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Cross-Border Parcel Delivery Prices: Intuitions drawn from the world of telecommunications

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Cross-Border Parcel Delivery Prices:[1]
Intuitions drawn from the world of telecommunications

J. Scott Marcus and Georgios Petropoulos[2]

Abstract

In its Digital Single Market (DSM) strategy, the European Commission has rightly noted the importance of lowering the price paid for basic cross-border delivery by consumers and by small and medium size retail shippers. Consumers and SMEs may have few alternatives to the National Postal Operators (NPOs), or may be unaware of the options that they have. These concerns led to the Commission to put forward a legislative proposal in May 2016.[3]

With its legislative proposal, the Commission has sought (1) to strengthen the data gathering powers of Member State postal regulatory authorities, and to oblige them to collect data at both retail and wholesale levels; (2) to increase transparency into pricing for those who use cross-border parcel delivery services; (3) to oblige Member State postal regulatory authorities to assess annually the affordability of these services; and (4) to open cross-border Terminal Dues (TD) and Inward Land Rates (ILR) arrangements to competitors

There are parallels that can be drawn between the payment flows for cross-border parcel delivery and those of telecommunications, especially those of international mobile roaming. As with roaming, it is clear that the linkages between wholesale payments between and corresponding retail prices need to be properly understood in order to craft good policy. Another useful lesson is that Member State postal regulatory authorities are unlikely to address cross-border problems not only because of limitations in their respective mandates, but also because they have no incentive to take challenging measures to benefit residents of other countries. There are, however, also important differences between roaming versus parcel delivery. Where high wholesale charges were a major driver of high retail prices for international mobile roaming, the wholesale payments for cross-border parcel delivery appear instead to be below cost. This implies that it is the "spread" between retail price and the wholesale payment that is inflated, at least for small retail shippers and for consumers.

Reviewing the Commission's proposed Regulation with all of this in mind, it appears to be on target. The main question that remains open is whether NPOs will be able to adjust TD and ILR rates upward to reflect true costs, as they will be strongly motivated to do; here as well, however, there are grounds for cautious optimism.

[1] This paper draws heavily on "E-Commerce in Europe: Parcel Delivery Prices in a Digital Single Market" by the same authors, Bruegel Policy Contribution 2016/09.

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[3] European Commission (2016), Proposal for a Regulation of the European Parliament and of the Council on cross-border parcel delivery services, COM(2016) 285 final.

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1 Introduction

The growth of e-commerce represents a substantial growth opportunity for Europe. The ability of Europe to fully capitalise on this opportunity appears however to be limited by the high prices paid for the shipment of goods across national boundaries within the European Union. In its *Digital Single Market (DSM)* strategy (European Commission, 2015) and elsewhere, the European Commission has repeatedly signalled its intent to reduce cross-border parcel delivery prices and to increase the transparency of retail pricing for cross-border delivery services, an initiative that we consider to be on target. These concerns led to the Commission to put forward a legislative proposal in May 2016.[4]

For reasons that will soon become clear, our concern here is with basic cross-border delivery services, not with express or courier services; our primary focus is on *business-to-consumer (B2C)* shipments rather than *business-to-business (B2B)*; and the concern is far greater for shipments by consumers, micro-enterprises, and *small and medium enterprises (SMEs)* than for large shippers. Our focus is on the *national postal operators (NPOs)*, who continue to play a major role in these cross-border shipments. This has also been the Commission's central focus.

Inflated prices for cross-border delivery can negatively impact Europe in many ways:

- For B2C shipments, if the price of cross-border shipment is inflated, this price will ultimately paid by the consumer one way or another and is likely to depress demand.[5] Purchases that might have been made but were not because of over-pricing[6] represent a welfare loss to European society.
- Consumers may look only on domestic websites instead of checking websites in other member states because they (rightly or wrongly) fear high delivery charges. Analogously, small shippers might decline to offer services in other member states because they lack the knowledge or scale needed to offer services there. In both cases, potential *gains in trade* are foregone if a better or less expensive product that could have been purchased is not in fact purchased.[7]
- European competitiveness is lost relative to the EU's global competitors. That SMEs are strongly impacted is particularly worrisome given that Europe is to some extent seeking to catch up with B2C providers elsewhere that were quicker than European firms to capitalise on e-commerce opportunities. European firms seeking to achieve market entry in the face of competition from global giants like Amazon should not be needlessly hobbled by Europe's own postal pricing arrangements.

[4] European Commission (2016), Proposal for a Regulation of the European Parliament and of the Council on cross-border parcel delivery services, COM(2016) 285 final.

[5] This effect would operate through the *price elasticity of demand*. It is sometimes argued that the price that the consumer pays to the retail shipper is irrelevant because retailers offer free or discounted delivery. It is indeed fair to assume that the explicit delivery charge that the consumer sees does not necessarily bear much of a relationship to the (unknown) price paid by the retailer to the delivery service (see for instance Henrik Okholm et. al. (2016), Copenhagen Economics, Principles of E-Commerce Parcel Prices, pages 21-24.). This is however rather beside the point. The retailer will consider the true costs of shipping goods when it determines the price of the goods sold.

[6] To an economist, this can be understood as a *deadweight loss*, and can be analysed using *Harberger's Triangle*.

[7] The desire to obtain these gains in trade is the reason why countries seek *Free Trade Agreements (FTAs)*.

- Shippers might be obliged to warehouse goods at more locations than would have been necessary if prices were more reflective of underlying costs.[8] This again represents a competitive disadvantage in comparison with other regions of the world.

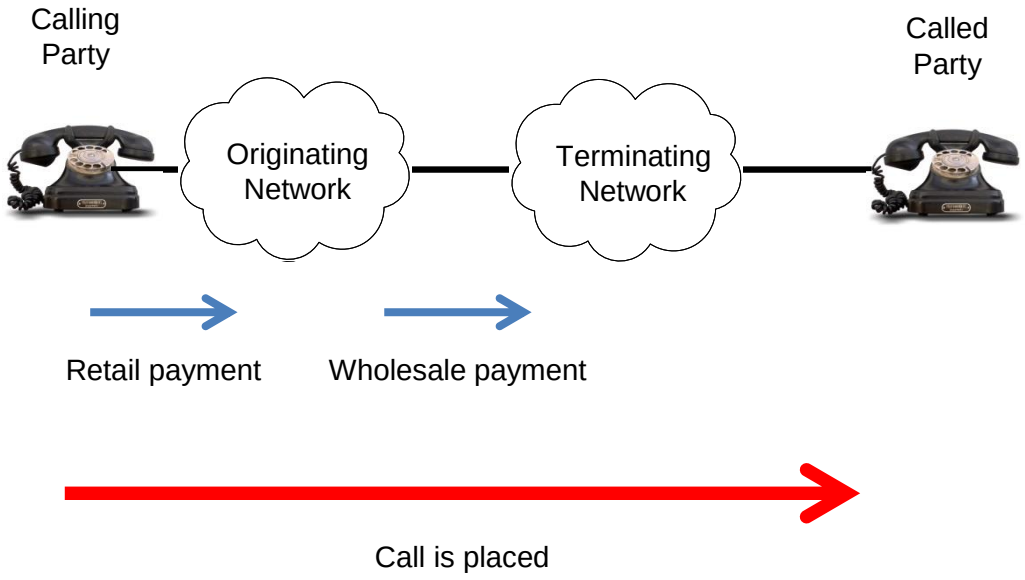
[8] It is sometimes argued that goods are not necessarily shipped from the country associated with the website (see Henrik Okholm et al. (2016), "Principles of e-commerce delivery prices", Copenhagen Economics, page 11: "In fact, a large share of online transactions that are perceived as domestic by consumers involve a cross-border element."). This is absolutely correct, and reflects a beneficial cost optimisation on the part of the shipper, but is somewhat irrelevant to the concern that fulfilment centres are not necessarily placed where they would be if the delivery were fully reflective of cost.

2 Cash flows in telecommunications versus those of parcel delivery

A good starting point for an examination of the economics of cross-border parcel delivery is the well-understood economics of cross-border telecommunications. These similarities seem clear to us, but seem not to be obvious to the relevant regulatory authorities. A 2015 joint report of the Body of European Regulators for Electronic Communications (BEREC) and the European Regulators Group for Postal Services (ERGP), for instance, argued that *"the contract for an international roaming service is between the consumer which originates a call/SMS or uses data and their mobile service provider*, [while] *the contract for an intra-EU cross-border parcels service is between the online retailer or sender of the parcel and the parcel delivery operator"*[9]. In fact, the cash flows for parcel delivery are similar to those of many telecommunications applications, and are nearly identical to those of Internet content delivery.

It is easier to demonstrate this similarity in terms of telecommunications interconnection than in terms of the rather messy arrangements for international mobile roaming. In the case of telephony, the calling party pays for the call at a retail rate. In most of the world, the receiving party typically does not pay. The network that serves the calling party (the *originating network*) makes a payment at wholesale level to the network that serves the receiving party (the *terminating network*), which would otherwise receive no explicit revenue for the call[10].

Figure 1. Cash flows for telephony interconnection.



