ComReg to regulate prices for An Post's postal services that fall within the scope of universal postal service by a CPI-X price control. The forthcoming price control will be the first time that An Post has been subject to such a price control.

Frontier has been commissioned to provide assistance to ComReg in setting such a price cap for the USO provider's postal services within the scope of the universal postal service that are found to have no effective competition.

This paper builds on our first paper that was published as part of ComReg's first consultation of the price control.[1] It informs ComReg's second consultation of the price control and covers the remaining decisions on the high level design features of the price control and our recommendations in relation to setting the price cap.

High level design features of the price control

Before ComReg can set a price cap, it is vital that a decision is first made around the appropriate high level design features of the price control. Following the first consultation of the price control process, ComReg issued decision D13/13. This decision identified a number of key design features of the price control. Other decisions were left open until more information was available. In particular:

- the number, characteristics and form of the price control basket(s); and
- other key design features of the price control

Number, characteristics and form of the price control basket(s)

Two important design questions have been considered:

- how much tariff rebalancing freedom to afford the operator relating to the number of baskets and the inclusion of any sub-controls; and
- how to weight the products in each basket.

1 At consultation as ComReg Document No. 13/68a and revised version, following consideration of responses to ComReg's consultation as ComReg Document No. 13/82a

Number of baskets and sub-controls (if any)

Frontier previously recommended that ComReg should consider imposing some ex ante limitations on the pricing freedom afforded to An Post in the form of either:

- a single basket, along with limits on the degree of tariff rebalancing that An Post can undertake within the price control period; or
- multiple baskets of products.

Having reviewed the information provided by An Post since the publication of ComReg's Decision D13/13, it is not clear that the robust allocation of cost, revenue and volume data that it is required under a multiple basket control would be possible at this stage. Further, there is still uncertainty around the degree of competition that may develop in relation to the products that will come within the scope of the price control and the form that this competition would take over the price control period. We therefore now recommend that one price control basket should be used. This should be combined with limits on the degree of pricing freedom afforded to An Post. We recommend that these limits take the form of annual percentage change in price allowed for particular postal services. This form not only restricts the overall price increase over the price control period, but also protects consumers from significant year-on-year price increases. Such year-on-year price increases could occur if only a maximum price was set and there was a significant difference between current price and the maximum price.

In order to impose limits on the annual percentage change in price allowed for particular postal services, a decision will be required around the appropriate products to which these limits will apply. To make this decision, it is appropriate to draw on the results of demand side and supply side analysis outlined in ComReg's Consultation Document 13/68. Although none of the products that come within the scope of the price control currently face any effective competition, this analysis suggested that certain products may face more prospective competition over the price control period. Annual percentage change limits on prices may therefore be most appropriate for products for those products that face little or no prospective competition over the price control period. In order to determine which of these products should face such price limits, it is also important to consider two further factors:

- ComReg's statutory requirement to have regard to its objectives set out in section 12(1)(c) of the Principal Act, in particular the protection of the interests of postal service users and those of small and medium-sized enterprises; and
- the current volumes of each product.

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Based on these additional factors, we would recommend that that following high volume products face annual price increase limits:

- Standard Post – Stamp and labels (Letter); and
- Standard Post – Meter (Letter).

These products are both widely used by small and medium enterprises. Such limits are therefore also in line with ComReg's statutory duty to protect the interests of this customer group.

Weighting products in each basket

The second design is around the appropriate weighting of each of the products within a basket. This is important as it may drive An Post's profit maximising pricing choices. In particular these choices are likely to differ depending on whether a tariff basket or average revenue control is used.

We recommend that a tariff basket control with fixed weights is used. More specifically, we recommend that the fixed weights should be a proportion of base year volumes. It is widely recognised in the theoretical literature[2] that an average revenue control can lead to excessive re-balancing, whilst a tariff basket approach can converge on so-called Ramsey prices, the second most efficient form of pricing. This form of pricing minimises any distortions associated with moving away from pricing at marginal cost, whilst allowing sufficient revenue recovery.

Other key design features of the price control

There are two further outstanding design characteristics around which decisions are required before the price cap can be set by ComReg:

- the treatment of uncertainty and risk; and
- the calculation methodology of the x-factor in the CPI-X% form of the price control.

Uncertainty and risk

ComReg has a statutory duty to ensure the provision of a universal postal service. In line with this duty, ComReg's Consultation 13/82 advised that it would consider the appropriateness of the inclusion of a price cap mechanism to reduce An Post's financial exposure to non-manageable risks over the price control period. We recommend that this mechanism takes the form of a 'buffer' to cover

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2 Armstrong, Cowan and Vickers (1994), Regulatory Reform. MIT Press. Chapter 3

Bradley, I. and Price, C. (1988), *The Economic Regulation of Private Industries by Price Constraints*, The Journal of Industrial Economics

the universal service provider for the risk of unexpected exogenous shocks, which could take the form of the margin on opex.

To provide a further mechanism by which non-manageable risks to An Post can be reduced, we recommend that ComReg include provisions within the price control framework for An Post to request ComReg to review the price cap decision. In line with the 2011 Act, such a request may only be made 3 years or more after the initial price cap decision is implemented by ComReg. It should also only be made in relation to non-manageable risks that are not covered through the mechanism described above. Such a provision should therefore only allow An Post to request a review if:

- volumes of price controlled products depart significantly from those forecast at the start of the price control period, such that the sustainability of the USO would be threatened in a situation where An Post meets the efficiency targets and other requirements of the price control; or
- An Post experiences other material changes in circumstances that threaten the sustainability of the USO.

Following an appraisal of any request, ComReg may then review the price control decision in line with section 30(5) of the 2011 Act.

X-factor calculation

The final key design feature, on which a decision must be made, is the calculation methodology of the X-factor in the CPI-X% price control.

In the context of declining volumes, we would expect allowed revenue at the start of the price control period to be much greater than that by the end of the period. This trend is amplified by any efficiency targets that are set for An Post. Therefore, if the X-factor is set such that expected actual revenue is smoothed equally over the full price control period, An Post's price controlled products would be unlikely to return to profitability until the end of the price control period.

In line with ComReg's statutory duty to ensure the sustainability of the USO, we therefore recommend that the X-factor for 2014/15 is set separately than that for 2015/16-2018/19 to ensure a faster return to an appropriate level of profitability for An Post's price controlled universal postal service products.

Calculation of An Post's CPI-X price cap

Based on the high level design features of the price control that are outlined in the previous section, Table 1 summarises our key recommendations to ComReg in relation to the assumptions feeding into the calculation of the X-factor.

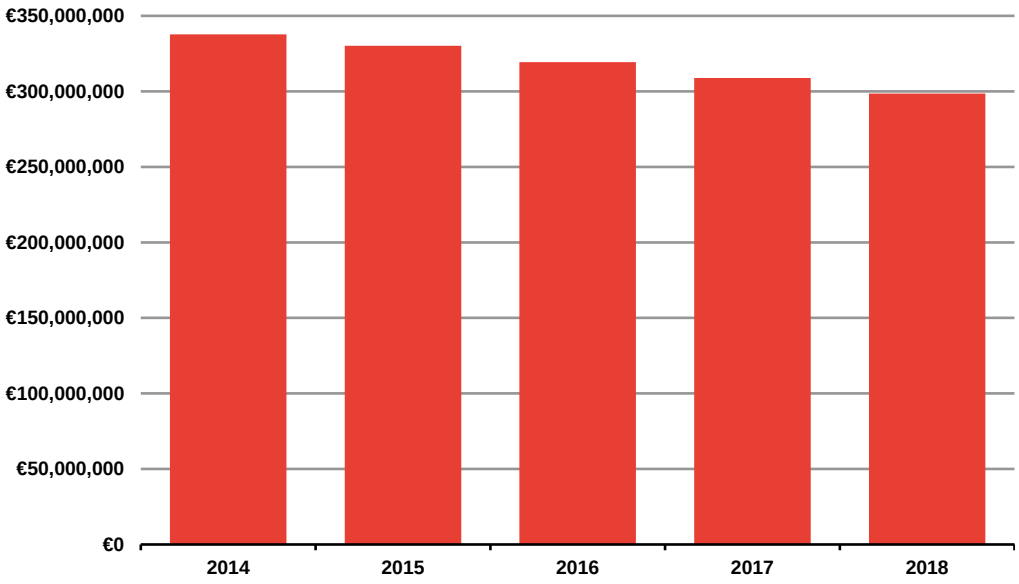
Table 1. Key recommendations

Assumption	Recommended approach
Year-on-year volume growth	An Post's central scenario
Take up of DSA and direct customer agreements	0-10% of Discount 6 Ceadúnas volumes in 2014/15 and 0-10% in 2015/16
Price elasticity of demand	-0.22
Cost marginality	36%
Efficiency target	Lower to mid end of the 7-22% range
Proportion of An Post's capex forecasts allowed	100%
Sub-controls on Standard Post – Stamp and Label (Letter) and Standard Post – Meter (Letter)	12-14% for 2014/15 and 2-3% for 2015/16-2018/19
Profit margin	0-2% for 2014/15 and 2-4% for 2015/16-2018/19

Our proposed central case scenario uses the above recommendations, taking the mid-point of any ranges, to determine the corresponding x-factors and allowed revenue.

- **X –factors** - Based on the central case scenario inputs we calculate the following X-factors:
  - **2014/15** X-factor: -14.98%; and
  - **2015/16- 2018/19** X–factor: -1.35%.
- **Allowed revenues** – Under the central case scenario, allowed opex declines by 14%, but due to the allowed profit margin and lower declines in allowed capex, allowed revenues fall by only 12% over the price control period (as shown in Figure 1).

Figure 1. Central case scenario - allowed revenues



Source: Frontier's price control model based on An Post data

Sensitivity analysis

Based on the recommended X-factor(s) and accompanying sub-caps that are calculated under our recommended central scenario, we have also investigated the potential impact on An Post's profitability of exogenous shocks on the volumes of price controlled products. In particular, we have run two types of scenarios:

- variation in the year-on-year volume growth rates included in the model; and
- variation in the take up of downstream access and direct customer agreements.

In relation to the former, we have based on our analysis around Deloitte's other volume forecast scenarios. In relation to the latter, we have run scenarios based on the upper and lower end of the recommended ranges, and based on An Post's assumption of ✂% of Discount 6 Ceadúnas volumes split equally between 2014 and 2015

This analysis indicates that the recommended central scenario profit margin would provide An Post with adequate protection against non-manageable volume risk. Even in Deloitte's worst case volume scenario, An Post makes positive returns in all years except 2015/16. It also indicates that the greater the assumed

level of take up for DSA and direct customer agreements, the greater An Post's profits will be. This impact stems from the fact that the unit cost for Discount 6 Ceadúnas is greater than the unit revenue, i.e. it is currently a loss-making product.

Compliance with section 28(1) tariff requirements

In determining the price cap ComReg must have regard to the tariff requirements of the 2011 Act. Under section 28(1) of the Act, these tariffs must be:

- affordable and be such that all postal service users may avail of the services provided;
- cost-orientated, that is the prices shall take account of, and reflect the costs of, providing the postal service or part of the postal service concerned;
- transparent; and
- non-discriminatory.

The proposed price cap has been designed and calculated such that it complies with each of the above tariff requirements.

1 Introduction

Section 30 of the Communications Regulation (Postal Services) Act 2011 ("the 2011 Act") requires ComReg to regulate prices for An Post's postal services that fall within the scope of universal postal service by a CPI-X price control. The forthcoming price control will be the first time that An Post has been subject to such a price control.

Frontier has been commissioned to provide assistance to ComReg in setting such a price cap for the USO provider's postal services within the scope of the universal postal service that are found to have no effective competition. The model is to be accompanied by a set of recommendations on how the price cap should be set.

In carrying out this work, our terms of reference require us to carry out 5 key tasks:

- assess if there is effective competition in the market for the supply of postal services that fall within the USO, and in the light of that assessment to recommend which of those services should be in any price cap;
- set the form of the price control, for the services that fall within the scope of the price cap;
- provide detailed modelling to set the price cap, in particular of the X factor required in order to provide incentives for the efficient provision of the postal services concerned;
- review An Post's forecast volumes for the 5-year period that will apply for the price cap and report how this review has been considered in the price cap; and
- report how the recommended price cap:
  - has regard to the tariff requirements under section 28(1) of the 2011 Act. This will include making a recommendation as to how the tariff requirements should be specified;
  - provides incentives for efficient universal postal services provision;
  - has regard for ComReg's statutory objectives; and
  - protects the interests of postal service users, in particular businesses and Small and Medium Enterprises (SMEs).

Our first paper was published as part of ComReg's first consultation of the price control[3]. This covered our analysis and recommendations relating to the products that should fall within the scope of the price control (the first of the tasks above) and also covered aspects of the second of these tasks relating to the form and structure of the price control.

This paper builds on that earlier work and informs ComReg's second consultation of the price control. It covers the remaining decisions on the high level design features of the price control and our recommendations in relation to setting the price cap.

It is structured as follows:

- section 2 details our recommendations and reasoning in relation to the remaining decisions on the high level design features of the price control;
- section 3 provides an overview of the proposed price cap, including our recommendations on the key model inputs and assumptions;
- section 4 contains the results of sensitivity analysis around the impact of exogenous shocks to An Post;
- section 5 outlines how the recommended price cap meets tariff requirements under section 28(1) of the 2011 Act; and
- section 6 summarises our recommendations on the price cap, provides guidance to ComReg on how it can ensure compliance with the price cap and our recommendations for the next price control review.

