

Quantifying the Distortive Effects of UPU Terminal Dues

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1 Introduction

The terminal dues system of the Universal Postal Union (UPU) is a signal failure in modern international trade policy. Over the last three decades, rising competition and regulatory reform have rendered domestic postal services more cost based and efficient. Not so internationally. More than a quarter century after the above observation by the U.S. Department of Justice, the UPU's terminal dues system continues to produce large distortions in the exchange of international postal delivery services, distortions which also skew the larger market for international delivery services. The root of the problem is that postal operators (POs)¹ do not charge each other domestic postage for delivery of inbound international documents and small packages. They charge "terminal dues" fixed by the UPU to serve political and anticompetitive ends.

As the U.S. Department of Justice, the European Commission and other observers have recognized, economic efficiency and competitive fairness dictate

Independent lawyer and consultant whose clients in matters relating to UPU issues have included the major private express operators and the European Commission; views expressed in this chapter are the personal views of the author. The current terminal dues structure produces distortions in the economic structure of the international mail system. Since terminal dues do not accurately reflect costs, the current system causes a subsidy to flow from some parties to others. . . and generally impairs the efficient operation of the international mail system.—U.S. Department of Justice (1988)

¹ In 2008, UPU terminology substituted the term "designated operator" for "postal administration" due to widespread corporatization and privatization of government POs. In almost all countries, however, the only "designated operator" remains the postal administration or its corporatized successor. For simplicity, this chapter uses "postal operator" (PO) instead of "designated operator."

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that the terminal dues charged for delivery of a shipment of inbound international mail should be equivalent to the domestic postage rates that the destination PO would charge for delivery of a similar shipment of domestic mail (U.S. Department of Justice 1988, pp. 25–26; European Commission 1992, pp. 220–21; Copenhagen Economics 2014, pp. 13–14). What is the “equivalent domestic postage”? Terminal dues compensate only for local delivery of inbound international mail since international mail is collected by the origin PO and long distance transportation in the destination country, if any, is compensated by other UPU fees.² On the other hand, inbound international mail is typically more differentiated and less well addressed than domestic bulk mail and may require additional handling for customs or other import formalities. In principle, therefore, the domestic postage that is equivalent to terminal dues is likely between retail domestic postage for “priority” or “first class” mail³ and domestic postage for bulk mail. The UPU uses 70 % of priority domestic postage as the appropriate standard for calculating the domestic postage equivalent to terminal dues, and this chapter generally adopts this standard.⁴

In general, however, the UPU sets terminal dues substantially below equivalent domestic postage. Terminal dues thus favor international mailers over domestic mailers. Competition between POs and private carriers is restrained since terminal dues are available only to POs. Competition between POs is also limited because POs charge different terminal dues rates to different POs and discriminate against mail that is not posted by a mailer physically located in the national territory of the originating PO. As the effects of terminal dues vary by country, large economic transfers occur between POs, primarily to the benefit of POs from a handful of large industrialized countries and Asian POs heavily engaged in international e-commerce.

Despite manifest flaws in the UPU terminal dues system, there have been few attempts to quantify the magnitude of resulting distortions. This chapter describes a methodology for developing a “terminal dues model” that estimates the economic distortions implied by the current UPU agreement on terminal dues, in effect from 2014 through 2017. This remainder of the chapter is divided into four sections. Section 2 describes the UPU and its terminal dues system. The third section proposes an approach for developing a terminal dues model derived from UPU studies and statistics. The Sect. 4 summarizes illustrative findings from the terminal dues model. The final section summarizes conclusions.

Two caveats are in order at the outset. First, the chapter estimates only distortions implied by the 2012 UPU terminal dues system. These estimates do not take account of alternative bilateral arrangements agreed by some POs. Such side agreements

² 2012 UPU Convention, Art. 33 (transit charges) and Art. 34 (air conveyance dues).

³ The UPU Convention refers to “charges corresponding to priority items in the domestic service” as the proper basis for terminal dues. 2012 UPU Convention, Art. 30(1). In this paper, “priority postage rates” are the same as postage for “first class mail” (in the US and UK) and for “the fastest standard category” of mail (in the EU Postal Directive).

⁴ 2012 UPU Convention, Art. 30(5). In 2013, a limited UPU survey indicated that the cost of delivering inbound international letter mail is between 60 and 120 % of the equivalent cost for domestic mail (UPU 2013b).

cannot justify a distortive UPU system in the first place and, in any case, are constrained by the default rates established by the UPU. Second, all estimates are highly approximate. As explained below, the more specific the mail flows, the more they should be interpreted as illustrative rather than actual quantities.

2 Universal Postal Union and the Terminal Dues System

The Universal Postal Union (UPU) is intergovernmental organization with 192 member countries. National delegations meet in a general Congress every 4 years to amend or reenact the agreements governing international postal services. The most recent Congress was held in Doha in 2012; it adopted the current terminal dues provisions. The next Congress convenes in Istanbul in September 2016.