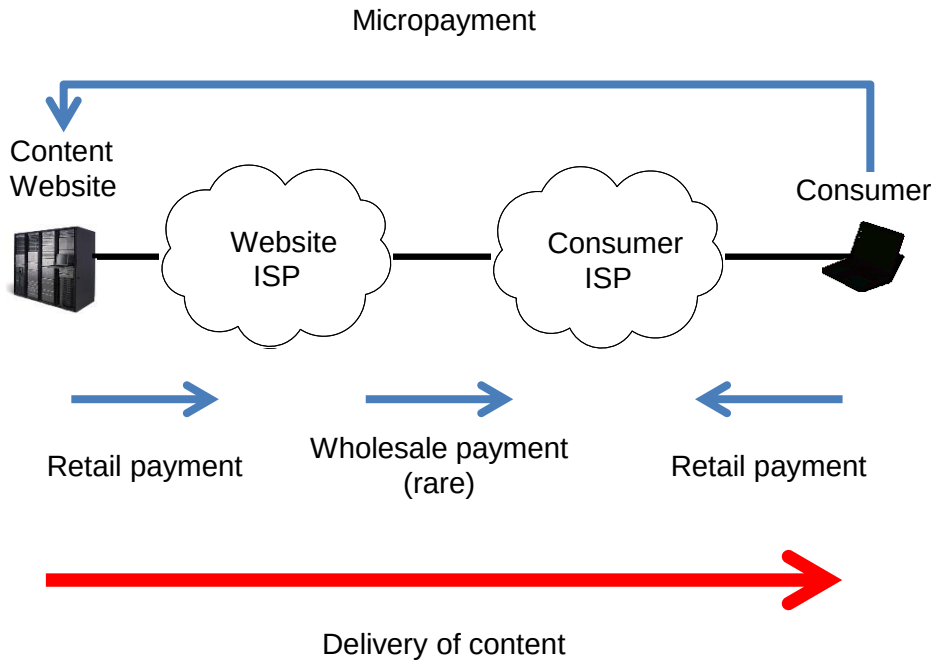
Source: Marcus and Petropoulos

This basic model was expanded in 2003 to deal with Internet interconnection (Laffont *et al*, 2003). Different *Internet Service Providers (ISPs)* are assumed to serve *websites* and *eyeballs* (consumers), respectively, thus taking an approach broadly in line with subsequent analysis of the economics of two-sided markets (Rochet and Tirole, 2004). Here, the consumer who

[9] BEREC/ERGP (2015), page 14. They advance other equally unpersuasive arguments.
[10] Laffont *et al* (1998a); Laffont *et al* (1998b); and Armstrong (1998).

receives content sometimes makes a direct payment to the website (a *micropayment*). The website and the consumer each make retail payments to their respective ISPs. Payments between the ISP that serves the website and the ISP that serves the consumer were the main focus of the Laffont et al, 2003 paper, although they are not very common today[11].

Figure 2. Cash flows for Internet interconnection.

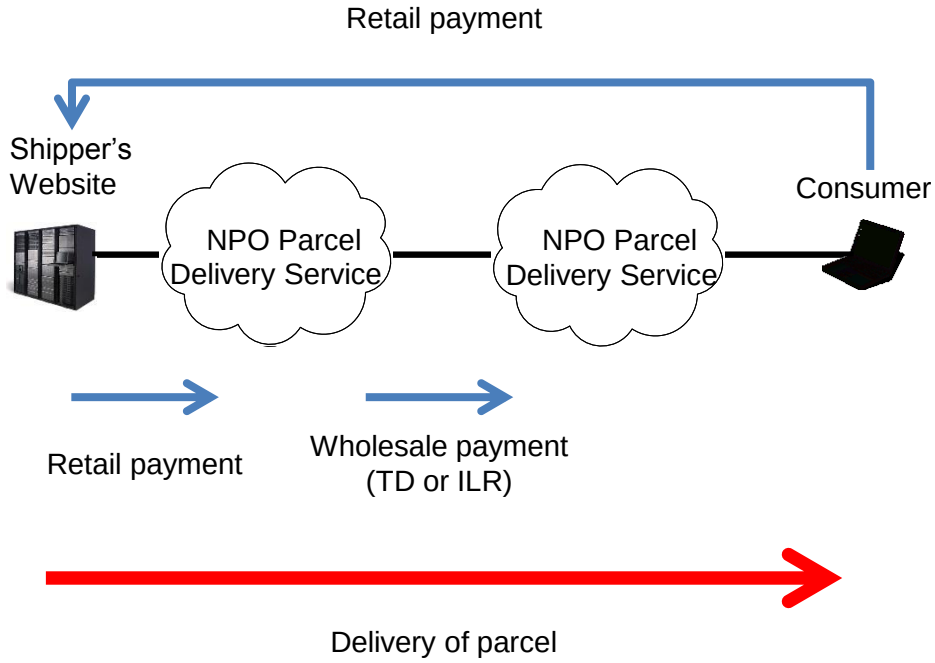


Source: Marcus and Petropoulos

It should be obvious that the flow of payments when goods are ordered for physical delivery by the National Postal Operators (see Figure 3) is much the same as the flow of payments when services are ordered for delivery over the Internet, except that the recipient of the parcel typically does not pay the parcel service for receiving it (similar to the telephony example in Figure 1); rather, the payment flows to the retailer or sender of the parcel. This payment plays precisely the same role as a micropayment to a content website (see Figure 2). In fact, the sender in these two examples might be the same firm – if one chooses to order video content from, for example, Amazon, one might choose between streaming video over the Internet versus physical shipment of a DVD. The amount paid will be different in the two cases, but it is the same retail merchant, the same payment channel, and largely the same flow of payments (with ISPs taking the place of National Postal Operators).

[11] Since the consumer's ISP receives retail revenue (often at a flat rate), unlike the network of the called party, and since usage-based costs tend to be low, the wholesale payment is not essential here.

Figure 3. Cash flows for parcel delivery.



Source: Marcus and Petropoulos.

The literature on cross-border parcel delivery rightly notes that many retailers do not explicitly charge for domestic shipping.[12] It should however be clear from Figure 3 that the aggregate payment from consumer to retailer is what matters for most purposes, not how the payment is structured. One can reasonably assume that the retailer structures its retail prices in such a way that it recuperates (on average) its costs, including the cost of shipping.

For the most common postal (cross-border) services, payments between postal operators are referred to as *terminal dues (TDs)*. Terminal dues are relevant not only for letters, but also for small parcels (less than 2 Kg) delivered as letter post. *Inward Land Rates (ILRs)* are the wholesale payments between NPOs for heavier parcels of between 2kg and 20kg (up to 31kg in some countries).

[12] See for instance Okholm et. al. (2016), Copenhagen Economics, Principles of E-Commerce Parcel Prices, pages 21-24.

3 Are cross-border parcel delivery retail prices inflated?

We note at the outset that substantially all of the research that has been conducted to date on the pricing of parcel delivery, including our own, share the limitation that they are based on published list prices, despite the lack of data on how many firms actually pay these prices, how different they are from the discounted prices actually paid, and the actual sources and destinations of parcels shipped. A recent paper explained succinctly that these published prices are not necessarily reflective of prices that are typically paid, and "… give only an approximate upper bound of the price differential between domestic and cross-border shipments. That being said, we have to accept the fact that public list prices are the better available proxy to tackle the issue".[13]

3.1 Domestic versus cross-border delivery

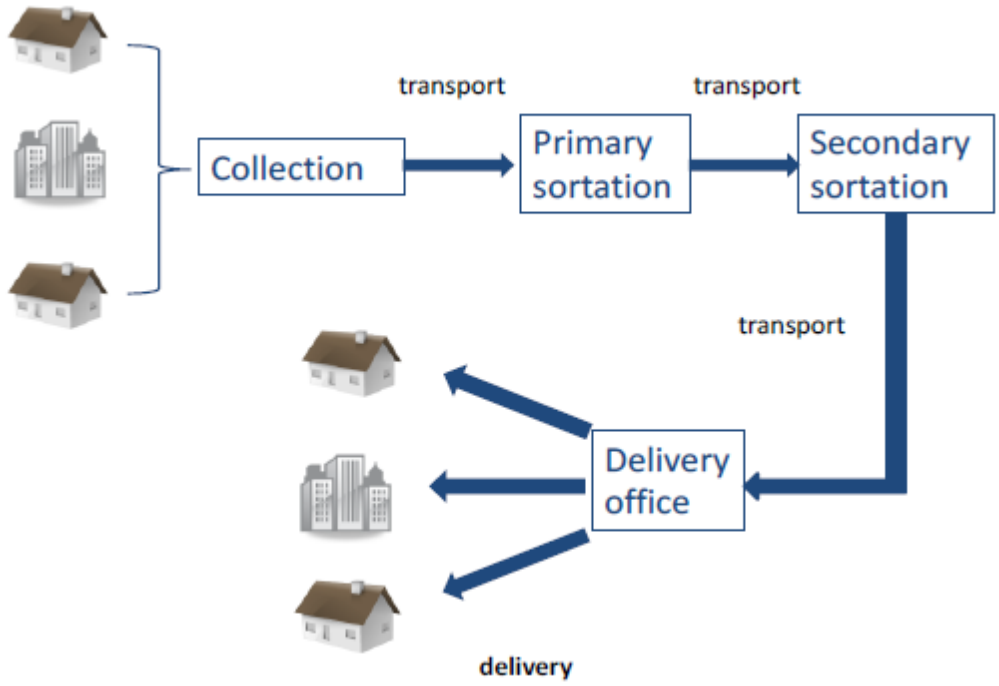
In assessing the costs of cross-border delivery, it is important to bear in mind that the NPOs have significant additional work to do for cross-border delivery in comparison to domestic delivery. Some of this extra work relates to the distance over which the parcel has to be shipped, but much more of the extra work relates to relabelling and otherwise mapping one NPO's services and processes to those of another. These re-mapping costs are largely unknown, but might be quite substantial.