3 At consultation as ComReg Document No. 13/68a and revised version, following consideration of responses to ComReg's consultation as ComReg Document No. 13/82a

2 High level design features of the price control

Before ComReg can set a price cap, it is vital that a decision is first made around the appropriate high level design features of the price control. Following the first consultation of the price control process, ComReg issued decision D13/13. This decision identified a number of key design features of the price control. Other decisions were left open until more information was available. This chapter:

- provides a short summary of the decisions made by ComReg on the scope and form of the price control in Decision 13/13; and
- sets out our recommendations on the number, characteristics and form of the price control baskets and other key design features of the price control.

We first provide a recap on the legislative framework within which ComReg must set the price control.

2.1 Legislative requirements

Under section 30 of the Communications Regulation (Postal Services) Act 2011 ("the 2011 Act"), ComReg is required to, following a public consultation, specify a price cap in the form CPI –X%. This should be done in respect of basket(s) of postal services within the scope of the universal postal service provided by the universal postal service provider, where ComReg is of the opinion that there is no effective competition in the market for the supply of the postal services concerned.

Specifically, according to the 2011 Act, the price cap must specify the maximum annual percentage change in charges that can be imposed for any basket of postal services. This must be calculated in accordance with the following formula:

$$\textit{Overall limit} = (\Delta\ CPI) — X$$

Where 'CPI' is the consumer price index number as compiled by the Central Statistics Office and 'ΔCPI' is the annual percentage change thereof. 'X' also known as the X-factor is the adjustment specified by ComReg to reflect expected changes in costs, volumes and productivity and to provide incentives for the efficient provision of postal services.

Pursuant to the 2011 Act, the price cap must apply for a period of five years, subject to a review by ComReg after three years. Following such a review, ComReg may decide to amend the price cap decision with regards to:

- any basket of postal services specified in the price cap decision;

- the X-factor; or
- both of the above.

In determining the price cap ComReg must have regard to the tariff requirements of the 2011 Act. Under section 28(1) of the Act, these tariffs must be:

- affordable and be such that all postal service users may avail of the services provided;
- cost-orientated, that is the prices shall take account of, and reflect the costs of, providing the postal service or part of the postal service concerned;
- transparent; and
- non-discriminatory.

The 2011 Act further specifies that the price cap must be set by ComReg in a way that:

- incentivises efficient universal postal service provision; and
- have regard to its objectives set out in section 12(1)(c) of the Principal Act, in particular the protection of the interests of postal service users and those of small and medium-sized enterprises.

In relation to the first of these points, while it is clearly important to provide incentives to An Post, it is also important to ensure the sustainability of the universal service obligation (USO) and financeability of An Post, in line with ComReg's statutory duties.

2.2 Scope and form of the price control

In the first of two planned consultations on setting the price cap control, ComReg consulted on two key high level design features of the price control:

- the scope of the products under the price control; and
- the form of the price control.

Here we provide a summary of the decision that was made by ComReg on each of these elements (Decision D13/3).

2.2.1 Scope of the products under the price control

Pursuant to the 2011 Act, for a product to come under the scope of the price control, ComReg must be of the opinion that the product faces no effective competition in the market for its supply. Following its assessment and consideration of the responses to Consultation 13/68, ComReg came to the opinion that *"the universal postal services specified in the Communications Regulation*

2BHigh level design features of the price control

(Universal Postal Service) Regulations, 2012 form one market in which there is no effective competition. That market shall therefore be subject to price control, save for the following specific services which fall within that market but which do not require price control, for the reasons set out below:

- *Postal services to blind and partially sighted, as this service must be offered for free in accordance with both the 2011 Act and SI 280 of 2012;*
- *Poste Restante, as this universal postal service must be offered for free in accordance with SI 280 of 2012;*
- *A service for the sorting, transport and distribution of postal packets deposited with a USP at an Office of Exchange within the State by the designated operator of a signatory to the Universal Postal Convention as An Post does not control the pricing of this International Inbound postal service; and*
- *Business Reply, as the universal postal service Freepost acts as a cap on the price for this universal postal service.[4]"*

As the scope of the price control will not contain all products that fall within the scope of the universal postal service, it is essential that all cost, revenue and volume data is apportioned between price controlled products and non-price controlled products. Only those costs, revenues and volumes that apply to price controlled products should feed into the price control model.

2.2.2 Form of the price control

ComReg's Decision D13/13 also addressed the form of the price control. Following its assessment and consideration of the responses to Consultation 13/68, ComReg came to the decision that a cash-flow model is most appropriate price control model to use for the postal sector in Ireland. In line, with regulatory precedent, it highlights that *"[i]n post, relative to total expenditure, capital investment tends to be small (in the region of 10% or less of total expenditure). Furthermore, the asset lives of the capital investments used in the postal sector are, in general, short. For example, many of the assets in the postal sector (e.g. IT, vans, etc.) have much shorter asset lives – in general around 5-7 years – compared to capital intensive industries with long assets lives, such as energy, where a RAB based price control is typically the norm.[5]"*

4 Pages 55-56, ComReg Consultation Document 13/82

5 Page 60, ComReg Consultation Document 13/82

2.3 Number, characteristics and form of the price control basket(s)

Under section 30 of the 2011 Act, ComReg is required to specify the price cap with respect to basket(s) of postal services within the scope of the universal postal service provided by the universal postal service provider, where ComReg is of the opinion that there is no effective competition in the market for the supply of the postal services concerned.

This section considers two important design questions:

- how much tariff rebalancing freedom to afford the operator relating to the number of baskets and the inclusion of any sub-controls; and
- how to weight the products in each basket.

Both questions are important as they will be key determinants in the extent of pricing freedom that An Post will have under the regulatory regime.

2.3.1 Number of baskets and sub-controls (if any)

The first design question is focussed on the fact that although tariff rebalancing carried out within a basket by the universal service provider could be expected to be efficient, it raises two potential concerns:

- possible distortion of competition faced by some services; and
- different effects on different types of postal service users.

Both of which could contravene the statutory tariff requirements set out in the Act. It may therefore be appropriate to place some limits on the degree of rebalancing freedom afforded to An Post in relation to each of the defined baskets by introducing further constraints.

In order to determine the number, characteristics and form of the basket(s), a trade-off will be required between:

- allowing An Post sufficient commercial freedom to rebalance prices in order to:
  - achieve cost orientation and non-discrimination between products; and/or
  - react to competitive market constraints; and
- ensuring that actual or prospective competition is not foreclosed (for example, through predatory pricing) and postal service users are protected from excessive prices (i.e. prices in excess of cost where there is no prospective competition).

2BHigh level design features of the price control

The competition assessment undertaken to determine the scope of the price control indicated that some products may face more postal competition than others, leaving particular customers more 'captive' than others. There is therefore a risk that the use of one basket would not protect particular customer groups from An Post's ability to exercise market power, thereby undermining a key objective of the price control. Further, there is a risk that the ex-post nature of the tariff requirements under section 28(1) of the 2011 Act might not limit An Post's pricing behaviour sufficiently on their own.

Given these risks, Frontier previously recommended that ComReg considers imposing some ex ante limitations on the pricing freedom afforded to An Post. In particular, there are two main options:

- use of a single basket, along with limits on the degree of tariff rebalancing that An Post can undertake within a price control period; or
- use of multiple baskets of products.

In order to set multiple baskets to be specified for any price cap, it is essential that a robust allocation of cost, revenue and volume data between these baskets (in line with the products in each basket) could be carried out. Having reviewed the information provided by An Post since the publication of ComReg's Decision D13/13, it is not clear that such a robust allocation would be possible at this stage based on the information at our disposal. Further, there is still uncertainty around the degree of competition that may develop in relation to the products that will come within the scope of the price control and the form that this competition would take over the price control period.

Given these factors, we now recommend that one price control basket should be used. This should be combined with limits on the degree of pricing freedom afforded to An Post. In the presence of the section 28(1) tariff requirements, we believe that this is sufficient to achieve the balance between providing An Post with the appropriate degree of tariff rebalancing freedom, whilst still protecting competition and protecting consumers from excessive prices, particularly in the form of significant year-on-year price increases.

The limits on the degree of pricing freedom afforded to An Post could take one of two forms:

- setting limits on the annual percentage change in price allowed for particular postal services; or
- setting a maximum price that particular postal services cannot exceed.

The first form provides additional protection to consumers over the second, as it not only restricts the overall price increase over the price control period, but also protects consumers from significant year-on-year price increases. Such year-on-year price increases could occur if only a maximum price was set and there is a

significant difference between current price and the maximum price. We would therefore recommend that an annual percentage change limit on prices is used.

In order to use this form, a decision will need to be made around the products for which An Post will face limits on the annual percentage change in price. To make this decision, it is appropriate to draw on the results of demand side and supply side analysis outlined in ComReg's Consultation Document 13/68. This analysis was used to identify the potential baskets under a multiple basket price control, and was based on:

- the degree of competition that has developed (or may develop over the price control period) for each product; and
- a consideration of any arbitrage opportunities that could arise if direct demand-side substitutes are included in separate sub-controls.

Table 2 summarises the resulting suggested product groupings, in ascending order of the degree of competition that has developed for each product (or may develop over the price control period):

- **A** - non-parcel products for residential customers;
- **B** - non-parcel products for business customers; and
- **C** – parcel products for both residential and business customers.

2BHigh level design features of the price control

Table 2. Product groupings proposed in ComReg's Consultation Document 13/68

Sub-controls	
A	**C**
Standard Post – Stamp and Label (Letter and Flat)	Standard Post – Stamp and Label (Packet and Parcel)
Registered Post (Letter and Flat)	Standard Post – Meter (Packet and Parcel)
PO Box	Registered Post (Packet and Parcel)
Residential Redirections and Business Redirections	
Certificate of Posting	
Freepost	
Mailminder	
B	
Standard Post – Meter (Letter and Flat)	
Ceadúnas – Discount 6 and 9	
IBMS	

Source: Frontier Economics

Although none of these products currently face any effective competition (as outlined in section 2.2.1), this analysis suggests that those products in group C may face the most prospective competition over the price control period. Annual percentage change limits on prices may therefore be most appropriate for products in groups A and B. In order to determine which group A and B products should face such price limits, it is also important to consider two further factors:

- ComReg's statutory requirement to have regard to its objectives set out in section 12(1)(c) of the Principal Act, in particular the protection of the interests of postal service users and those of small and medium-sized enterprises; and
- the current volumes of each product.

The latter factor should be considered in the context of reducing regulatory burden on An Post. Regulation may not be considered proportionate if price limits were imposed on low volume products.

We would recommend that that following high volume group A and B products face annual price increase limits:

- Standard Post – Stamp and labels (Letter); and
- Standard Post – Meter (Letter).

These products are both widely used by small and medium enterprises. Such limits are therefore also in line with ComReg's statutory duty to protect the interests of this customer group.

2.3.2 Weighting products in each basket

The second design is around the appropriate weighting of each of the products within a basket. This is important as it may drive An Post's profit maximising pricing choices. In particular these choices are likely to differ depending on whether a tariff basket or average revenue control is used.

- *A tariff basket with fixed weights*[6]: Under this type of control, fixed weights would be assigned to each product for the duration of the price control.
- *An average revenue control*[7]: This type of control applies to the movement in the observed average revenue over time, and so, compared to the tariff basket approach, the weights on each product relate to the share of revenue for that product in that particular year.

The most efficient form of pricing, i.e. the consumer welfare maximising form of pricing, is to set prices equal to marginal costs. However, where a business faces significant fixed or joint costs, using this form of pricing may result in under recovery of these costs. An alternative form of pricing is Ramsey pricing, i.e. pricing to reflect different consumers' willingness-to-pay. This form of pricing minimises any distortions associated with moving away from pricing at marginal cost, whilst allowing sufficient revenue recovery.

It is widely recognised in the theoretical literature[8] that an average revenue control can lead to excessive re-balancing, whilst a tariff basket approach can

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6 **Tariff basket control formula for two products:**

$$p_{11}q_{11} + p_{21}q_{21} \leq (1 + cpi - X)p_{11}q_{10} + p_{21}q_{20}.$$

That is, the total revenue from product 1 and product 2 under current prices and quantities must be less than or equal to the total revenue from product 1 and product 2 under current prices and period 0 quantities multiplied by 1+cpi-X.

7 **Average revenue control formula:**

$$R_t/Q_t \leq (1 + cpi - X)R_{t-1}/Q_{t-1}$$

That is, average revenue in the current period must be less than or equal to average revenue from the previous period multiplied by 1+cpi-X.

8 Armstrong, Cowan and Vickers (1994), Regulatory Reform. MIT Press. Chapter 3

Bradley, I. and Price, C. (1988), *The Economic Regulation of Private Industries by Price Constraints*, The Journal of Industrial Economics

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converge on so-called Ramsey prices. Under an average revenue control, the operator's pricing decisions will take account not only of the demand effect of the price change, but also the impact that that demand change will have on the share of revenue for that product which will determine the base weights for the basket for the following year. Under this control, there is no limit on the total revenue that an operator can earn, just a cap on average revenue per unit. Typically, therefore, this approach encourages the operator to maximise output in order to maximise profits. It would be expected to do this by engaging in excessive price discrimination.