Terminal dues apply to delivery of “letter post” items.⁵ Despite its name, the “letter post” is not limited to what are normally called “letters.” The letter post conveys all types of documents and packages up to 2 kg, which the UPU classifies according to three “shapes”: ordinary small letters, large envelopes (or “flats”), and small packets, which are packages weighing up to 2 kg. In this chapter, these shapes will be referred to simply as letters, flats, and small packets.

It should be emphasized that small packets—packages up to 2 kg—are especially important for the future of the international post and, indeed, of international commerce. Small packets are the primary postal conduit for e-commerce. With paper mail declining rapidly (more rapidly than in domestic services), e-commerce is widely seen as the best hope for sustaining international postal services. Growth in e-commerce traffic from Asia has been especially significant. In the last few years, many industrialized countries have seen increases of 100 % or more each year in e-commerce items received from POs in China, Hong Kong, and Singapore, partly because these POs consolidate shipments from other Asian countries. Competition in the e-commerce market is also heating up. Commercially minded POs are extending operations outside their national territories, and global express companies are actively developing services for e-commerce.

The current terminal dues system establishes three schedules of terminal dues. These schedules apply to six UPU-defined “groups” of countries distinguished by their level of economic development. One schedule applies to Group 1.1, the 24 major (and 4 minor) industrialized countries. The second schedule applies to Groups 1.2 and 2, collectively 24 advanced developing countries. The third schedule applies to Groups 3, 4, and 5, the less developed countries. For simplicity, this chapter refers to these collections of countries as Groups 110, 122, and 345, respectively.

⁵The UPU also fixes delivery rates, called “inward land rates,” for “parcel post” items, i.e., packages weighing up to 20 kg. Most postal packages weighing less than 2 kg are conveyed by letter post rather than parcel post since terminal dues are generally less than inward land rates. For a discussion of inward land rates, see the chapter by Ralf Wojtek.

The UPU also classifies terminal dues groups according to two larger categories, the “target system” and “transitional system.” These terms refer to the UPU’s commitment, adopted in the 1999 Congress and reaffirmed at each subsequent Congress, to implement a worldwide “country-specific payment system,” that is, a system in which terminal dues are related to domestic postage rates in each country. Since 1999, however, the UPU has made no progress towards this objective. In 2014, the target system included two terminal dues schedules, for Groups 110 and 122, while the transitional system referred to the schedule for Group 345. In 2016, UPU Group 3 (“Group 300”) will move from the transitional system to the target system but keep the same terminal dues schedule, so after 2016 the “target system” will include all three terminal dues schedules, none of which is “country specific.”

Rates for the three terminal dues schedules are shown in Table 1.⁶ In the target system, a rate formula purports to align terminal dues to 70 % of retail dominant postage rates. In almost all target system countries, however, the target rate formula is limited by a cap or floor, so that the formula is not actually used.

3 Developing a Global Terminal Dues Model

Terminal dues would cause no distortions between domestic and international mail from POs if, in each destination country, terminal dues equaled equivalent domestic postage. The financial effects of the distortions implied by the UPU terminal dues system may be estimated with a spreadsheet, a “terminal dues model,” that calculates the postal volumes, weights, terminal dues charges, and equivalent domestic postage charges for the flow of letter post items, in each direction, between all UPU countries and/or groups countries. The terminal dues model proposed in this chapter is based on five preparatory spreadsheets or modules relating to volumes, flows, mail structure, terminal dues, and domestic postage.

The *volumes module* develops outbound and inbound letter post volumes for 2011 for all UPU member countries for which estimates can be obtained. The starting point is the UPU database of postal statistics, even though incomplete and often unreliable. Statistics for 2011 include outbound volumes for about 139 of 220 countries and territories. These 139 countries accounted for 1.57 billion letter post items, less than half of the UPU’s estimated global total of four billion items (UPU 2013a, p. 5). By relying on data for the year before, the year after, or, when necessary, 2 years before, estimates for another 31 countries can be included, adding 0.41 billion. What is missing are volumes from a small number of large, highly commercialized countries. By adding data from national regulators (five countries, 1.11 billion items) and estimating international volumes based on a

⁶Terminal dues are expressed in Special Drawing Rights. On May 14, 2015, 1 SDR was equal to USD 1.4199 and EUR 1.1425.

Table 1 Terminal dues schedules, 2014–2017

Schedule	% volume 2014 (%)	Formulae (SDR)	Annual increase (%)
Intra-110	67	Target rate formula constrained by:	1.9
		– Cap: 2.294/kg + 0.294/item; maximum annual increase 13 %	3.0
		– Floor: 1.591/kg + 0.203/item	2.8
Intra-122 and to/from 110	11	Target rate formula constrained by:	1.9
		– Cap: 1.641/kg + 0.209/item	6.0
		– Floor: 1.591/kg + 0.203/item	2.8
To/from/ between 345	22	4.192/kg (<75 tonnes)	2.8
		Revision mechanism (optional, > 75 tonnes): 0.591/kg + 0.203/item	2.8

Source: UPU, 2012 Convention, Arts. 29–31; 2013 Letter Post Regulations, Art. RL 220 (target rate formula)

plausible ratios to domestic mail volumes (seven countries, 0.79 billion), the result is a global estimate of 3.85 billion outbound letter post items in 2011 (182 countries). This agrees reasonably well with the UPU estimate. A similar process was used to develop estimates of inbound volumes by country.