This extra work means that it is legitimate for cross-border prices to be somewhat higher than domestic. The question is, *how much higher*?

It is clear that cross-border delivery involves a longer chain of operations than domestic delivery, and therefore more cost. For domestic delivery, the chain of operations can be conceptualised as shown in Figure 4.

[13] Claire Borsenberger and Lisa Chever (2016), "The Drivers of Cross-Border Parcel Delivery Prices: An Econometric Study at the EU Level", for Le Group La Poste.

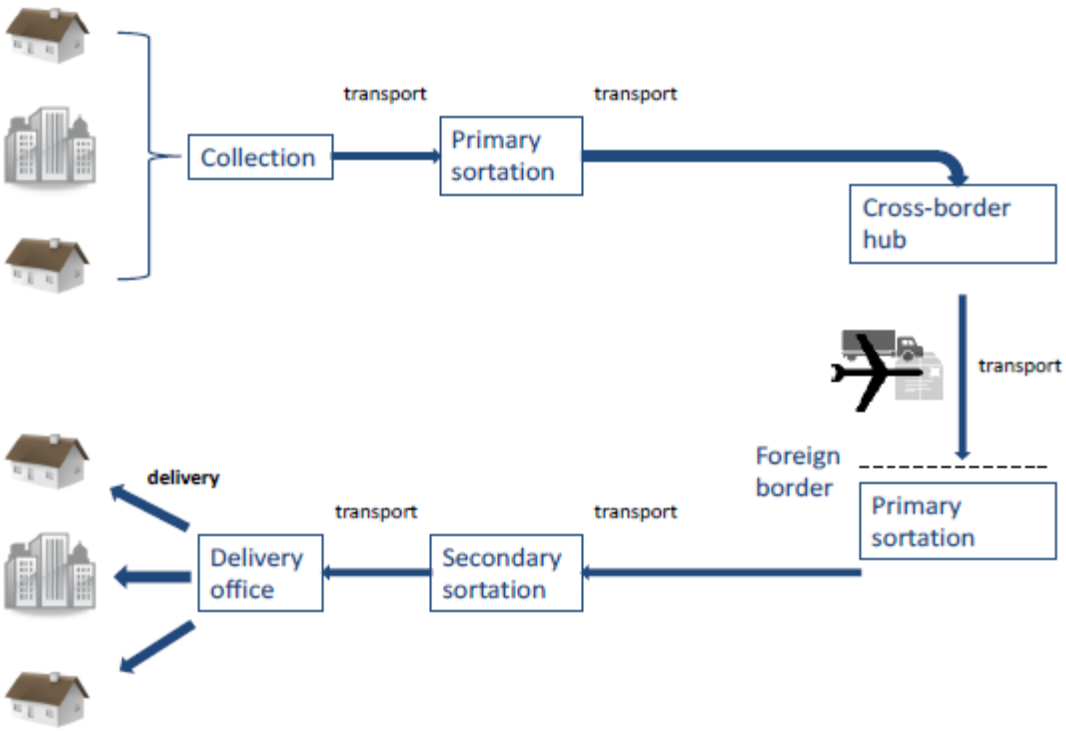
Figure 4. Steps in domestic postal delivery.



Source: FTI (2011).

For cross-border delivery, the transport operation is more extensive, and additional steps are required (Figure 5); therefore, the cost to the delivery service is likely to be greater and it should consequently be no surprise if the price is set somewhat higher. Other factors could also contribute to legitimately higher costs than for domestic delivery, including different labour rates or currency exchange fluctuations.

Figure 5. Steps in cross-border parcel delivery.



Source: FTI (2011).

We also note that most NPOs offer either a single retail price for parcel delivery to most of Europe, or some other aggregation of prices. Consumers generally appreciate the simplicity of these arrangements. In comparing prices, however, this can lead to counter-intuitive *border effects* – the price of shipping a parcel to an adjacent country is often much higher than the price for shipping the same parcel to a more distant location in one's own country. These border-effect price differences should be viewed, other things being equal, as legitimate.

3.2 Consumers and retailers are concerned about cross-border delivery prices

From the perspective both of those that already conduct e-commerce across borders, and those that do not, there is no question that the cost of cross-border parcel delivery is *perceived* as a problem.

Eurostat (2015) conducted a comprehensive survey of businesses in 2015. Among firms already conducting e-commerce on a cross-border basis (or that did so in the past), 51 percent said delivery prices were too high when selling to other EU countries, and 27 percent said this was a *"major problem"*. Among companies that did not sell online to other EU countries but were trying to at the time of the survey, 62 percent said that high delivery costs were a problem, and 41 percent considered these costs a *"major problem"*. Of firms not selling online, 57 percent said that delivery costs were too high, and that this was a major problem.

Significantly, for all three groups, high delivery costs were perceived as the most serious single barrier to cross-border e-commerce.

3.3 Results from the literature

FTI Consulting (2011) attempted a comprehensive assessment for the European Commission of whether wholesale and retail parcel delivery prices were inflated.

A first key finding was that "… market conditions are very different for large and small senders. Large senders operate in a competitive European cross-border parcels environment, and have much choice and bargaining power vis-a-vis suppliers. The prices they pay are negotiated. By contrast, many small senders tend to use the services of national postal operators, even in cases where they do have alternatives. As a result, they pay higher cross-border prices, as compared to domestic ones. These higher prices could be due to higher cross-border unit costs linked to the smaller scale of cross-border operations; and/or to insufficient competitive pressure, i.e. to the existence of market power."

FTI (2011) concluded, after correcting for factors that make cross-border delivery more costly than domestic, that "… cross-border prices are indeed much higher than domestic benchmark prices and therefore too high. For parcels, they are on average twice as high as domestic benchmark prices, while for packets, which are part of letter mail, they are about 30% higher."

Claes and Vergote (2016) carried out another econometric study for the European Commission in late 2015. They found that "on average, cross-border prices are 324 percent higher than their domestic counterpart for letters and 471 percent higher for parcels." Based on our own assessment (see Section 3.4), the 471 percent may possibly be too high.[14]

Borsenberger and Chever (2016) argue that the Claes and Vergote study suffers from methodological flaws. They develop an econometric model that is a refinement of that of Claes and Vergote, with significantly greater explanatory power. They argue, in effect, that some of the over-pricing implicitly claimed in Claes and Vergote (2016) can be explained by legitimate differences in underlying costs.

3.4 An assessment based on published retail prices

It is clear based on underlying cost considerations that retail prices for cross-border parcel delivery should be higher than domestic, but how much higher?

This question has been explored several times by means of econometric analysis, as noted in Section 3.3, but a first order review of retail prices in a range of member states[15] (even at some risk of over-simplification of a complicated space) can provide a different and complementary view.

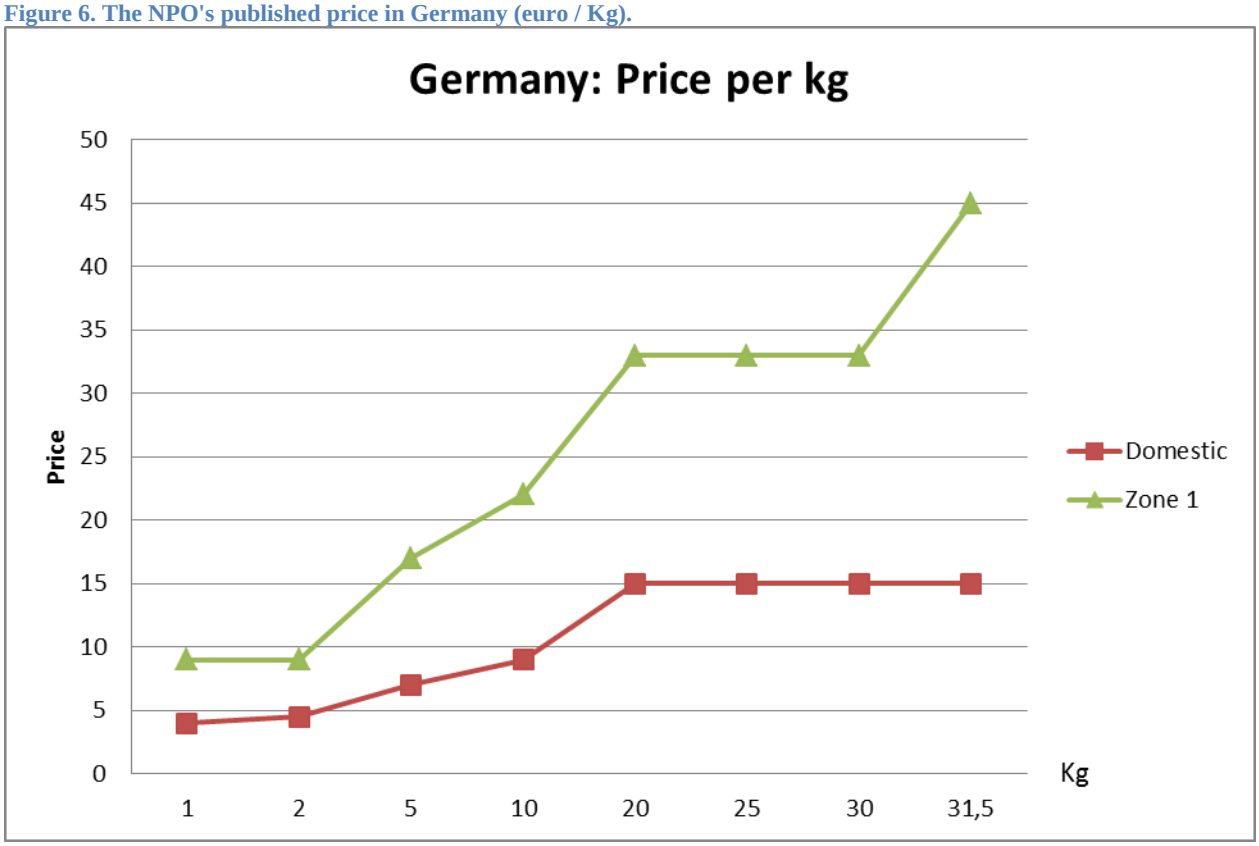
[14] Claire Borsenberger and Lisa Chever (2016), "The Drivers of Cross-Border Parcel Delivery Prices: An Econometric Study at the EU Level", for Le Group La Poste.
[15] All prices are based on a review of NPO websites during the first four months of 2016.