In addition, as the tariff basket control uses fixed weights it has more certainty associated with it than the average revenue control which could change on a year-by-year basis.

We therefore recommend that a tariff basket control with fixed weights is used. More specifically, we recommend that the fixed weights should be a proportion of base year volumes.

2.4 Other key design characteristics of the price control

There are two further outstanding design characteristics around which decisions are required before the price cap can be set by ComReg:

- the treatment of uncertainty and risk; and
- the calculation methodology of the x-factor in the CPI-X% form of the price control.

Here we provide our recommendations in relation to each decision.

2.4.1 Uncertainty and risk

As price controls are forward-looking in nature, they are based on assumptions about future costs and volumes. As a result, there will inevitably be some uncertainty in the determination of these forecasts. This uncertainty may result in differences between actual and expected values during the regulatory period. It is important to classify these uncertainties as to whether they are manageable or non-manageable risks for An Post:

- **manageable risks** are risks that are within the control of An Post, e.g. control of its own operating costs; and

- **non-manageable risks** are risks that are outside the control of An Post, e.g. significant and unexpected volume changes.

ComReg has a statutory duty to ensure the provision of a universal postal service. In line with this duty, ComReg's Consultation 13/82 advised that it would consider the appropriateness of the inclusion of a price cap mechanism to reduce An Post's financial exposure to non-manageable risks over the price control period.

There are two options for this mechanism:

- a 'buffer' to cover the universal service provider for the risk of unexpected exogenous shocks, which could take the form of the margin on opex; or
- carrying over any shortfall (or excess) in revenue from a specific regulatory period into the subsequent price cap period.

Under the second option, An Post's financial exposure to non-manageable risks would still be present over the short term until an adjustment to revenue could be made. Pending such an adjustment, there could be a risk to the continued provision on the universal postal service. We therefore recommend that the first option is used in setting the price cap.

In setting such a margin on turnover, it is important that ComReg appropriately balances the risks to be borne by the operator (through the impact on revenue) with those to be borne by the consumers (through the impact on prices). Our recommendations on the appropriate level of this margin are provided in section 3.1.4.

Although the price cap must apply for a period of 5 years, the 2011 Act makes provision for ComReg to conduct a review of the price cap after 3 years. Following this review, ComReg may amend the price cap decision with regards to the baskets of postal services or the X-factor (or both). To provide a further mechanism by which non-manageable risks to An Post can be reduced, we recommend that ComReg include provisions within the price control framework for An Post to request ComReg to review the price cap decision. In line with the 2011 Act, such a request may only be made 3 years or more after the initial price cap decision is implemented by ComReg. It should also only be made in relation to non-manageable risks that are not covered through the mechanism described above. Such a provision should therefore only allow An Post to request a review if:

- volumes of price controlled products depart significantly from those forecast at the start of the price control period, such that the sustainability of the USO would be threatened in a situation where An Post meets the efficiency targets and other requirements of the price control; or

- An Post experiences other material changes in circumstances that threaten the sustainability of the USO.

Following an appraisal of any request, ComReg may then review the price control decision in line with section 30(5) of the 2011 Act.

2.4.2 X-factor calculation

The final key design feature, on which a decision must be made, is the calculation methodology of the X-factor in the CPI-X% price control.

There are two main options within the requirements of the 2011 Act:

- the X-factor is calculated such that it is the same in all 5 years of the price control, i.e. actual revenue is smoothed equally over the full price control revenue; or
- a different X-factor is set for one or more years of the price control.

In the context of declining volumes, we would expect allowed revenue at the start of the price control period to be much greater than that by the end of the period. This trend is amplified by any efficiency targets that are set for An Post. Therefore, if the X-factor is set such that expected actual revenue is smoothed equally over the full price control period, An Post's price controlled products would be unlikely to return to profitability until the end of the price control period.

In comparison, the latter approach can be used to ensure expected actual revenue is equal to allowed revenue in a particular year. In line with ComReg's statutory duty to ensure the sustainability of the USO, we therefore recommend that the X-factor for 2014/15 is set separately than that for 2015/16-2018/19 to ensure a faster return to an appropriate level of profitability for An Post's price controlled universal postal service products. Under this design, the average annual expected revenue for each year during the 2015/16 to 2018/19 period will then be such that An Post is expected to remain at an appropriate level of profitability for the price control period. Different year-on-year X-factors for 2015/16 to 2018/19 are therefore not required.

3 Calculation of An Post's CPI-X price cap

Based on the high level design features of the price control that are outlined in the previous chapter, this chapter focuses on the actual calculation of the price cap. It provides:

- a detailed explanation of each of the key inputs to setting the price cap; and
- a summary of the resulting model outputs, including our recommendations on the x-factor(s).

3.1 Key model inputs

This section provides a detailed description of the key model inputs, including any assumptions that have been made in relation to each input. It covers the following model inputs:

- base year;
- volume forecasts;
- cost marginalities;
- efficiency factors;
- opex and capex forecasts;
- sub-controls; and
- profit margin and other key inputs.

Data and analysis provided by An Post, or their advisors, forms the basis of all of these inputs. Where appropriate, we have made adjustments following our assessment of this information.

3.1.1 Base year

The starting point for the calculation of allowed revenue over the price control period, is An Post data for the base year of the model. Given that the price control will run from 2014/15-2018/19, 2013 will be the base year. This is the year from which 2014/15-2018/19 opex and capex will be forecast in order to calculate allowed revenue.

The model requires base year data on volumes, opex, capex and revenues for products within the scope of the price control.

- **Volumes, opex and capex** – Outturn data for 2013 has recently been made available to us by An Post, this is therefore used for the base year volume,

opex and capex. Further detail on the methodology used to project volumes and opex is provided in section 3.1.2 (volume forecasts) and section 3.1.5 (opex and capex forecasts).

- **Revenues** – The base year revenues are calculated by multiplying average weighted prices for the base year with base year volumes.

Figure 2 provides an overview of the base year An Post data that feeds into the model. It shows a significant overall loss of €44 million for 2013 on the products that fall within the scope of the price control.

Figure 2. Base year (2013) data

Format	Product	Volume	Weighted price	Revenue	Operating costs	CAPEX	Profit
Letters	Stamped	80.2m	€0.60	€48.1m	€65.2m	€1.9m	-€19.0m
Letters	Labels	0.2m	€0.60	€0.1m	€0.1m	€0.0m	€0.0m
Letters	Metered	88.5m	€0.59	€52.2m	€57.7m	€1.9m	-€7.4m
Letters	Discount 6 Ceadunas	191.9m	€0.45	€86.3m	€99.7m	€2.1m	-€15.5m
Letters	Discount 9 Ceadunas	0.7m	€0.48	€0.4m	€0.2m	€0.0m	€0.2m
Letters	PO Box (Note 3)	0.0m	€248.28	€0.8m	€1.5m	€0.0m	-€0.7m
Letters	Residential and business redirection (Note 3)	18.9m	€0.14	€2.6m	€0.5m	€0.0m	€2.1m
Letters	Mailminder (Note 3)	4.4m	€0.04	€0.2m	€0.0m	€0.0m	€0.1m
Letters	Standard International Outbound	20.5m	€0.86	€17.6m	€21.0m	€0.5m	-€3.9m
Letters	Standard IBMS	2.6m	€0.62	€1.7m	€1.8m	€0.1m	-€0.2m
Flats	Stamped	4.5m	€1.26	€5.7m	€6.2m	€0.3m	-€0.8m
Flats	Labels	1.4m	€1.43	€2.1m	€2.1m	€0.0m	-€0.1m
Flats	Metered	9.8m	€1.27	€12.5m	€11.5m	€0.3m	€0.8m
Flats	Discount 6 Ceadunas	0.9m	€1.05	€0.9m	€0.7m	€0.0m	€0.2m
Flats	Discount 9 Ceadunas	0.0m	€0.90	€0.0m	€0.0m	€0.0m	€0.0m
Flats	Standard International Outbound	3.5m	€2.10	€7.4m	€5.4m	€0.1m	€1.9m
Flats	Standard IBMS	1.0m	€1.27	€1.3m	€0.7m	€0.0m	€0.5m
Packets	Stamped	2.2m	€3.51	€7.7m	€7.0m	€0.1m	€0.6m
Packets	Labels	1.5m	€4.38	€6.4m	€5.0m	€0.1m	€1.3m
Packets	Metered	1.7m	€4.14	€7.0m	€5.0m	€0.1m	€1.9m
Packets	Registered (Note 2)	3.1m	€5.90	€18.3m	€22.9m	€0.8m	-€5.4m
Packets	Standard International Outbound	3.2m	€6.28	€20.2m	€19.4m	€0.3m	€0.5m
Packets	Standard IBMS	0.4m	€3.39	€1.4m	€1.9m	€0.0m	-€0.5m
Parcels	Domestic	0.5m	€8.66	€4.3m	€2.9m	€0.2m	€1.3m
Parcels	International Outbound	0.1m	€39.47	€4.5m	€6.2m	€0.3m	-€2.0m
Total				**€310m**	**€345m**	**€9m**	**-€44m**

Source: Frontier analysis of An Post data

3.1.2 Volume forecasts

In order to determine the appropriate volume forecasts to be used in the price cap model, there are three key assumptions to consider:

- year-on-year volume growth rates;
- expected take up of downstream access and direct customer agreements; and
- price elasticity of demand.

Year-on-year volume growth rates

The first key volume related assumption is the 2013-2018 year-on-year volume growth rates. Figure 3 details the volume growth rate assumptions provided by An Post. These assumptions were calculated through the application of high level average volume growth rates (letters, flats[9] and packets) generated through econometric analysis by undertaken by Deloitte on behalf of An Post. Figure 4 outlines the seven scenarios generated by Deloitte through this analysis. For each scenario, Deloitte made assumptions around the trends over the period for the following volume growth drivers:

- GDP growth;
- the increase in the price of An Post's USO products; and
- the rate of e-substitution.

An Post's volume growth forecasts are based on the average volume growth rates provided by Deloitte's first scenario. This scenario assumes that GDP grows in line with International Monetary Fund (IMF) forecasts, that there will be no price increase for An Post's USO products and e-substitution grows at the same rate that it did over 2010-2012.

9 i.e. Large envelopes

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Figure 3. An Post's volume growth rate assumptions

Letters

	2013	2014	2015	2016	2017	2018
Stamp	-4.75%	-4.50%	-4.00%	-4.40%	-4.40%	-4.40%
Meter	-5.95%	-4.50%	-4.20%	-4.60%	-4.50%	-4.60%
Bulk	-4.25%	-3.90%	-3.70%	-3.80%	-4.00%	-4.00%
Registered						
PO Box/Mailminder/Redirections	-0.95%	-0.90%	-0.65%	0.85%	1.00%	1.00%
Overall Domestic	**-4.70%**	**-4.13%**	**-3.86%**	**-4.07%**	**-4.17%**	**-4.19%**
Outbound International	**-3.40%**	**-4.10%**	**-3.80%**	**-4.10%**	**-4.20%**	**-4.20%**
Inbound International	**-8.20%**	**-4.00%**	**-4.00%**	**-4.00%**	**-4.25%**	**-4.25%**

Flats

	2013	2014	2015	2016	2017	2018
Stamp	-14.00%	-11.90%	-11.65%	-13.25%	-13.60%	-14.00%
Meter	-14.50%	-13.90%	-13.65%	-14.25%	-13.60%	-14.00%
Bulk	-13.50%	-13.00%	-12.65%	-12.25%	-13.00%	-13.00%
Registered						
PO Box/Mailminder/Redirections						
Overall Domestic	**-14.02%**	**-13.07%**	**-12.77%**	**-13.28%**	**-13.39%**	**-13.65%**
Outbound International	**-3.80%**	**-13.10%**	**-12.70%**	**-13.20%**	**-13.40%**	**-13.60%**
Inbound International	**-8.20%**	**-4.00%**	**-4.00%**	**-4.00%**	**-4.25%**	**-4.25%**

Packets

	2013	2014	2015	2016	2017	2018
Stamp	2.00%	3.30%	4.20%	3.90%	4.00%	3.00%
Meter	2.00%	3.60%	4.50%	3.85%	4.00%	4.00%
Bulk	1.00%	4.10%	4.35%	3.35%	3.50%	5.50%
Registered	-2.95%	-1.40%	-0.15%	0.35%	0.50%	0.50%
PO Box/Mailminder/Redirections						
Overall Domestic	**0.21%**	**1.93%**	**2.91%**	**2.73%**	**2.89%**	**2.81%**
Outbound International	**4.10%**	**3.60%**	**4.30%**	**3.90%**	**3.90%**	**3.90%**
Inbound International	**0.00%**	**3.00%**	**2.75%**	**2.75%**	**2.75%**	**2.75%**

Parcels

	2013	2014	2015	2016	2017	2018
Domestic and outbound international	**1.90%**	**3.60%**	**4.10%**	**3.90%**	**3.90%**	**3.90%**
Inbound International	**0.00%**	**3.00%**	**2.75%**	**2.75%**	**2.75%**	**2.75%**

Source: An Post response to 13F question B.1.1.

Figure 4. Deloitte's volume forecast scenarios

		Average volume growth 2013-2018		
		Letters	Flats	Packets
1	GDP = IMF, Price increase=0%, E-substitution = 2010-2012 growth rate extrapolated	-4.2%	-13.3%	3.6%
2	GDP = IMF+20%, Price increase=0%, E-substitution = 2010-2012 growth rate extrapolated	-4.0%	-13.0%	4.0%
3	GDP = IMF-20%, Price increase=0%, E-substitution = 2010-2012 growth rate extrapolated	-4.4%	-13.7%	3.1%
4	GDP = IMF, Price increase=2%, E-substitution = 2010-2012 growth rate extrapolated	-4.4%	-14.1%	1.5%
5	GDP = IMF, Price increase=0%, E-substitution = 20% greater than 2010-2012 growth rate extrapolated	-4.8%	-14.8%	3.7%
6	GDP = IMF-20%, Price increase=0%, E-substitution = 20% greater than 2010-2012 growth rate extrapolated	-5.0%	-15.2%	3.2%
7	Exponential smoothing	-3.3%	-15.9%	-10.0%

Source: An Post response to RFI question 2

Based on the available data on recent overall rates of e-substitution, the type of mail that has been affected, and international comparisons, we have not seen anything to suggest that actual volume growth rates will be significantly different to those forecast by An Post. We therefore recommend that An Post's central volume forecasts are used in the price cap model.

Downstream access and direct customer agreements

In forecasting product-by-product volumes over the price control period, An Post made the assumption that ✂% of bulk volumes would move to downstream access (DSA) or direct customer agreements. In An Post's volume forecasts this assumption is modelled as a ✂% decline in the Discount 6 Ceadúnas product, with ✂% decline coming from the take up of DSA operators' products and ✂% from take up of direct customer agreements. An Post estimates that ✂% take up would occur in 2014 and a further ✂% in 2015.

This is a key assumption for the volume forecasts in the model as neither set of products will fall within the scope of the price control (or the scope of the USO). A take up of ✂% would represent a significant decline in volume falling within the scope of the price control. It is therefore essential that a reasonable assumption around take up of these products is included in the model. If assumed take up was set too low, this may impact on the sustainability of the USO. Conversely, if assumed take up were set too high, this may lead to prices being pushed too high for customers thereby leading to over-recovery of revenues.

According to An Post, the maximum discount that can be offered on these products is ✂c per item (i.e. the per item outward sorting costs). Even at this maximum discount, take up relies on DSA operators and large customers being able to undertake sorting (and collection where appropriate) for less than ✂c. As both sets of products fall outside of the scope of the USO, An Post would also be required to charge VAT on these services. An Post has also provided analysis to suggest that c.a. 50% of bulk mail customers are VAT exempt. The ✂% take-up assumption therefore implies that c.a. ✂% of customers who can move to DSA operators' products or direct customer agreements would do so. Given the slow take-up of electronic alternatives and the apparent lack of reaction to recent price increases, this figure appears to be unrealistic. In addition, ComReg's Large Postal Users Survey found that 70-90% of respondents had not heard of other operators[10]. This indicates that operators may need time to develop products, capacity and marketing of their brand.

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10 ComReg's Large Postal Users Survey – November 2013 (http://www.comreg.ie/_fileupload/publications/ComReg13107.pdf)

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An Post provided further information on individual negotiations held with other postal service providers and large customers, including the expected volumes associated with each negotiation. As a result of these negotiations, ✂ DSA ✂ in place and ✂ has been reached in principle with ✂ potential DSA ✂. However, no agreements are currently in place with large customers. The volumes that An Post expects to move to ✂ DSA ✂ equate to ✂% of Discount 6 Ceadúnas volumes, with ✂% of Discount 6 Ceadúnas volumes expected to move to ✂. It also expects a further ✂% of Discount 6 Ceadúnas volumes to move to direct customer agreements. This equates to ✂% of Discount 6 Ceadúnas volumes.

Based on the low number of contracts that are currently in place (or even in an advanced stage of negotiations) and the large degree of uncertainty around take up of direct customer agreements, we recommend that ComReg uses a take up assumption of 0-10% in 2014/15 and 0-10% in 2015/16.

Price elasticity of demand

In line with our recommendations in section 2.4.2, the price cap model methodology currently allows for a separate x-factor for 2014/15. This methodology will result in a large initial price increase, followed by smaller price increases over the 2015/16-2018/19 period. To take account of the volume impact of this large initial price increase, we recommend that the model also allows for the inclusion of an elasticity effect on 2015/16 volumes (in addition to the year-on-year growth rates outlined above).

We also recommend that the elasticity estimate to be used in the model should be those submitted by An Post in the form of Indecon's 2012 report. Based on a PCAIDS approach, Indecon estimated a price elasticity of demand of 0.22 for stamp, metered and bulk products. We believe that it is appropriate to use this estimate for all products within the scope of the price control. This approach is in line with ComReg's review of An Post's 2012 price application. We have not seen any evidence to suggest that these elasticities would have changed notably since this time.

3.1.3 Cost marginalities

Cost marginality measures the extent to which costs adjust as volumes decline. Given the fixed costs associated with the mail network, we would not expect costs to decline one-to-one in line with volumes, i.e. a 1% decline in volumes will lead to a <1% decline in costs.

In the context of continued volume decline, in order to produce robust opex forecasts over the price control period, it is therefore essential to include an assumption around An Post's cost marginality in the model.

An Post estimates that the overall weighted marginality associated with the provision of universal postal services is 36%, i.e. for a 1% decline in volumes they estimate that costs would be reduced by 0.36%. An Post estimates that this marginality saving takes around three years to materialise as it is not possible to re-design all DSU/DSOs in one year, implying that the annual marginality factor is lower. However, as recent volume declines are not significantly different from those forecast over the price control period, we would expect annual marginality to average out around An Post's overall weighted marginality estimate of 36%. This estimate also appears reasonable in a business where a significant part of the mail pipeline is largely fixed cost, i.e. delivery.

We therefore recommend that an annual cost marginality assumption of 36% is included in the model.

3.1.4 Efficiency factors

The 2011 Act requires ComReg to incentivise efficient universal postal service provision. This means that the price cap must be calculated to reflect the costs that would be incurred by an efficient service provider. A key aspect of setting the price cap will be to consider the current level of efficiency of An Post and whether any efficiency gains can be made including the appropriate timescales to achieve such efficiency gains. In carrying out this assessment it is essential to consider both:

- static efficiency gains, i.e. any efficiency improvements that may be required to bring An Post's current cost base in line with that of an efficient service provider; and
- dynamic efficiency gains, i.e. any further efficiency improvements that would be possible over the price control period.

In Consultation Document 13/82, ComReg came to the preliminary view that *"if An Post is deemed by ComReg not to be fully efficient at the start of the price control period, consideration should be given to the use of a glide path towards efficient costs to allow An Post sufficient time to align its cost base with an efficient level. This would ensure the sustainability of the universal postal service while ensuring consumers benefit as soon as possible from improved efficiency.*[11]*"*

In practice, efficient universal postal service provision can be incentivised by building efficiency factors into the price cap mechanism. The exact level of these factors is informed by an assessment of the efficiency of the regulated business giving consideration to:

- static efficiency;

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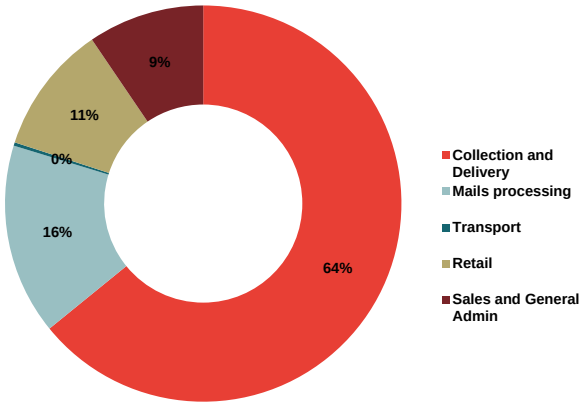
- dynamic efficiency; and
- the ability of the regulated business to meet the targets, and over what period.

We have carried out an efficiency assessment of An Post to inform the efficiency factors. As shown in Figure 5, the largest cost centre in An Post's business is collection and delivery. This has therefore been the focus of the assessment. To complement this, we have also carried out some indicative efficiency analysis of An Post's mail centres.

Figure 5. Labour costs by business units



Source: An Post Five Year Plan 2012

Our overall approach has been to review the data and evidence provided by An Post and its advisors Deloitte in relation to efficiency. Deloitte used internal (econometric) benchmarking of An Post's delivery offices to estimate the scope for efficiency gains. This method identifies inefficiency by comparing the performance of different An Post offices accounting for their characteristics[12]. Some differences in performance are attributed to inefficiency while others are assumed to be caused by other factors. Fundamentally this method measures relative inefficiency to An Post's best performing best performing units.

In the next sections we present the findings from our efficiency assessment followed by our recommendation on the efficiency factors that should be used in the price cap model.

12 Such as volume, delivery point number, delivery point density etc.

Collection and delivery

Collection and delivery is the largest cost centre in An Post's pipeline. Its management in the context of falling volumes is therefore fundamentally important for An Post. In recent years, An Post has implemented a number of initiatives aimed at improving the productivity and quality of service in this part of the pipeline. Among others these include the periodic redesign of delivery units to reflect the decline in mail volumes and the introduction of real time handheld scanners.

An Post has a network of delivery service units (DSUs) and delivery service offices (DSOs). These are primarily responsible for the delivery of mail. However, they also carry out mail collection and sortation activities. DSUs are larger operation units than DSOs and tend to cover more urban areas. Mail is distributed from the mail centres to DSUs, which sort and deliver the mail directly to mail recipients or DSOs. DSOs, in turn, carry out mail delivery to the postal service users located in their assigned area. In recent years, An Post has rationalised its DSO network, reducing the number of DSOs from 378 in 2008 to 305 in 2012, and concentrating mail in the larger DSUs. In 2012, there were 118 DSUs and 305 DSOs across Ireland.

DSUs account for the vast majority of costs in delivery (ca. 84%) so our assessment has focused on this aspect of the delivery network.

In order to gain an understanding of the variation in performance across DSUs, we first compare a simple measure of productivity for each DSU. We then go on to carry out a review of Deloitte's more complex benchmarking using econometric methods.

Comparison of simple productivity measures

Productivity in DSUs varies considerably. Using a simple productivity measure – weighted volumes per hour (wvph) – allows us to compare performance across DSUs. This shows that in 2012:

- median wvph was 51;
- top quartile wvph was 60; and
- bottom quartile wvph was 42.

This suggests that, by this simple measure, the difference in productivity between the top and bottom quartile is 40%. Further, the difference in performance is not driven by outliers – removing the top and bottom[13] performers, we still see considerable variation in performance, as shown in Figure 6.

13 Offices are ranked by wvph and the top 5% and bottom 5% are removed.

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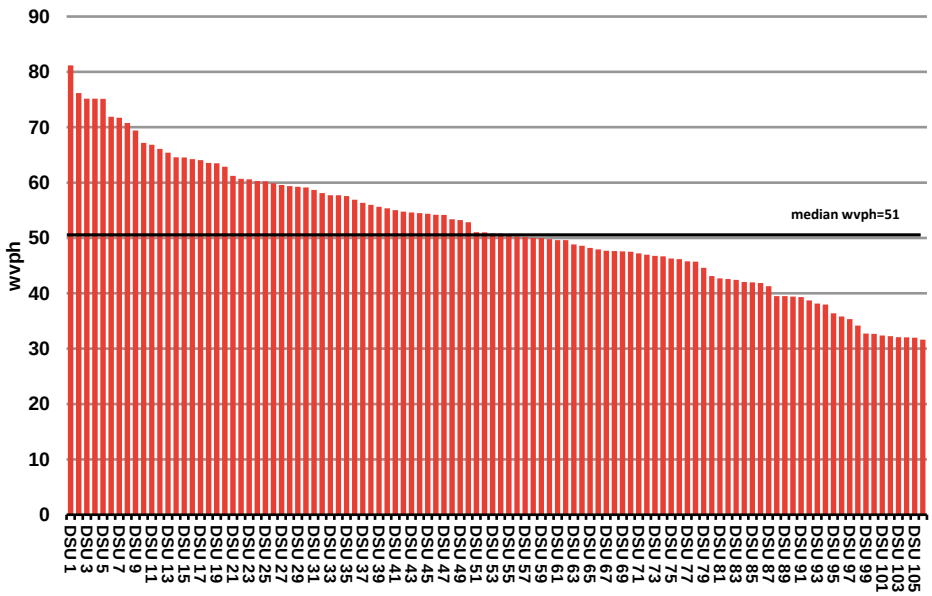
Removing variation in performance could potentially lead to considerable savings. For example, if all units were brought up to the level of the top quartile, ✂m hours would be saved. At average DSU wage rates[14] this is equivalent to a reduction in DSU costs of around €✂m, or ✂% of DSU costs.

Figure 6. Weighted items per hour worked



Source: Frontier Economics calculations based on An Post data for 2012

While useful to set the context of the efficiency work, there are clearly limitations to this simple analysis. There are legitimate reasons why productivity may differ across units which are not related to inefficiency. For example rural offices typically cover larger areas with lower population density (compared with urban offices) so the unit costs of delivery tend to be higher. On the other hand, areas with higher concentrations of business addresses tend to be cheaper to deliver to as significant quantities of mail are delivered to a single address. Controlling for such legitimate cost drivers is clearly important when estimating efficiency – this is done through the use of econometric techniques described in the next section.