Figures 6 and 7 show the price per kilogramme for domestic and cross-border parcel delivery for a large central European country, Germany and a smaller peripheral one, Greece[16]. These two member states have substantially different published postal pricing arrangements.

A first characteristic that is evident is that cross-border rates are higher than domestic – from twice as high to three times as high in the upper weight categories in Germany, but an order of magnitude higher in Greece.

A second and rather surprising characteristic is that, while domestic prices are roughly linear as a function of weight, cross-border prices show a definite upwards tendency with increasing weight (i.e. the second derivate is positive). This is not what one would expect – if labour costs predominate, then costs should be driven more by the number of items than the weight, and the curve should slope downwards, not upwards.[17]

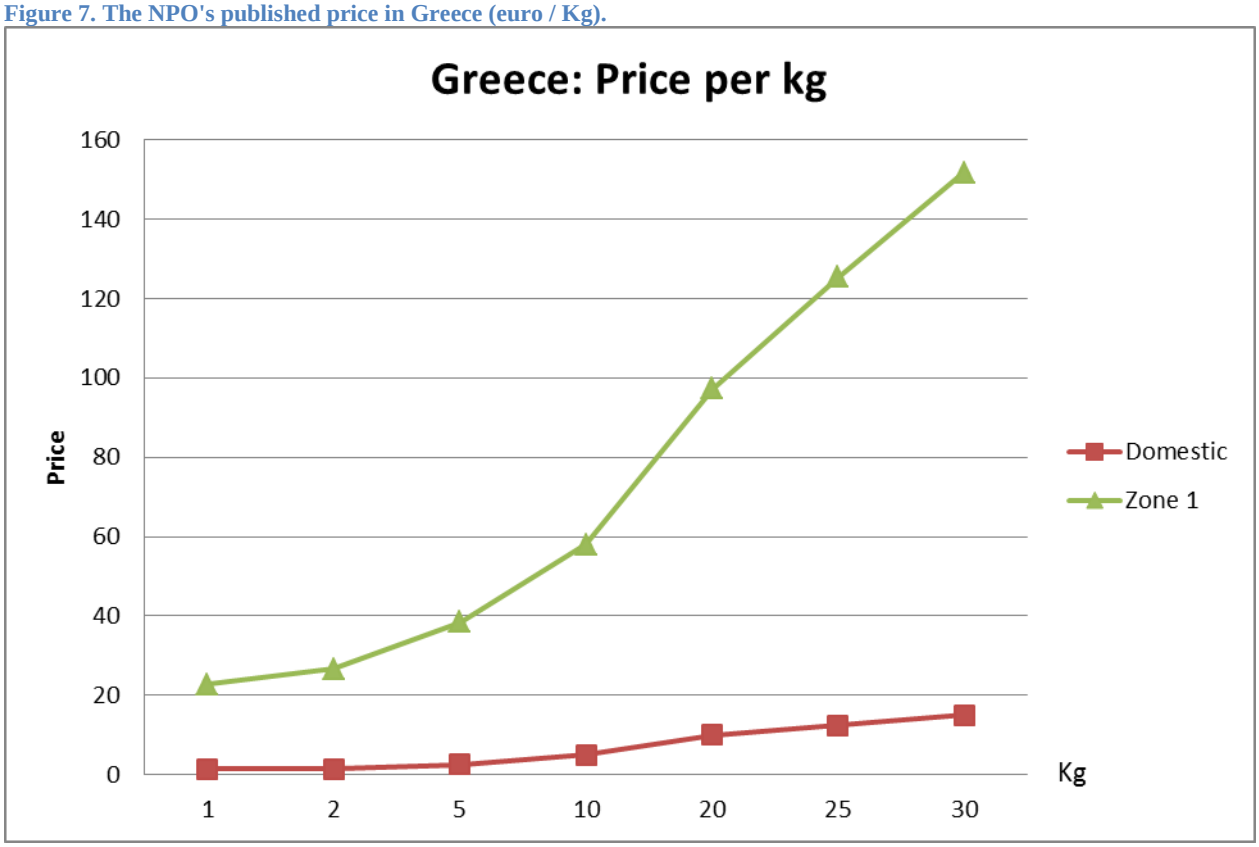
Figure 6. The NPO's published price in Germany (euro / Kg).



Source: Marcus and Petropoulos.

[16] For cross-border parcel delivery, we looked at prices for the countries often referred to as 'Zone 1' (delivery within EU from Germany and Greece).
[17] The finding is, however, consistent with Claes and Vergote (2016).

Figure 7. The NPO's published price in Greece (euro / Kg).

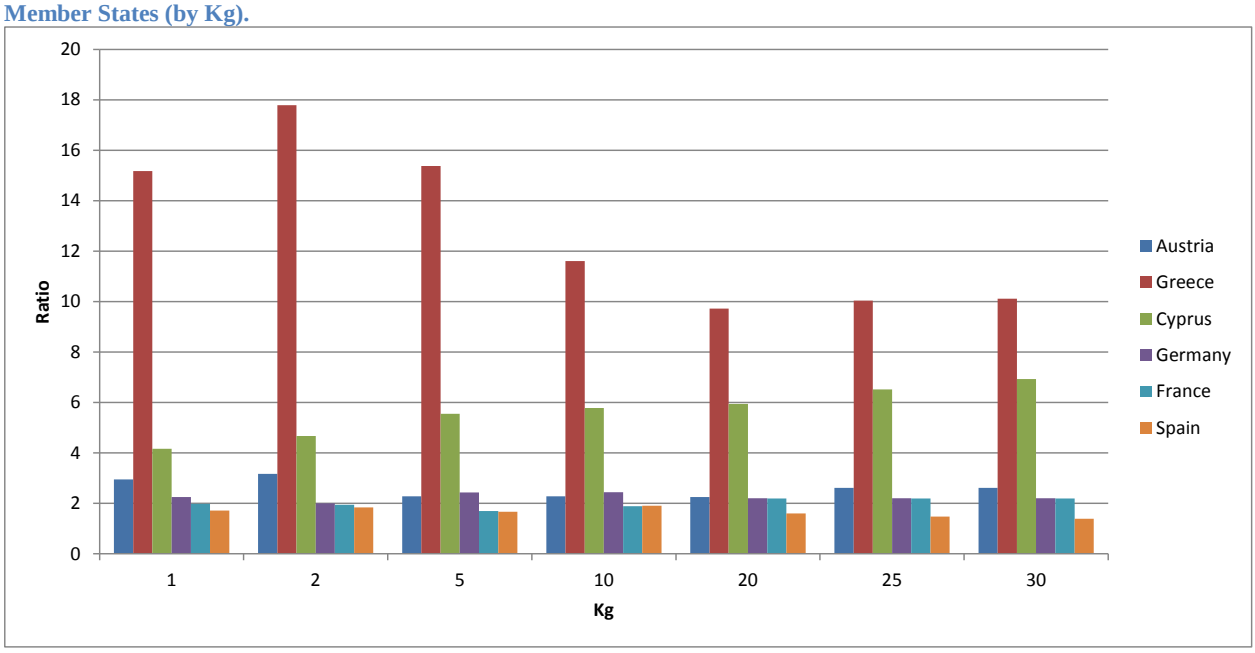


Source: Marcus and Petropoulos.

The ratio between cross-border delivery prices and the equivalent domestic prices (bearing in mind however that the services are not perfectly equivalent) differs greatly between Germany and Greece, and is also a function of the weight of the parcel (Figure 8). The difference is far smaller in Austria, France, Germany and Spain than in Greece or Cyprus[18].