Econometric benchmarking

In order to assess the level of efficiency in the delivery network, An Post's advisors Deloitte undertook econometric benchmarking of An Post's DSUs to measure the possible efficiency improvement that could be achieved if all DSUs were brought up to the same efficiency levels as the most efficient DSUs.

14 In 2012 average basic pay rate per hour was ✂.

The objective of econometric benchmarking is to compare the cost performance of DSUs taking into account differences in cost drivers such as the scale of operations and any other factors that are outside management's control.

Deloitte's model compares differences in staff costs between delivery units controlling for:

- the number of delivery points;
- delivery point density;
- mail volumes per delivery point;
- the type of addresses served (% business addresses); and
- the number of DSOs served by each DSU.

The model is estimated using the stochastic frontier analysis (SFA) approach. SFA is a commonly used technique for assessing technical inefficiencies which recognises that differences in cost performance across operation units can be due to random factors but also due to inefficiencies. For this reason SFA typically leads to lower estimates of inefficiency than alternative econometric techniques such as corrected ordinary least squares (COLS), for example.

Deloitte has estimated the model using 2009-2013 data. As part of the efficiency analysis a number of model versions and sensitivities were run. In Table 3 we show the average efficiency estimates resulting from model runs where:

- different time periods are used; and
- different rules are used to identifying and excluding outlying data points[15].

15 Outliers are data points which are not typical for the sample and have considerable impact on the estimates.

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Table 3. Average efficiency scores from panel estimations

	Base case 2 outliers	Excluding standardised residual outliers	Excluding Cook's distance outliers
2012-2013	90.0%	93.0%	92.0%
2011-2013	85.4%	88.6%	87.1%
2010-2013	82.1%	84.9%	84.7%
2009-2013	77.9%	82.6%	82.1%

Source: Frontier Economics analysis based on Deloitte's model specification and An Post data.

As the table shows, the estimated average efficiency of DSUs ranges between 78% and 93% depending on the exact sample used. In general, the model finds less inefficiency in the smaller samples than the larger samples. Specifically, the 2012-2013 sample results in inefficiency estimates of between 7%-10% while the sample 2009-13 results in inefficiency estimates of between 18%-22%.

An Post and Deloitte have argued that more reliance should be placed on the results from the models using the smallest sample (2012-2013) because they believe the more recent years to be more relevant for a forward looking price control, and because they feel there are econometric reasons[16] to prefer the estimates from the smallest sample to those from the largest sample. Frontier is of the view that there is no econometric reason to consider the results from the 2012-13 panel as more robust relative to the longer panels. On the contrary, the longer panels are based on more data[17] and therefore provide better estimates. Therefore, in our view the full range of estimates from the econometric benchmarking of DSUs of 7%-22% should be considered by ComReg when setting the efficiency target for the price control.

An Post also argues that the efficiency target should take account of the changing mix of mail and the associated additional 'workload' required to process parcel and packet volumes in comparison to letter volumes. However, packets and parcels only make up a small percentage of USO volumes (c.a. 3%), and An Post's own volume forecasts do not predict that the mix of mail will change to any material degree. We therefore do not expect the nature of the workload to change sufficiently over the price control period to justify an adjustment to the efficiency target.

16 Deloitte have argued that heteroscedasticity may bias the results from the panel SFA using the 2009-2013 data.

17 Excluding 2009-2011 data reduces the sample by 55%.

Mail centres

Mails processing is the second largest cost centre in An Post's pipeline accounting for ca. 16% of people costs. We have therefore complemented the efficiency analysis of the delivery network with indicative efficiency analysis of mail centres.

An Post currently operates a network of four mail centres:

- Portaloise mail centre (PMC);
- Dublin mail centre (DMC);
- Cork mail centre (CMC); and
- Athlone mail centre (AMC).

In recent years An Post has invested ca. €37.5m as part of its automation programme, which is primarily targeted at mail centres. The automation programme has involved replacing and/or refurbishing equipment in the mail centres. In addition to this, PMC was refurbished and extended.

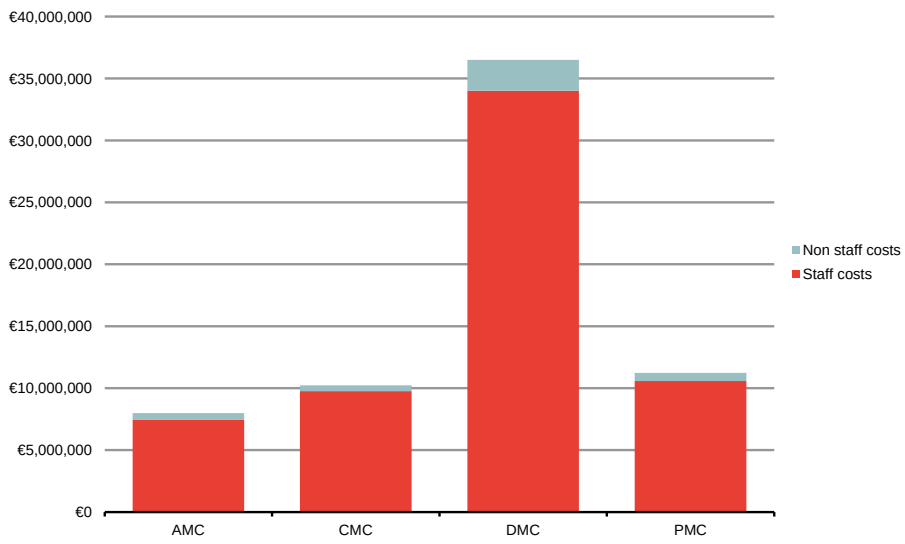
An Post's automation programme has focused on letters and flats. For the latter An Post has aimed at increasing automatic sortation rates to delivery unit and delivery route level. The specific investments of the automation programme have targeted:

- removing obsolescent letters and flats hardware;
- installing new NEC letters hardware at DMC & PMC and new Elsag flats sorting hardware at all mail centres; and
- upgrading existing NEC hardware at AMC & CMC.

All four mail centres are single floor and were constructed relatively recently – the first mail centre to be constructed, DMC, was built 20 years ago. DMC is also the largest of the mail centres, processing more mail than the other three mail centres combined. Mail centre costs totalled ca. €70m in 2012, the vast majority costs being staff costs. More than half of mail centre costs are accounted for by DMC, as shown in Figure 7. There have not been any changes in the number of mail centres in Ireland over the last decade.

3BCalculation of An Post's CPI-X price cap

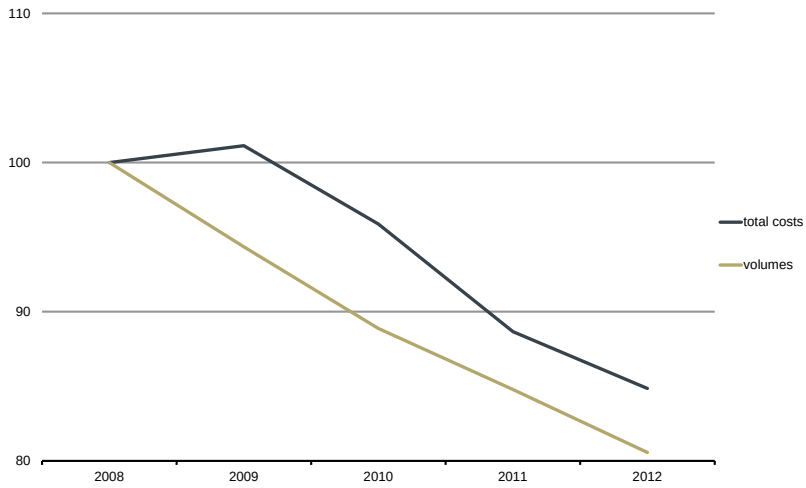
Figure 7. Mail centre costs 2012



Source: Frontier Economics analysis based on An Post data

As shown in Figure 8, mail centre volumes have been declining over the past five years. Although costs have fallen too, they have not so far not caught up with the volume decline.

Figure 8. Costs and volumes in mail centres (Index, 2008=100)



Source: Frontier Economics analysis based on An Post data. Normalised costs (real 2008) and volumes.

The efficiency of mail centres cannot be assessed using econometric techniques due to the small number of observations. However, a number of basic analyses

provide a useful check to determine whether the levels of inefficiency estimated in delivery is also reflected in mail centres.

There is evidence of spare capacity in An Post's mail centres. Figure 9 shows utilisation rates in the four mail centres in peak and off-peak periods of the year. As the figure shows, all mail centres operate well below capacity during certain periods of the year. In August for example, utilisation rates in the mail centres outside Dublin were below 30 %[18].

Further, in peak periods (December) DMC processes more mail than all four mail centres process together on an average day in August (a typically low volume month). It is clear that spare capacity in mail centres will increase over time – as volumes continue to decline utilisation rates at mail centres will continue to dwindle.

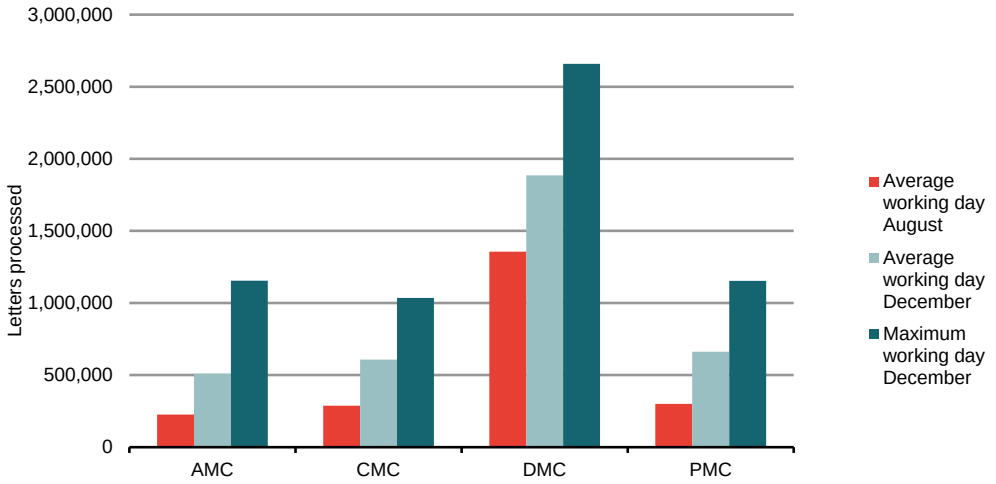
An Post has argued that low utilisation rates do not necessarily indicate inefficiency. Although we agree with this point in isolation, a simple comparison of weighted volumes per hour (wvph) suggests that productivity in mail centres varies considerably. This measure indicates that AMC may be the most productive mail centre, with PMC the least productive. The difference in weighted volumes per hour between the two mail centres is approximately 30%.

Further, given An Post's forecast of continued volume decline, there may be opportunities for An Post to target mail centre costs which are considered fixed in the short run. For example, by 2016 An Post expects[19] core mails to have declined by between 35% and 47% relative to their 2007 level, which may present opportunities for An Post to re-optimise the configuration of its network.

18 Utilisation rates are calculated relative to capacity where capacity is defined as the number of items processed during peak periods in December.

19 An Post Five Year Plan – confidential to ComReg

Figure 9. Letters processed in peak and off-peak periods



Source: Frontier Economics analysis based on An Post data

Recommended efficiency factors

It is clear from the analysis presented above that there are inefficiencies present in An Post's network. The econometric benchmarking of An Post's delivery network revealed inefficiencies in the range of 7% to 22%. Further basic analysis of mail centres suggests that efficiency in this part of the network is not significantly different to that in delivery.

Overall we believe that the estimated efficiency range is likely to be conservative because:

- it is based on internal benchmarking;
- many of the estimates (the lower bounds in particular) are based on samples where a large number of delivery units are deemed to be outliers and are hence excluded – it is possible that at least some of these excluded offices are genuinely well or badly performing units; and
- the benchmarking work has not even considered how the levels of remuneration at delivery units fare against those of comparable occupations in other sectors.

This notwithstanding, it is important that any efficiency targets ComReg sets for An Post are achievable within the price control period. It should also be set at a level and trajectory which sufficiently balances ensuring the sustainability of the universal postal service with ensuring that consumers benefit from the available efficiency gains.

Setting an efficiency target that aims to close the full efficiency gap is likely to be too challenging for An Post, especially in its first price control. For example, it could lead to An Post under-recovering revenues and threaten the sustainability of the universal postal service.

We therefore recommend that ComReg uses a glide path towards this full target. Specifically we propose that ComReg sets a static efficiency target towards the lower to mid end of the 7-22% range for this price control. We also suggest that the efficiency target should be split equally over each year of the price control to allow An Post time to remove inefficiencies. Based on the available evidence, we believe that such an approach strikes the right balance between ensuring the sustainability of the universal postal service while ensuring consumers benefit as soon as possible from improved efficiency.

Our view is that an annual efficiency target in the lower to mid end of the 7-22% range is achievable and provides An Post incentives to increase its efficiency. Further, An Post's business plan allows for cost savings from initiatives over the 2014-2018 period of ca. €✂m or ✂% of costs. We understand the majority of these initiatives to relate to efficiency.

A dynamic efficiency target is often applied by regulators to reflect expected increases in input prices and ongoing productivity performance. An Post is expecting modest input price inflation of c.a. 0.6% p.a. that would have the effect of softening the static efficiency target[20]. At the same time, it would be common practice to also include an ongoing productivity factor that would have the effect of tightening the target.

We recommend that the combined effect of these factors cancel out, and that the dynamic efficiency target is set to zero. This approach is justified by the conservative treatment of static efficiency and by the application of the glide-path to the efficiency target.

3.1.5 Opex and capex forecasts

The next key inputs to consider are the opex and capex forecasts for the 2014-2018 price control period. As set out in the previous section, pursuant to the 2011 Act, the price cap must be calculated to reflect the costs that would be incurred by an efficient service provider. The opex and capex forecasts included in the model must therefore reflect:

- efficiently incurred capex; and
- efficiently incurred opex.

20 An Post has requested an upward adjustment to allowed opex and capex to reflect the input price inflation that it expects to experience over the period.

3BCalculation of An Post's CPI-X price cap

This section outlines the model assumptions with regards to the opex and capex forecasts, based on An Post data.

Capex

The capex forecast that is used in the price cap model is based on An Post's nominal USO capex forecasts for the 2014-2018 period. These forecasts are adjusted to reflect only those products that fall within the scope of the price control and to convert this expenditure into real terms, as shown in Table 4.

Table 4. Adjusted USO capex forecast 2014/15-2018/19

	2014/15	2015/16	2016/17	2017/18	2018/19
Adjusted USO capex	€6.5m	€6.4m	€6.3m	€6.2m	€6.2m

Source: Frontier adjustment of An Post's response to questions B.3.10 of the 13F RFI

In order to assess whether the full amount of this capex can be included in the price cap calculation, ComReg must come to a decision on whether this capex is well justified and is efficiently incurred. An Post provided a high level breakdown of the capex forecast for the whole business. However, An Post has not provided a list of the investments included in the aggregate USO capex figure, or detailed investment plans for ComReg's scrutiny. Instead, it has argued that the level of capex it is projecting is required to cover necessary replacement of existing equipment over the course of the price control.

We would recommend for future controls that An Post must prepare a more granular assessment of its capex requirement. However, despite the absence of more granular data, we are of the view that the projected level of capex is reasonable and therefore recommend that ComReg allows 100% of this capex to be included in the price cap calculation. This will ensure that An Post is adequately reimbursed for required replacement of existing equipment over the course of the price control.

Opex

Starting with base year opex, the 2014/15-2018/19 opex forecast that is used in the price cap model is calculated by making two key adjustments on a year-on-year basis to project efficient opex over 2014/15-2018/19. In particular, the previous year's opex is adjusted for:

- the cost marginality impact of the forecast volume declines (as described in section 3.1.3); and
- the impact of annual target efficiency savings set for An Post (as described in section 3.1.4).

3.1.6 Sub-controls

Another key model input to consider is the appropriate limits on the annual percentage changes in price that are allowed for the sub-controlled products. In section 2.3.1, we recommended that the following products should face sub-controls:

- Standard Post – Stamp and labels (Letters); and
- Standard Post – Meter (Letters).

We consider the appropriate sub-controls for each of these products in turn.

Standard Post - Stamp and label (Letters)

In setting the limit on the annual percentage change in prices for Standard Post-Stamp and Label, we believe that it is important to first consider the current cost orientation of these products. Given the inherent link between the price of the Stamp and Label products, we focus here on the cost reflectivity of Stamps.

Based on the 2013 cost and volume data provided by An Post, we know that the 2013 weighted average unit cost for Stamped letters was €0.84. This compares to the current weighted average price of €0.60. Given the cost orientation requirement of section 28(1) of the 2011 Act, it is important for the sub-controls on these products to not unduly restrict An Post from correcting this cost-price mis-alignment. At the same time, it is essential to be cognisant of the ultimate aim of these sub-controls-to prevent An Post from engaging in excessive tariff rebalancing within the overall price cap. It would therefore not be appropriate to set these limits such that it allowed An Post to over-adjust for the cost-price mis-alignment. Further, it is also essential that these limits are set at a level which reflects the efficient cost of provision, and therefore takes account of the inefficiencies identified by the efficiency analysis, adjusting the €0.84 accordingly.

In order to strike this balance, we recommend that the sub-control on Standard Post - Stamp and label (Letters) is set at 12-14% in 2014/15 and 2-3% in 2015/16 to 2018/19. The setting of a different rate for 2014/15 is in line with our recommendation to set of different X-factors for the periods 2014/15 and 2015/16 to 2018/19 respectively.

Standard Post - Meter (Letters)

In setting the limit on the annual percentage change in price for Standard Post – Meter, it is important to consider the relationship between this product and Standard Post - Stamp and Label. ComReg has previously stipulated to An Post that the discount offered by An Post on the Meter product, in comparison to the Stamp or Label product, must only reflect the cost savings associated with the different payment method. Based on the information provided by An Post, there is nothing to suggest that this cost saving may change significantly over the price

3BCalculation of An Post's CPI-X price cap

control period. We therefore recommend that the sub-controls on Standard Post-Meter (Letters) are set at the same level as those on Standard Post – Stamp and label, i.e. Standard Post - Stamp and label (Letters) is set at 12-14% in 2014/15 and 2-3% in 2015/16-2018/19.

3.1.7 Profit margin and other key inputs

The final stages of calculating the price cap are to convert the opex and capex forecasts into allowed revenue for each year of the price control, and then calculate the resulting X-factors for 2014/15 and 2015/16-2018/19. Related to this, there are a number of further model inputs on which ComReg needs to make a decision. In particular, the appropriate:

- profit margin on opex; and
- inflation forecast and interest rate.

Profit margin

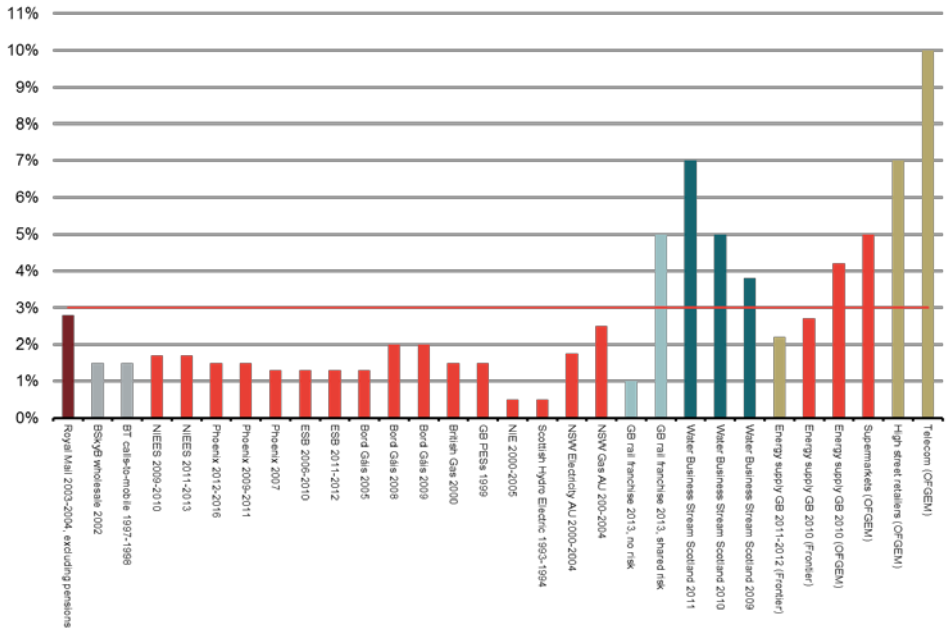
In order to provide a 'buffer' to cover An Post for the risk of unexpected exogenous shocks, we recommend that a profit margin on opex is used in setting the price cap (as explained in section 2.4.1).

In order to determine the appropriate size of this profit margin, it is appropriate to consider:

- regulatory precedent in the postal sector;
- regulatory precedent in other regulated sectors; and
- the buffer required to account for volume risk.

In relation to regulatory precedent, we can look at allowed margins in the postal sector and other regulated sectors. Figure 10 shows the margins allowed by regulators under price control decisions in a variety of regulated industries. The allowed margin in the previous postal sector decision (Royal Mail 2003-2004) was 2.8% and the average allowed margin across all previous decisions is 3%.

Figure 10. Allowed margins in the postal sector and other regulated sectors



A further point to consider here is the interaction of the choice of profit margin with the approach of setting a separate X-factor in 2014/15. Ultimately the profit margin is designed as a buffer to protect An Post against uncertainty. This approach to setting the X-factor results in 2014/15 actual revenue being equal to 2014/15 allowed revenue, removing some of the risk to An Post for 2014/15. Combined with the fact that this is the first year of the price control and therefore there is inherently less uncertainty about volume outturns, we believe that it is appropriate to set a lower profit margin for 2014.

Based on regulatory precedent, we would recommend a profit margin of 2-4% for 2015/16-2018/19. For 2014/15, we would recommend a lower profit margin of 0-2%.

The volume sensitivity analysis detailed in section 4 provides a useful final verification on this recommendation as it shows that a profit margin of this size would provide a sufficient buffer in the event that volumes were in line with Deloitte's worst case volume scenario or greater take up of DSA and direct customer agreements.

Inflation rate and interest rate

The calculation of the final X-factor(s) is done such that, for each product, the price in each year is equal to the price in the previous year multiplied by (1+CPI-X). X is set at a level to ensure the sum of projected revenues equals the sum of allowed revenues in net present value (NPV) terms. Therefore, in order to undertake this calculation two additional inputs are needed:

3BCalculation of An Post's CPI-X price cap

- CPI forecast for 2014-2018; and
- interest rate for discounting.

We recommend that the IMF CPI forecast is used in this calculation, along with a nominal interest rate of 5.9% (adjusted for inflation). The latter is the short term (less than 10 years) discount rate recommended by The National Development Finance Agency (NDFA)[21] for discounting cash flows.

3.1.8 Summary

Table 5 summarises our key recommendations to ComReg in relation to the assumptions feeding into the calculation of the X-factor.

Table 5. Key recommendations

Assumption	Recommended approach
Year-on-year volume growth	An Post's central scenario
Take up of DSA and direct customer agreements	0-10% of Discount 6 Ceadúnas volumes in 2014/15 and 0-10% in 2015/16
Price elasticity of demand	-0.22
Cost marginality	36%
Efficiency target	Lower to mid end of the 7-22% range
Proportion of An Post's capex forecasts allowed	100%
Sub-controls on Standard Post – Stamp and Label (Letter) and Standard Post – Meter (Letter)	12-14% for 2014/15 and 2-3% for 2015/16-2018/19
Profit margin	0-2% for 2014/15 and 2-4% for 2015/16-2018/19

3.2 Key model outputs

Based on the model inputs outlined in the previous section, here we provide the resulting recommended X-factors. We also provide a summary of the other key model inputs:

21 Department of Public Expenditure and Reform: http://www.per.gov.ie/project-discount-inflation-rates/

- projected volumes; and
- allowed opex, allowed capex and resulting allowed revenues.

We show detailed results for the following central scenario which is based on inputs set out in Table 6 below. **Table 6.** Central case scenario

Assumption	Recommended approach
Year-on-year volume growth	An Post's central scenario
Take up of DSA and direct customer agreements	5% of Discount 6 Ceadúnas volumes in 2014/15 and 5% in 2015/16
Price elasticity of demand	-0.22
Cost marginality	36%
Efficiency target	10%
Proportion of An Post's capex forecasts allowed	100%
Sub-controls on Standard Post – Stamp and Label (Letter) and Standard Post – Meter (Letter)	13% for 2014/15 and 2.5% for 2015/16-2018/19
Profit margin	1% for 2014 and 3.5% for 2015-2018

We then show the results from sensitivity analysis we undertook to establish the impact of changes in the assumptions on An Post's finances.

3.2.1 Recommended X –factors based on the central case scenario

Based on the central case scenario inputs we calculate the following X-factors:

- **2014/15 X-factor:** -14.98%; and
- **2015/16- 2018/19 X–factor:** -1.35%.

Given that the price cap formula is CPI-X this implies that on average, for products which are not subject to a sub-cap, prices would need to increase by approximately 15.49% in 2014/15 to ensure An Post recovers its costs. For Standard Post – Stamp and Label (Letters) and Standard Post - Meter (Letters) the corresponding price increase in 2014/15 is 13%, in line with the recommended sub-cap.

3BCalculation of An Post's CPI-X price cap

The X-factor for the period 2015/16 to 2018/19 is -1.35%. This means that to be compliant with the control, the prices of products not subject to the sub-cap can increase by up to 2.45% (on average) annually if outturn CPI is in line with IMF's forecast.

3.2.2 Projected volumes based on the central case scenario

The volume projections underpinning the central case scenario are shown in **Figure 11**. This is based on:

- An Post's central volume forecast scenario for all products; and
- the impact on Discount 6 Ceadúnas volumes of the assumed take up of DSA and direct customer agreements in our central scenario.