[18] This is consistent with an observation in the FTI (2011) study that economic distortions are less significant in the six largest member states than in many others. The coefficient of variation in these six countries (ie the standard deviation divided by the mean, which provides a normalised measure of variability) ranges as a function of weight from 0.81 to 1.19, which is quite large.

Figure 8. Ratio of NPO European cross-border parcel delivery prices to equivalent domestic prices in selected Member States (by Kg).



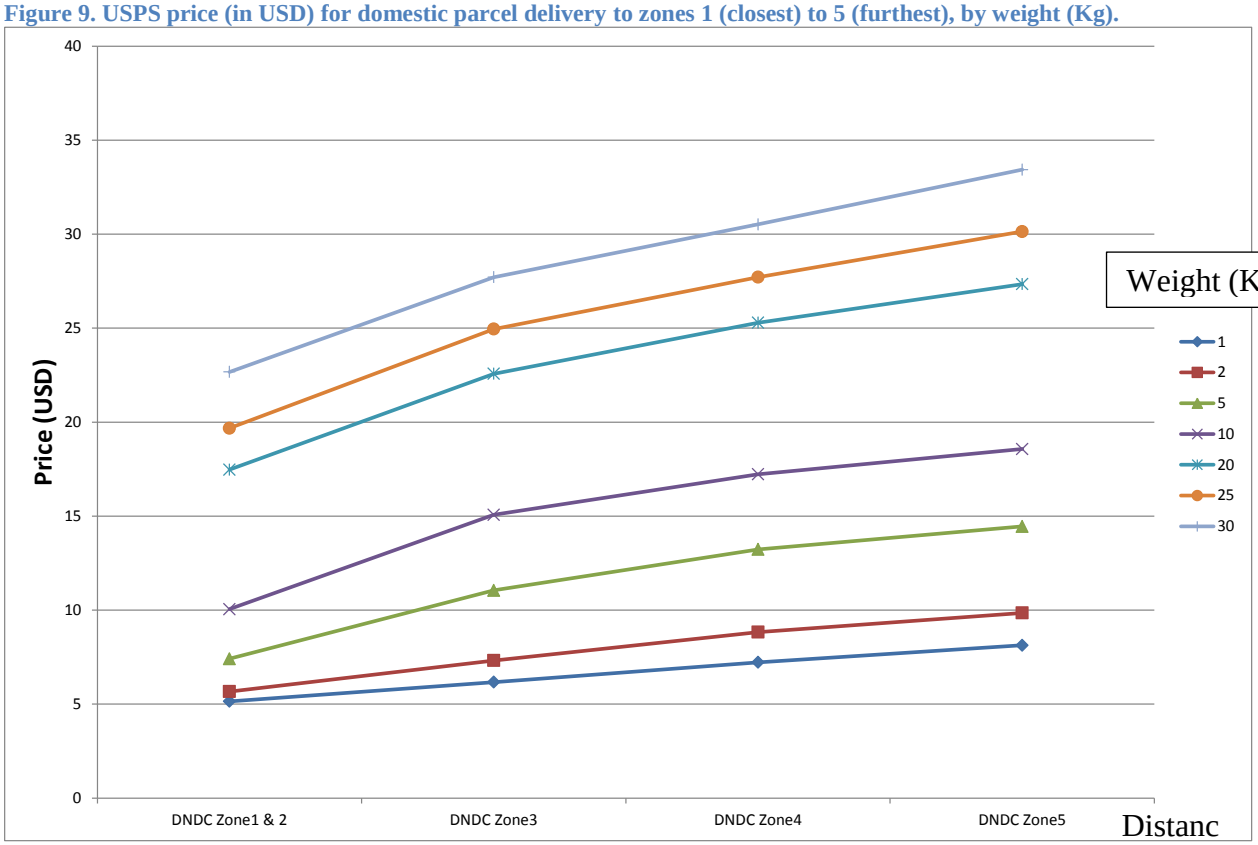
Source: Marcus and Petropoulos

A comparison with parcel delivery prices in the United States is also instructive. The United States is not hugely different from the European Union as a whole in terms of population, area and GDP per capita, but it is a single federal republic that has had a single national postal service since it was founded[19]. Prices for parcel delivery within the United States thus serve as something of a benchmark of what one might expect if European postal service prices were a true reflection of underlying costs, and in the absence of the *transaction costs* imposed by re-mapping of services from those of the sending NPO to those of the receiving NPO.[20]

US prices for domestic delivery of 'machinable' parcels (ie parcels with fairly standard dimensions and falling within prescribed weight limits) show a fairly smooth curve within each weight category from zone 1 (closest to sender) to zone 5 (furthest from the sender)[21]. This is very different from Europe, where prices jump sharply when the first national border is crossed.

[19] There are also competitors that offer nationwide parcel delivery service, such as UPS.
[20] We acknowledge that there are limitations in these comparisons. First, there are challenges in comparing services that are not quite identical. Also, some claim that US postal prices are low by global standards. Nonetheless, the rough comparison is close enough to enable indicative comparisons.
[21] Zones (reflecting distance from the sender) in the US range from 1 through 5.

Figure 9. USPS price (in USD) for domestic parcel delivery to zones 1 (closest) to 5 (furthest), by weight (Kg).



Source: Marcus and Petropoulos

It is difficult to make valid US-EU comparisons because the services are not exactly like for like, and for many other reasons; however, Figure 10 attempts a rough comparison. Each of the six panels shows selected EU member states in ascending order by the domestic price for a 1 Kg parcel. The left-hand panels show the NPO's published price for domestic delivery within each of the selected member states for different parcel weight categories; the right-hand panels show each NPO's published cross-border price for delivery to other member states (either to those that are nearby, or to all EU member states).[22]

For comparison, we also show in each panel the most nearly comparable US Postal Service (USPS) price.

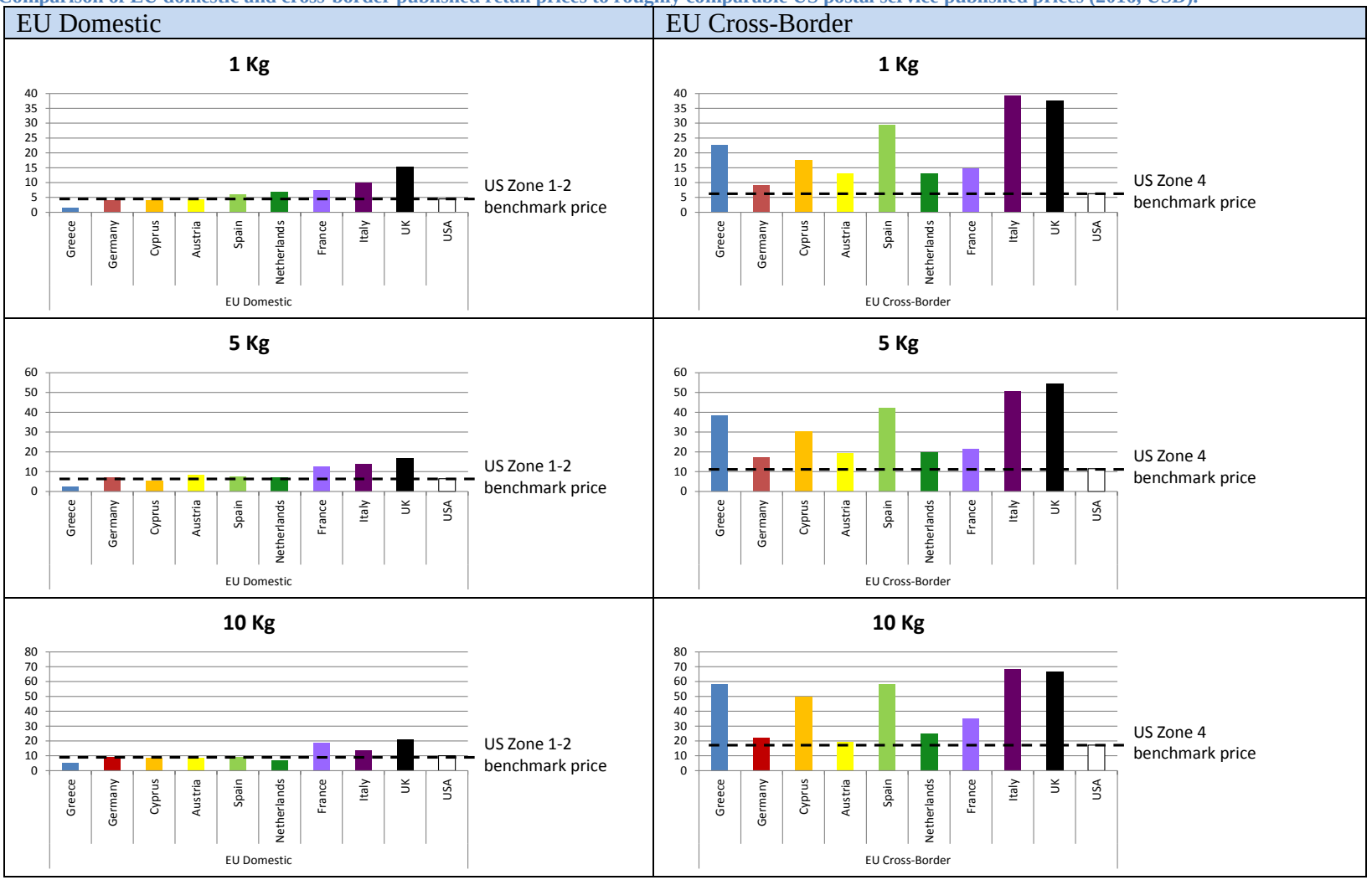
Figure 10 shows that domestic EU prices appear to be somewhat comparable to US prices for short distances, but with a wide range of variation depending on the member state. For 1 Kg parcels (and noting that that parcels of up to 2 Kg may represent as much as 90 percent of all parcels), relatively low domestic parcel delivery prices are found in countries that have low labour costs (such as Greece and Cyprus), and also in some of the larger economies such as Germany (presumably thanks to economies of scale). For 1 Kg parcels, the published price for domestic delivery in Greece is 34 percent of the comparable USPS price, while prices in Italy and in the UK are 221 percent and 346 percent, respectively, of the US price.[23]

For cross-border prices, the spread is far greater, and all EU prices are higher than the corresponding US benchmark – some are much higher. The published price in Germany for

[22] We generally use prices to *Zone 1*, subject however to the caveat that Zone 1 is defined differently in each member state.
[23] Based on euro/USD exchange rates as of the the first week of May 2016.

cross-border delivery of a 1 Kg parcel is 1.43 times greater than the US benchmark comparison price. Published prices in other member states are at least twice the US comparison price. Published prices in Spain, Italy and the UK are respectively as much as 4.71, 6.27 and 6.02 times as great. By any measure, these are large differences.

Figure 10. Comparison of EU domestic and cross-border published retail prices to roughly comparable US postal service published prices (2016, USD).



Source: Marcus and Petropoulos. For domestic prices, we take USPS Zone 1 – 2 prices (covering distances of up to 150 miles or roughly 241 Kilometres) as the benchmark. For cross-border prices, we take USPS Zone 4 prices (covering distances of up to 600 miles or roughly 966 Kilometres) as the benchmark. Note that Zone 5 prices (up to 1000 miles) are not much different – they are 8 percent to 13 percent higher than Zone 4, depending on the weight of the parcel.

4 Are cross-border parcel delivery wholesale prices problematic?

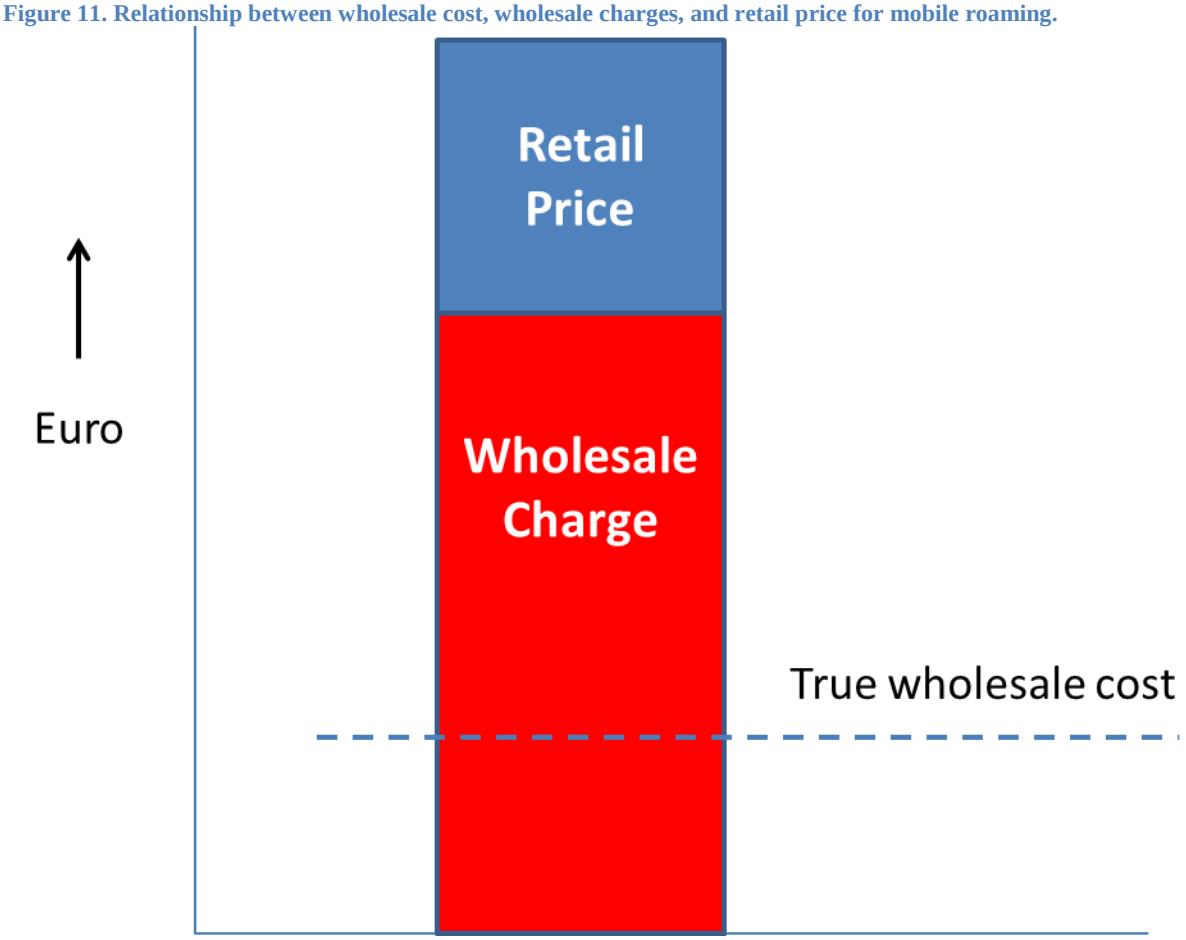
Rather little has been written about wholesale payments between postal providers. We summarise what is known in Sections 4.1 and 4.2.

4.1 What one might have expected based on experience with roaming

The economics of international mobile roaming[24] and the related economics of telecommunications interconnection[25] provide useful insights relevant to the postal sector. Prior to the Roaming Regulation of 2007[26], (1) wholesale charges[27] were greatly in excess of real wholesale costs (representing a huge profit for the visited network); (2) these wholesale charges effectively set a floor for the retail price, since they represented a real cost to the network that provided the retail service (ie the home network); and (3) retail mark-ups over the wholesale charge that have tended to be in the range of 30 percent, both before and after regulation, compounded the problem of high prices because they were effectively in addition to the already high wholesale charge (Figure 11).

[24] See for instance Marcus and Petropoulos (2016); Imme Philbeck *et al* (2012); and Marcus *et al* (2015).
[25] See Laffont *et al* (1998a); Laffont *et al* (1998b); and Laffont *et al* (2003).
[26] The original Regulation was "Regulation (EC) No 717/2007 of the European Parliament and of The Council of 27 June 2007 on roaming on public mobile telephone networks within the Community and amending Directive 2002/21/EC". It was subsequently amended in 2009, 2012, and most recently with Regulation 2015/2120. With international mobile roaming, a mobile phone subscriber places or receives calls or SMS messages or uses mobile data services in a country other than the country in which he or she has his subscription.
[27] Prior to regulation in 2007, wholesale charges were roughly €1.00 per minute for calls made, and retail prices roughly €1.30 per minute (Stumpf, 2001).

Figure 11. Relationship between wholesale cost, wholesale charges, and retail price for mobile roaming.



Source: Marcus and Petropoulos.

It would be natural to assume that the same should hold for cross-border parcel delivery, and some of the literature makes this assumption. For instance, FTI (2011) assumed that excessive wholesale payments (TD rates) contributed to high retail prices. Surprisingly, this seems not to be the case. Instead, wholesale TD rates seem to be not too high, but rather too low (see Section 4.2).

Given that the structure of payments in the two cross-border activities is roughly the same, it is surprising that the outcomes should be opposite. The difference appears to be linked to the fact that NPOs are under no obligation (thanks to UPU rules) to make their services available to domestic competitors, nor to foreign competitors who are not NPOs. There is a *de facto* geographic partitioning.[28]

4.2 Wholesale TD prices appear to be not too high, but rather too low

The structure of TD and ILR wholesale prices is documented by the UPU, but specific rates do not appear to be publicly visible anywhere. Despite the dearth of publicly available information, there is nonetheless good reason to believe that TDs are below a reasonable estimate of NPOs' marginal costs. ILRs have been less studied, and in any case represent a relatively small fraction of total parcel volume, so we say little about them here.

[28] The difference may also reflect the preferences of developing countries, who represent the majority of UPU members, and may moreover reflect the fact that in the distant past, there were no charges at all.

As a threshold question, one needs to consider what the appropriate price should be. The TD should presumably cover the costs of delivery, but not of collection, in the destination country. (For international traffic, collection is performed in the sending country, not in the destination country). The UPU generally assumes that 70 percent of the domestic postal rate is a reasonable proxy for the cost of delivery, which seems fairly reasonable. We follow their practice here.

There are signposts that TDs are not too high, but rather too low, in:

- The limited literature on this complex topic;
- The presence of a remailing industry, and the need to use UPU rules to suppress it;
- Periodic complaints that foreign senders (eg from China) can ship goods to Europe for less than European firms.