Figure 11. Central case scenario – volume forecasts

Format	Product	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	% change 2013-2018
Letters	Stamped	80,185	76,577	71,324	68,185	65,185	62,317	-22%
Letters	Labels	173	165	154	147	141	134	-22%
Letters	Metered	88,463	84,482	78,518	74,906	71,535	68,245	-23%
Letters	Discount 6 Ceadunas	191,860	175,159	154,572	148,698	142,750	137,040	-29%
Letters	Discount 9 Ceadunas	730	702	652	627	602	578	-21%
Letters	PO Box (Note 3)	3,127	3,099	2,973	2,998	3,028	3,059	-2%
Letters	Residential and business redirection (Note 3)	18,854	18,684	17,926	18,078	18,259	18,442	-2%
Letters	Mailminder (Note 3)	4,362	4,323	4,147	4,183	4,224	4,267	-2%
Letters	Freepost	9,324	8,960	8,629	8,301	7,969	7,650	-18%
Letters	Standard International Outbound	20,476	19,636	18,221	17,474	16,740	16,037	-22%
Letters	Standard IBMS	2,649	2,540	2,357	2,261	2,166	2,075	-22%
Flats	Stamped	4,529	3,990	3,389	2,940	2,540	2,185	-52%
Flats	Labels	1,441	1,270	1,078	935	808	695	-52%
Flats	Metered	9,829	8,463	7,019	6,019	5,200	4,472	-54%
Flats	Discount 6 Ceadunas	866	753	632	555	483	420	-51%
Flats	Discount 9 Ceadunas	24	21	18	15	13	12	-51%
Flats	Freepost	585	509	445	390	339	295	-50%
Flats	Standard International Outbound	3,539	3,075	2,580	2,239	1,939	1,676	-53%
Flats	Standard IBMS	985	856	718	623	540	466	-53%
Packets	Stamped	2,208	2,281	2,299	2,389	2,484	2,559	16%
Packets	Labels	1,457	1,505	1,517	1,576	1,639	1,688	16%
Packets	Metered	1,700	1,761	1,780	1,849	1,923	2,000	18%
Packets	Registered (Note 2)	3,108	3,064	2,955	2,966	2,981	2,996	-4%
Packets	Freepost	250	260	272	281	290	306	23%
Packets	Standard International Outbound	3,211	3,327	3,356	3,487	3,623	3,764	17%
Packets	Standard IBMS	423	438	442	459	477	496	17%
Parcels	Domestic	502	520	524	544	565	587	17%
Parcels	International Outbound	114	118	119	124	128	133	17%

Source: Frontier's price control model based on An Post data

3.2.3 Allowed revenues based on the central case scenario

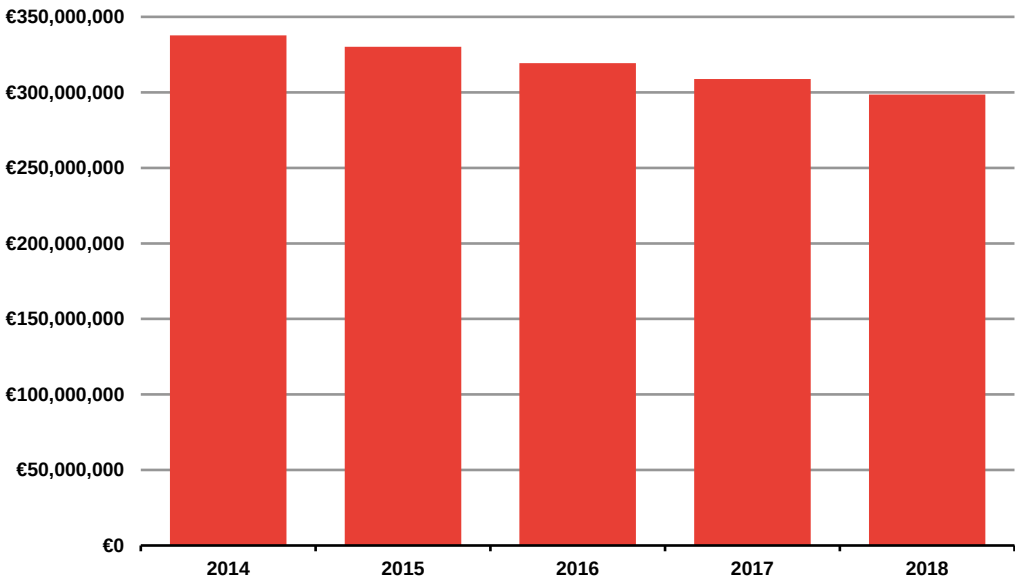
The allowed revenues under the central case scenario are shown in Figure 12. In 2014, central case scenario allowed revenues stand at €338m. By the end of the control in 2018/19 these allowed revenues decline by 12%. The decline is driven by several factors:

- a fall in revenue from Discount 6 Ceadúnas (due to the assumed customer switching to the DSA product and direct customer agreements);
- a fall in opex driven by the efficiency target; and

- a fall in opex due to volume declines estimated in An Post's central scenario.

Under this scenario, allowed opex declines by 14% but due to the allowed profit margin and lower declines in allowed capex, allowed revenues fall by 12% over the price control period.

Figure 12. Central case scenario - allowed revenues



Source: Frontier's price control model based on An Post data

4 Sensitivity analysis

Based on the recommended X-factor(s) and accompanying sub-caps that are calculated under our recommended central scenario, this section also sets out the potential impact on An Post's profitability of exogenous shocks on the volumes of price controlled products.

As outlined in section 2.4.1, in order to reduce An Post's financial exposure to such shocks, we recommend that the price cap is calculated on the basis of the inclusion of a 'buffer' in the form of a profit margin on opex. Our recommendations around the size of this profit margin, take into account the profitability impact outlined in this section. To provide a further mechanism by which An Post's financial exposure to such shocks, we recommend that ComReg include provisions within the price control framework for An Post to request ComReg to review the price cap decision.

Below we first set out the scenarios that we have run using the model, before providing information on the revenues, costs and profitability under each scenario.

4.1 Scenarios

In relation to exogenous shocks on volume projections, we have run two types of scenarios:

- variation in the year-on-year volume growth rates included in the model; and
- variation in the take up of downstream access and direct customer agreements.

In relation to the former, we have based on our analysis around Deloitte's volume forecast scenarios shown in Figure 13. We have recommended that An Post's central volume forecasts are used in the price cap model. These are based on Deloitte's first scenario. Here we use Deloitte's second, third, fifth and sixth scenarios to assess the sensitivity of An Post's profitability to this assumption[22].

[22] Scenario 4 is not used here as it is calculated on the basis of an assumed price increase. Scenario 7 is also not used as it is calculated on the basis of historical volume projections, with no forward-looking element.

Figure 13. Deloitte's volume forecast scenarios

		Average volume growth 2013-2018		
		Letters	Flats	Packets
1	GDP = IMF, Price increase=0%, E-substitution = 2010-2012 growth rate extrapolated	-4.2%	-13.3%	3.6%
2	GDP = IMF+20%, Price increase=0%, E-substitution = 2010-2012 growth rate extrapolated	-4.0%	-13.0%	4.0%
3	GDP = IMF-20%, Price increase=0%, E-substitution = 2010-2012 growth rate extrapolated	-4.4%	-13.7%	3.1%
4	GDP = IMF, Price increase=2%, E-substitution = 2010-2012 growth rate extrapolated	-4.4%	-14.1%	1.5%
5	GDP = IMF, Price increase=0%, E-substitution = 20% greater than 2010-2012 growth rate extrapolated	-4.8%	-14.8%	3.7%
6	GDP = IMF-20%, Price increase=0%, E-substitution = 20% greater than 2010-2012 growth rate extrapolated	-5.0%	-15.2%	3.2%
7	Exponential smoothing	-3.3%	-15.9%	-10.0%

Source: An Post response to RFI question 2

In relation to the latter, we have recommended a DSA and direct customer agreements take up assumption of 0-10% of Discount 6 Ceadúnas volumes in 2014/15 and 0-10% in 2015/16. Here we run scenarios based on the upper and lower end of these ranges, and based on An Post's assumption of ✂% of Discount 6 Ceadúnas volumes split equally between 2014 and 2015:

- 0% DSA take-up in both 2014/15 and 2015/16;
- 10% DSA take-up in both 2014/15 and 2015/16; and
- ✂% DSA take-up in both 2014/15 and 2015/16.

4.2 Sensitivity analysis results

This section sets out the results of our sensitivity analysis. In particular, it sets out An Post's revenues, costs and profitability under each of the scenarios outlined in the previous section.

4.2.1 Year-on-year volume growth rates scenarios

Figure 14 details the revenues, costs and profitability that would result from each of Deloitte's volume scenarios 2, 3, 5 and 6. It also provides the same variable under the central scenario for comparison.

4BSensitivity analysis

Figure 14. An Post finances under different volume scenarios

Revenues	2014/15	2015/16	2016/17	2017/18	2018/19
Central scenario	€337,763,812	€319,325,265	€317,482,983	€316,533,136	€316,398,868
Volume scenario 2	€338,531,114	€320,973,087	€319,922,278	€319,789,814	€320,475,295
Volume scenario 3	€336,912,428	€317,485,390	€314,762,589	€312,905,811	€311,866,308
Volume scenario 5	€335,907,556	€315,748,955	€312,505,845	€310,283,954	€308,982,886
Volume scenario 6	€335,056,172	€313,917,625	€309,810,954	€306,704,433	€304,524,992

Costs	2014/15	2015/16	2016/17	2017/18	2018/19
Central scenario	€334,484,271	€319,281,420	€308,761,150	€298,593,144	€288,708,180
Volume scenario 2	€334,773,060	€319,841,746	€309,581,447	€299,663,333	€290,005,087
Volume scenario 3	€334,165,099	€318,658,019	€307,849,278	€297,404,218	€287,269,430
Volume scenario 5	€333,803,060	€318,044,870	€306,973,885	€296,298,693	€285,950,988
Volume scenario 6	€333,483,887	€317,422,530	€306,065,107	€295,115,754	€284,521,882

Profits	2014/15	2015/16	2016/17	2017/18	2018/19
Central scenario	€3,279,541	€43,845	€8,721,833	€17,939,992	€27,690,688
Volume scenario 2	€3,758,054	€1,131,341	€10,340,831	€20,126,481	€30,470,209
Volume scenario 3	€2,747,329	€1,172,629	€6,913,311	€15,501,592	€24,596,878
Volume scenario 5	€2,104,496	€2,295,915	€5,531,960	€13,985,261	€23,031,899
Volume scenario 6	€1,572,284	€3,504,905	€3,745,847	€11,588,679	€20,003,110

Source: Frontier's price control model based on An Post data

This analysis indicates that the recommended central scenario profit margin would provide An Post with adequate protection against non-manageable volume risk. Even in Deloitte's volume scenario 6, the worst case scenario modelled, An Post makes positive returns in all years except 2015/16.

4.2.2 Take up of downstream access and direct customer agreements scenarios

Figure 15 details the revenues, costs and profitability that would result from each of the suggested scenarios around the take up of downstream access and direct customer agreements.

Figure 15. An Post finances under different DSA take-up scenarios

Source: Frontier's price control model based on An Post data

This sensitivity analysis has revealed that the greater the assumed level of take up for DSA and direct customer agreements, the greater An Post's profits will be in the first two years of the price control. This impact stems from the fact that the unit cost for Discount 6 Ceadúnas is greater than the unit revenue, i.e. it is currently a loss-making product. Following the modelled price increases in 2014/15 and 2015/16, however, Discount 6 Ceadúnas becomes profitable. This leads to greater DSA take up being associated with slightly lower total profits over the course of the price control.

5 Compliance with section 28(1) tariff requirements

In determining the price cap ComReg must have regard to the tariff requirements of the 2011 Act. Under section 28(1) of the Act, these tariffs must be:

- affordable and be such that all postal service users may avail of the services provided;
- cost-orientated, that is the prices shall take account of, and reflect the costs of, providing the postal service or part of the postal service concerned;
- transparent; and
- non-discriminatory.

Below we outline how the proposed price cap complies with each of the above tariff requirements.

5.1 Affordability

Section 28(1) requires that tariffs are affordable and be such that all postal service users may avail themselves of the service provided.

There is no universally agreed measure of affordability that has been applied, either in economic theory or regulatory practice. However, some regulators and other agencies have developed some working definitions. As far as the postal sector is concerned, in the UK, Postcomm developed the following definition for discussion:

> *"A universal postal service product, for example a first class stamp, would be "unaffordable" if a potential residential customer was entirely excluded from purchasing it or faced significant hardship from purchasing it because of the price".*

Postcomm considered two questions in testing whether universal postal service prices are affordable for residential customers. A positive answer to both questions would indicate that prices are affordable, but Postcomm noted that it is possible for the test not to be passed but postal service prices still to be affordable. The questions Postcomm considered are:

- Is household expenditure on universal service postal products within household budgets?
- Are universal service postal products priced below households' willingness to pay for them.

Applying this logic in an Irish setting, it is useful to look at the current cost of postage to residential consumers. We know that in 2010, residential postal users sent 6.1 items per month on average[23], or 73.2 items per year. At a cost of €0.60 per item, this amounts to €43.92 per year. Although a similar question was not posed as part of the 2013 residential postal users survey, given the volume decline seen in these products since 2010, we would expect this amount to be lower. To put this in context, we can compare these postage costs to annual household income. The 2011 Survey on Income and Living Conditions (SILC) revealed that the Irish 'at risk of poverty' threshold is €10,899[24]. At 2010 postal volumes, postal costs would only be 0.4% of annual disposable income for households at this threshold. This analysis would indicate that affordability is not likely to be an issue for residential postal users under the proposed price cap. The recommended sub-cap on Standard Post – Stamp and Label (Letters) will provide further protection to this customer group.