First, the literature definitely leans in the direction of TDs being too low. Even at the time of the Commission's 1987 Postal Green Paper (European Commission, 1987), it was already recognised that "most member states find that their unit costs for delivering [inward cross-border] traffic are not covered."

James R. Campbell, Jr. has tackled the question in numerous studies.[29] He argues consistently and persuasively that TDs are set well below the nominal cost benchmark of 70 percent of the equivalent domestic price (EDP).

Two studies by Copenhagen Economics on behalf of the US Postal Regulatory Commission (US PRC) explain the TD system and attempt to estimate the adverse impact on societal welfare that flows from non-cost-based TDs. They found that *"terminal dues received often are lower than the prices for last-mile handling of domestic (and comparable) letter post items in the receiving country"* (Okholm *et al*, 2014 and 2015).

The second clue to below-cost TDs is the presence of a remailing industry, and the need for the UPU to implement rules to hinder it. Remailing has been around for a long time. The European Commission's 1987 Postal Green Paper defined remailing as "a cross-border mail service offered by private operators in competition with the services offered by the postal administration in the country of the customer. … [One] type of remail involves mail being transported from country A to country B for remailing back to country A."

Economic distortions must be present if it is cost-effective to deliver a parcel from country A to country A (in effect a domestic delivery) by shipping it outside the country and then shipping it back. This can only be profitable if the international charge for inward traffic is less than the internal cost. Examples of this kind of arbitrage are well known in the world of telecommunications (where it is known as 'tromboning', and occurs only when international termination rates are less than domestic termination rates and/or on-net termination costs).[30]

Complaints that Chinese senders can ship goods to developed countries at lower cost than merchants within the respective countries are an additional indicator, and a confirmation that

[29] See for instance Campbell (2014a) and especially Campbell (2014b).

[30] An analogous form of arbitrage came into play in conjunction with the Low Value Consignment Rule (LVCR) exemption from VAT, under which magazines were printed in Denmark, then shipped to the Åland Islands and shipped back to Denmark in order to avoid paying Danish VAT.

this is not merely a historical curiosity.[31] Again, this could only be the case if TDs are artificially depressed.

4.3 Implications for retail services of low TD wholesale payments

To the extent that these TD wholesale payments might tend to be below relevant marginal costs, the implications for retail prices are profound. Recall that:

- FTI (2011) found that published prices for cross-border parcel delivery "are on average twice as high as domestic benchmark prices", while Claes and Vergote (2016) found that "on average, cross-border prices are … 471 percent higher [than their domestic equivalents] for parcels" (see Section 3.3).
- The cost that the sending network operator incurs for delivery, which would normally be expected to be on the order of 70 percent of the domestic price, is even less in this case because the TDs are depressed thanks to UPU rules (see again Section 3.3).

In terms of retail prices paid by individual consumers, this leads inescapably to the conclusion that the mark-up for those who are obliged to purchase at published prices must be very high.

Figure 12 depicts this. The left column represents the published retail price that consumers pay to ship a parcel domestically. The actual cost of delivery is assumed, consistent with UPU assumptions, to be 70 percent of the published domestic price. For inward parcels, this same cost is assumed. The lower dashed line can thus be viewed as representing the true cost of delivery, which is the cost that the TDs are presumably meant to cover. Note that this cost is incurred by a different postal service, and in a different country, than the postal service that receives the retail revenue.

The middle column of Figure 12 depicts both the wholesale payment that the sending postal operator makes to the receiving postal operator (the red rectangle), and the total retail revenue that the sending postal service receives (the height of the blue column). The retail revenue at published prices is at least twice as great as in the case of domestic parcel delivery. On the other hand, the height of the red rectangle is actually less than the cost of delivery to the receiving postal service.

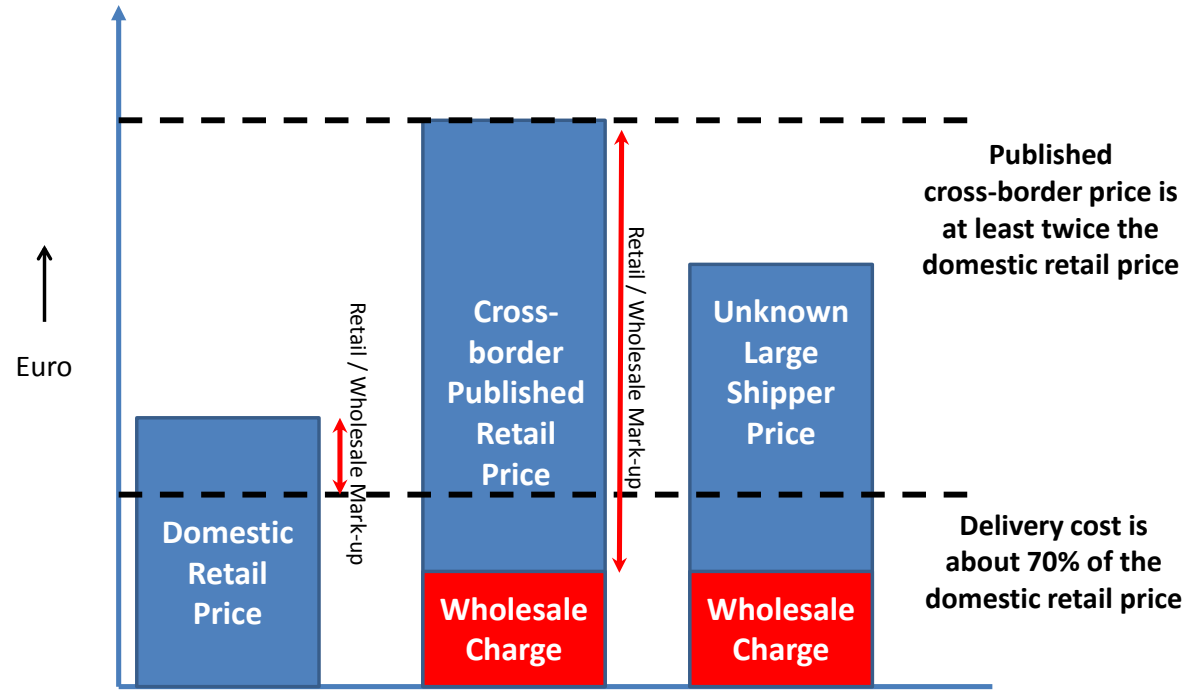
The difference between the height of the blue column and that of the red column is then a measure of the postal service's profit (i.e. the mark-up of retail over wholesale). One must however bear in mind that the wholesale TD payment is not the only cost that the sending postal service incurs. In addition to the adaptation and labelling costs, there is also the transit of the parcel to the destination country, and probably also an additional sortation step. It is quite unlikely that these costs fully account for the wholesale-retail mark-up, but they should not be ignored.

If the retail published price for cross-border delivery is at least twice as great as for domestic delivery, but the cost to the sending postal service is less than it would have incurred to deliver the parcel itself domestically, then it would appear that the difference or 'spread'

[31] See for instance Guo (2014) and Steiner (2016). The issue is by no means confined to the United States.

between price and cost is (assuming that other costs such as transaction costs and transit are not too great) far greater than for domestic parcel delivery.

Figure 12. Relationship between wholesale cost, wholesale charges, and published retail price for parcel delivery by a National Postal Operator (NPO).



Source: Marcus and Petropoulos

The right column in Figure 12 depicts the situation for large senders. The wholesale cost to the receiving postal service is presumably largely independent of whether the original sender was large or small, and the TDs paid are likewise unlikely to depend on who the original sender was; however, the retail price will tend to be lower, and therefore the mark-up of retail over the wholesale TD will also be correspondingly lower. How much lower? Amazingly little is publicly known about this.

4.4 The relationship to international mobile roaming revisited

There are significant similarities, but also noteworthy differences, when it comes to prices for parcel delivery and international mobile roaming. Among the similarities:

- Because of the cross-border nature of the service, and the fact that it is offered in two different countries, prices lack transparency and tend to be high.
- That retail markets in the countries in question may be competitive has little or nothing to do with whether these cross-border services are over-priced.
- The linkage between wholesale and retail prices is crucial in understanding any price distortions, and also in understanding the likely impact of any regulatory intervention.
- Prior to regulation, hardly anything is publicly known about wholesale prices.
- National regulatory authorities are limited in both their ability and their level of interest in addressing the problem.

    - Every interaction involves two countries, but each lacks both authority and information about the problem in the other country.
    - No national regulatory authority has an incentive to take action that harms the domestic incumbent in order to benefit residents of another country.
- Member states and NPOs that are net exporters (and thus net payers) may have incentives that are very different from those that are net importers of traffic.
- For telecommunications, action at European level has been highly effective.

Here the similarities end. For roaming, high pricing was largely the result of high wholesale prices between the mobile network operators (MNOs), which were exacerbated by significant additional high mark-ups above the level of the wholesale payment[32]. Regulatory price caps on both wholesale and retail prices proved to be effective.

For cross-border parcel delivery, if wholesale prices are indeed too low rather than too high, there are implications for what kind of regulatory solutions might work, and what kind might not. If the diagnosis is different than for roaming, the cure is also likely to be different.

For cross-border parcel delivery, if one accepts that there is a problem, it lies not with the absolute level of wholesale charges, but rather with the very large 'spread' between the retail price charged to individuals and micro-enterprises versus the low level of TD wholesale payments (see Figure 12).

[32] The combined effect of taking mark-ups on both vertically related services is referred to as *double marginalisation* or *pancaking*.

5 Reflections on the Commission's proposed Regulation

As noted at the outset, the Commission has now put forward a proposed Regulation.[33] If enacted as proposed, how likely is the Regulation to be effective?

The proposed Regulation contains a small number of highly relevant provisions:

- Article 2 defines "parcel delivery services" so as to exclude delivery of parcels of more than 31 kg, as well as services that entail only transport (no sorting or delivery), but does not limit the definition to universal service providers;
- Article 3 obliges parcel delivery service providers to annually submit suitably detailed information on parcel delivery turnover, number of parcels delivered, and number of employees engaged in the services to Member State postal regulatory authorities (exempting however most firms that have fewer than 50 employees);
- Article 4 obliges "universal service providers providing parcel delivery service" to annually submit published prices (tariffs) and information concerning Terminal Dues and Inward Land Rates to Member State postal regulatory authorities;
- Article 5 obliges Member State postal regulatory authorities to annually assess the affordability of cross-border tariffs included in the public lists of tariffs; and
- Article 6 obliges universal service providers providing cross-border parcel delivery services to publish a reference offer, and to meet all reasonable requests for access to all facilities necessary for the provision of cross-border parcel delivery services.

The relevance and feasibility of most of these provisions is clear. Gathering, at long last, real data on the problem is an unavoidable and long overdue first step. Today, hardly anything is known, either to the public or to national and European regulatory authorities, about: (1) actual wholesale payments made among national postal operators; or (2) effective prices paid by senders other than individual consumers. The information-gathering provisions serve to better inform the regulatory community and the general public.

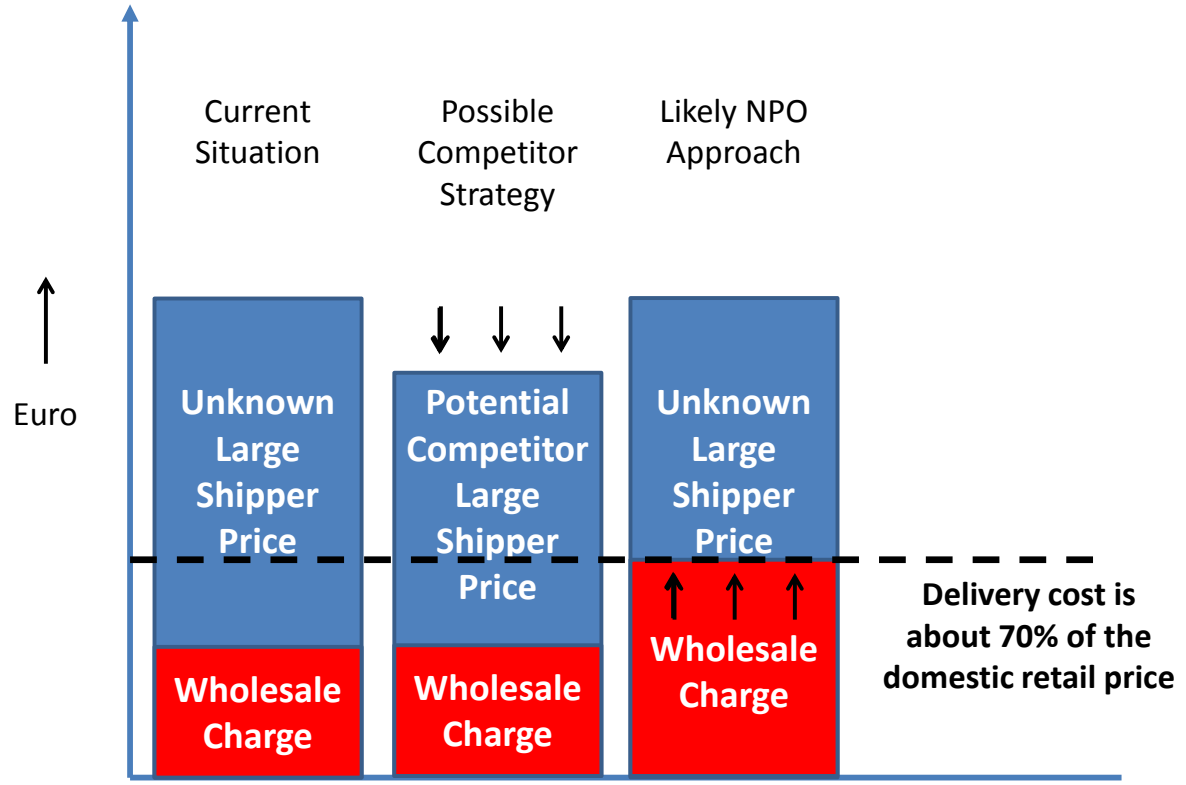
A 2015 joint report of the Body of European Regulators for Electronic Communications (BEREC) and the European Regulators Group for Postal Services (ERGP) rightly noted that not all European postal regulatory authorities have statutory authority to collect data on retail prices.[34] They therefore suggested that the European Commission might *"define a clear statistical framework"* and *"provide a legal basis to enable [national regulatory authorities] to collect relevant market data on domestic and cross-border parcel flows from all postal service providers and/or other providers being active on the B2C and Business-To-Business (B2B) parcel markets …"*. To date, however, many postal regulatory authorities who nominally had this authority have not exercised it. *The proposed Regulation is on target in that it creates not only the ability, but also the obligation, for Member State postal regulatory authorities to collect the basic data required for proper regulation of this complex sector.*[35] Obliging postal regulatory authorities to assess affordability of cross-border parcel delivery is a heavier intervention; at the same time, we note that rates for parcels delivered under the

[33] European Commission (2016), "Proposal for a Regulation of the European Parliament and of the Council on cross-border parcel delivery services", COM(2016) 285 final.
[34] Postal regulatory authorities tend to have far lesss authority than do regulators of electronic commmunications.
[35] Confidentiality of commercially sensitive data of the Designated Operators poses serious challenges.

universal service regime are already subject to scrutiny, although in practice this is usually applied only to domestic delivery and not to cross-border. The proposed Regulation is not as clear as it might be as to what Member State postal regulatory authorities are expected to do if they consider prices to be inappropriately high. The argument is put forward that the proposed Regulation does not constitute price regulation; rather, "enhanced transparency should create significant pressure to modify those tariffs that are substantially higher and that might be considered non-affordable or even prohibitive."

The provisions relating to opening up of Terminal Dues (TDs) and Inward Land Rates (ILRs) constitute an important element of the proposed Regulation, but also an aspect whose impact is difficult to predict. Recall that TD rates appear to be not too high, but rather too low (see Section 4.2). This implies that opening these provisions up to domestic and cross-border competitors potentially enables the competitor to utilise the NPO's network at a cost below the true cost to the NPO itself. This would potentially enable competitors to beat the NPOs on price while using the NPO's own network. In Figure 13, the left-most column represents the current situation, where the centre column shows how competitors could potentially take advantage of below-cost Terminal Dues if they were to remain at present levels.

Figure 13. Relationship between wholesale cost, wholesale charges, and published retail price for parcel delivery by a National Postal Operator (NPO) under the proposed Regulation.



Source: Marcus and Petropoulos

The obvious conclusion is that NPOs will not permit this to happen if they have any choice in the matter. Once they are forced to make their cross-border facilities and pricing available to true competitors, they will be under substantial economic pressure to raise their wholesale TD charges to levels approximating true cost (as shown in the rightmost column of Figure 13), which has generally been assumed to be in the neighbourhood of 70% of the basic domestic tariff.

This raises a key question: *Will European NPOs be able to raise TDs to one another in this way?*

The concern that must be raised is that these arrangements have historically been subject to rather rigid international regulation, as a result of global UPU rules (which set both maximum and minimum TD rates) and of the non-public REIMS agreement. Aside from that, the true degree of negotiating flexibility in these arrangements is generally unknown to those who are not industry insiders.

The Commission's Public Consultation, as reported in the Impact Assessment that accompanied the Commission's legislative proposal, sheds possible light on this question. "In the case of intra-EEA cross border parcel delivery Europe, … it is unlikely that this [TD] remuneration system is highly relevant …, as in the absence of an equivalent multinational agreement between operators (see REIMS …), bilateral agreements are usually concluded between operators to cover most of the volume exchange between operators. The results of the public consultation confirmed this statement above; although certain operators report that the UPU terminal dues system is still relevant at least for certain pairs of exchange between countries."[36]

To the extent that this is correct, there might be grounds for optimism that NPOs will be able to spontaneously adjust TD rates upwards to levels approximating true cost, thus avoiding arbitrage concerns. Whether this is in fact the case is difficult to judge; thus, this is an area where close attention will be warranted, in the event that the proposed Regulation is enacted in the form in which the Commission has proposed.

In sum, with the possible exception of this concern over the adaptability of the Terminal Dues system, the proposed Regulation appears to be on target.

[36] European Commission (2016), "Annex 5: Impact Assessment accompanying the document ,'Proposal for a Regulation of the European Parliament and of the Council on cross-border parcel delivery services', COM(2016) 285 final.

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