Pursuant with section 30(3) of the 2011 Act, the proposed sub-cap on Standard Post – Meter (Letters) will also provide protection for SMEs, who would largely use this product. This will ensure that postal services remain affordable for this customer group.

For larger users of An Post's price controlled services, affordability is ensured in part by the overall price cap itself. Such price regulation is undertaken by national regulatory authorities to protect customers from the threat of a network operator abusing its monopoly power. Affordability for large users is further ensured by the sub-caps placed Standard Post – Stamp and Label (Letters) and Standard Post – Meter (Letters). These sub caps provide regulatory benchmark products that large users can switch to if required, ensuring that they are still able to avail themselves of a universal postal service at an affordable price.

5.2 Cost-orientation

Section 28(1) requires tariffs to be cost-orientated, that is the prices shall take account of, and reflect the costs of, providing the postal service or part of the postal service concerned.

Given the form of the price control, and other proposed high level design features, the resulting price cap will ensure that tariffs are cost orientated at a high level. In particular, the price cap will be set by ComReg using the cashflow approach. This approach calculates allowed revenue in each year by summing An Post's forecast operating expenditure and capital expenditure. The 2011 Act

23 ComReg – Postal Service Residential Survey 2010 - http://www.comreg.ie/_fileupload/publications/ComReg_10107b.pdf

24 The 'at risk of poverty' threshold is calculated as 60 % of the national median equivalised household disposable income (i.e. household income adjusted for household composition) after social transfers.

requires ComReg to incentivise the efficient provision of universal postal services. Therefore, as set out in section 3.1.5, the price cap is set to reflect the efficient costs of universal postal service provision.

In setting the price cap, the 2011 Act does not provide ComReg with the powers to specify exact prices for individual products, or groups of products. The responsibility for cost orientation of tariffs at a more disaggregated level, e.g. on a product-by-product basis, therefore lies solely with An Post. In setting prices for products that fall within the scope of the price control, An Post must ensure compliance with the price cap, and any sub-caps, but also that these prices are cost orientated.

5.3 Transparency and non-discrimination

Section 28(1) also requires tariffs to also be transparent and non-discriminatory.

5.3.1 Transparency

Section 24(8) of the 2011 Act requires An Post to publish notice of any price changes with respect to the universal service provision on its website, and by any such other means as the Commission may direct. These changes cannot then come into effect until at least 14 days after the date of publication. As all products that fall within the scope of the price control are also universal service products, this requirement will ensure the transparency of tariffs set under the price cap. In line with the 2011 Act, ComReg may wish to specify other means of publication. This may include, direct notification to all account customers for example.

5.3.2 Non-discrimination

In making our recommendations on the appropriate number of baskets and sub-controls (if any), we gave significant consideration to the required trade-off between:

- allowing An Post sufficient commercial freedom to rebalance prices in order to:
  - achieve cost orientation and non-discrimination between products; and/or
  - react to competitive market constraints; and
- ensuring that actual or prospective competition is not foreclosed (for example, through predatory pricing) and postal service users are protected from excessive prices (i.e. prices in excess of cost where there is no prospective competition).

5BCompliance with section 28(1) tariff requirements

This was informed by a competition assessment of each product within the scope of the price control. The results of our analysis suggested that one basket with sub controls on Standard Post – Stamp, Label and Meter (Letter) is sufficient to achieve this trade-off. This is complemented by our recommended use of fixed weights within the tariff basket. Together, we believe that these design features of the price control should be sufficient to prevent An Post from setting discriminatory tariffs for products that fall within the scope of the price control.

5BCompliance with section 28(1) tariff requirements

6 Summary and next steps

Here we provide a summary of our recommendations in relation to setting the price cap for An Post products that fall within the scope of the price control. It also provides guidance to ComReg on how compliance with the price cap can be ensured and what should ideally be considered as part of the next price control review.

Below we cover our recommendations in relation to:

- the outstanding high level design features on which ComReg must make a decision;
- the calculation of the X-factor(s);
- the process that should be undertaken in order to ensure compliance with the price cap; and
- the appropriate considerations for ComReg during the next price control review.

6.1 High level design features

Following the first consultation of the price control process, ComReg issued Decision D13/13. This Decision identified a number of key design features of the price control. Other matters were left open until more information was available. This section provides our recommendations on each of this latter set of decisions.

6.1.1 Number, characteristics and form of the price control baskets

Based on our assessment of the information provided by An Post, we recommend that one price control basket should be used. This should be combined with limits on the degree of pricing freedom afforded to An Post.

We recommend that the limits on the degree of pricing freedom afforded to An Post take the form of limits on the annual percentage change in price allowed for particular postal services. Further, based on our demand and supply side analysis, consideration of ComReg statutory responsibility and size of regulatory burden, we recommend that the following products have such sub-caps placed on them:

- Standard Post – Stamp and label (Letter);
- Standard Post – Meter (Letter).

The final decision to be made in relation to the price control basket(s) is the appropriate weighting of each of the products within a basket. We recommend

that fixed weights are used. Specifically, we recommend that the fixed weights should be a proportion of base year volumes.

6.1.2 Uncertainty and risk

In order to protect An Post against non-manageable risks over the price control period, we recommend that, in setting the price cap, ComReg includes a 'buffer' to cover the universal service provider for the risk of unexpected exogenous shocks. Further, we recommend that this 'buffer' takes the form of a margin on opex.

To provide a further mechanism by which non-manageable risks to An Post can be reduced, we recommend that ComReg include provisions within the price control framework for An Post to request ComReg to review the price cap decision. In line with the 2011 Act, such a request may only be made 3 years or more after the initial price cap decision is implemented by ComReg. It should also only be made in relation to non-manageable risks that are not covered through the mechanism described above. Such a provision should therefore only allow An Post to request a review if:

- volumes of price controlled products depart significantly from those forecast at the start of the price control period, such that the sustainability of the USO would be threatened in a situation where An Post meets the efficiency targets and other requirements of the price control; or
- An Post experiences other material changes in circumstances that threaten the sustainability of the USO e.g. a significant increase in pay.

6.1.3 X-factor calculation

The final key design feature, on which a decision must be made, is the calculation methodology of the X-factor in the CPI-X% price control. We recommend that the X-factor for 2014/15 is set separately than that for 2015/16 – 2018/19 to ensure a faster return to profitability for An Post's price controlled products.

6.2 Calculation of the X-factor(s)

This section provides the X-factor(s) that result from our recommendations around each of the key assumptions for the price cap model. We begin by summarising the key assumptions we recommend.

6.2.1 Key assumptions

Table 7 summarises our key recommendations to ComReg in relation to the assumptions feeding into the calculation of the X-factor.

Table 7. Key recommendations

Assumption	Recommended approach
Year-on-year volume growth	An Post's central scenario
Take up of DSA and direct customer agreements	0-10% of Discount 6 Ceadúnas volumes in 2014/15 and 0-10% in 2015/16
Price elasticity of demand	-0.22
Cost marginality	36%
Efficiency target	Lower to mid end of the 7-22% range
Proportion of An Post's capex forecasts allowed	100%
Profit margin	0-2% for 2014/15 and 2-4% for 2015/16 - 2018/19

6.2.2 Recommended X-factor(s) within ranges of recommended approach above

Based on the central case scenario inputs we calculate the following X-factors:

- **2014/15 X-factor:** -14.98%; and
- **2015/16 - 2018/19 X–factor:** -1.35%.

6.3 Compliance

The final decision on the X-factor and any sub-caps on individual products will be made by ComReg following the second consultation of the price control period. An Post must then comply with these price caps for the duration of the 5-year price control period, unless a review is undertaken by ComReg after 3 years and the X-factor or sub-caps are adjusted as a result.

To ensure compliance with the X-factor determined by ComReg, An Post must set prices such that, across all price controlled products, the total weighted average price increase in each year of the price control does not exceed the annual percentage change in CPI, minus X. We recommend that the price increase associated with each product should be weighted by the base year volumes for each product. The final decision on weighting is subject to the outcome of ComReg's consultation process. As is consistent with the calculation of the X-factor, we also recommend that the most recent IMF CPI forecast is

used for the year in question. For those products subject to a sub-cap, An Post must also ensure that the total price increase in each year of the price control does not exceed the limit set by the sub-cap in that year.

Section 30(13) of the 2011 Act specifies that where ComReg is of the opinion that a universal postal service provider is not complying, or has failed to comply with a price cap decision, it may give direction to the universal postal service provider to ensure compliance with the decision concerned. In order to monitor compliance, ComReg has two options:

- ex-ante verification of compliance before any price changes proposed by An Post come into effect;
- ex-post verification of compliance at some pre-specified point in time, e.g. the next price control review.

Under the second option, if ComReg was to find that An Post had not complied with the price cap (or any sub-caps) during period under review, then the associated revenue may be "clawed-back" from An Post as part of ComReg's next price control determination. To increase regulatory certainty for An Post, its customers and competitors, we therefore recommend that ComReg implements the first option.

Section 24(8) of the 2011 Act requires An Post to publish notice of any price changes with respect to the universal service provision on its website, and by any such other means as the Commission may direct. As soon as practicable thereafter, An Post must notify ComReg in writing of these amendments. These changes cannot then come into effect until at least 14 days after the date of publication. We recommend that ComReg reviews compliance with the price control following notification in writing by An Post, before the changes come into effect. In order to ensure that prices published on An Post's website are not subsequently changed following this review, An Post may wish to notify ComReg in advance of this publication.

6.4 Considerations for the next price control review

Pursuant to section 30(9) of the 2011 Act, before the end of the 5 year price control period, ComReg shall conduct a review of the price cap. Following such a review, for the purposes of protecting the interests of postal service users and of ensuring compliance with the tariff requirements set out in section28(1), it may make a further price cap decision. Here we set out the key considerations for ComReg in undertaking this review.

These considerations are all relating to the forward looking review over the next price control period. If ComReg was to opt for ex-post verification of compliance at each price control period, there would also be a backward looking element to this review.

In relation to the forward looking review, there are a number of key considerations which ComReg should have based on the important areas which have been highlighted by this first review:

- the list of products falling within the scope of the price control;
- the assumptions around take-up of DSA and direct customer agreements;
- planned capex over the next price control period; and
- appropriate efficiency targets (if any).

We discuss each in turn below. This review will also require expected year-on-year volume growth rates over the next price control period and an assessment of whether An Post's cost marginality has changed. ComReg should also consider the appropriateness of setting more than one X-factor over the period, and if so, whether it is appropriate to include a price elasticity effect. If this is deemed appropriate, ComReg should again determine the appropriate price elasticity estimate to be used.

6.4.1 Scope of the price control

The first key area for consideration by ComReg at the next price control is the scope of the price control for the next price control period. It may be appropriate to remove products that currently fall within the scope of the price control. Likewise, it may be appropriate to bring other non-price controlled universal service products within the scope of the price control.

Pursuant to the 2011 Act, for a product to come under the scope of the price control, ComReg must be of the opinion that the product faces no effective competition in the market for its supply. The key question to ask for each of the products under consideration is:

> **What constraints are there on An Post's pricing behaviour in relation to the postal service?**

6.4.2 DSA and direct customer agreements

Following our review of the evidence provided by An Post regarding expected take up of DSA and direct customer agreements, it is clear that there is still a high degree of uncertainty around the take up that may materialise over the period. At the next price control review, we would expect there to be a clearer idea of the popularity of these products and whether there will be any further take up.

6.4.3 Planned capex

In order to assess whether the full amount of An Post's planned capex over the price control period can be included in the price cap calculation, ComReg must

6BSummary and next steps

come to a decision on whether this capex is well justified and is efficiently incurred. During this price cap setting process, An Post has not provided a list of the investments included in the aggregate USO capex figure, or detailed investment plans for ComReg's scrutiny. At the next price control review, it is essential that An Post provide well justified investment plans to accompany any planned capex over the period.

6.4.4 Efficiency analysis

The final key consideration for the next price control period, is the appropriate efficiency target (if any) for An Post. In order to comply with the 2011 Act, it is essential that the assessment of An Post's efficiency is an on-going process, with An Post being re-benchmarked at every price control review.

The efficiency analysis undertaken at this price control review, focussed on internal benchmarking. Although internal benchmarking is one method for assessing efficiency, there are clearly others which have not been considered in this assessment but can form part of any efficiency reviews ComReg undertakes in subsequent price controls. Among others these include:

- external benchmarking:
  - with postal operators in other countries; and/or
  - with other regulated businesses in Ireland.
- comparing remuneration levels - benchmarking pay rates of postal workers with those of comparable occupations in other sectors; and
- examining individual investments and initiatives undertaken by An Post in detail to determine whether they achieve their planned objectives.

Further, the efficiency analysis undertaken to date has focussed on assessing the static efficiency of An Post. We proposed that the dynamic efficiency target is set to zero in this price control. This was appropriate given the size of the static inefficiency efficiency estimates and the decision to use a glide path towards this target. We recommend that ComReg gives consideration to dynamic efficiency targets in future price controls.

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