The *mail structure module* summarizes information about the structure of the international letter post in 2014. This information is used in the terminal dues model to calculate terminal dues and equivalent domestic postage charges. The source is the UPU’s 2014 IPK Study (UPU 2014b) (“IPK” refers to “items per kilogram”). This study estimates the average weight and distribution of letter post mail by shape for exchanges between Groups 110, 122, 300, and 450. The study reports, for example, that for mail sent from Group 110 to Group 300 in 2014, the average weights of letters, flats, and small packets, were 14.79, 154.32, 308.64 g, respectively, and these shapes accounted for 59.3 %, 11.9 %, and 28.8 % of the volume of letter post, respectively. The study is based on inbound letter post reports from 49 post offices. The 2014 IPK Study also provides a detailed profile of international letter post by shape and weight step, but it is based on reports from only 15 posts.

The *flows module* is the heart of the terminal dues model. It develops estimates of bilateral letter post flows between UPU countries and groups of countries in 2014. Bilateral flows are not publicly available. Recent studies by the UPU, however, estimate flows from or between geographic regions. These studies can be pieced together with plausible assumptions to allow calculation of approximate bilateral flows that appear adequate for the aims of a terminal dues model.

A key UPU study estimates the relative weights of letter post flows between world regions in 2011 (Ansón and Helble 2014). The “2011 Regional Weight Study” encompasses six world regions: Asia; Eastern Europe (and Central Asia); Middle East (and North Africa); North America; South America (and Central America and Caribbean); Africa (sub-Saharan); and Western Europe. The study reports, for example, that in 2011, if the weight of mail exported North Africa to Western Europe was 1, the weight of mail from Western Europe to North America

was 55. These relative weights can be converted into relative volumes using a 2010 IPK study (UPU 2011, Annex 4).

In the flows module, interregional flows are divided into bilateral country flows using an assumption of “*proportional regional participation*.” For example, suppose that, based on the 2011 Regional Weight Study, Asia sent to Western Europe 12.24 % of global letter post and that, based on the volumes module, Australia accounts for 10.4 % of all mail exported from Asia and France accounts for 18.4 % of all letter post imported by Western Europe. Then, the flow from Australia to France may be estimated as 0.234 % of global mail. More precisely, the flow from Country *i* in Region A to Country *j* in Region B, F_{ij} , can be derived from the interregional flow as follows:

$$F_{ij} = \frac{O_i}{O_A} \times \frac{I_j}{I_B} \times F_{AB}$$

where F_{AB} is the flow from Region A to Region B; O_i and O_A are, respectively, the total outbound volumes from Country *i* and Region A; and I_j and I_B are, respectively, the total inbound volumes to Country *j* and Region B. If Country *i* and Country *j* are in the same Region, A, and F_{AA} is the flow between countries in Region A, the equation is:

$$F_{ij} = \frac{O_i}{O_A} \times \frac{I_j}{I_A \times (1 - (I_i/I_A))} \times F_{AA}$$

The result is a complete set of *relative* bilateral international mail flows that is internally consistent and consistent with available UPU volume data.⁷

The assumption of proportional regional participation is obviously a rough and ready approximation. It relies only on total volumes of outbound and inbound mail sent and received by Countries *i* and *j*. In reality, the volume of mail between two countries is also affected by such factors as distance, historical relations, language, and currency.⁸ However, the assumption of proportional participation is substantially constrained by the UPU’s regional flow studies. In the flows module, the estimated volume of mail that Country *i* sends to Country *j* is based first on the overall interregional volume and only secondarily on the assumption of the proportional regional participation. This constraint limits potential errors implicit in the assumption of proportional regional participation.

⁷ The assumption of proportional regional participation is also used to subdivide regional flows from Asia in the 2011 Regional Weight Study into flows associated with Groups 110, 122, and 345 before using the 2010 IPK study to convert weights into volumes. In the North American region, mail flows between the United States and Canada have been adjusted to reflect 2011 data from the U.S. Postal Regulatory Commission.

⁸ Ansón and Helble 2013. Unfortunately, the authors’ “gravity model” depends on at least one variable that requires access to nonpublic UPU data.

In October 2014, the UPU published an annual survey of the previous year's global and regional mail volumes called "Development of Postal Services" (DPS). It estimates the volume of international letter post in 2013 was 3.5 billion items, 5.6 % less than in 2012 (UPU 2014a, p. 4). The 2013 DPS survey also provides a breakdown for outbound letter post by geographic region.

In the flows module, the total volume of mail for 2014 is assumed to be 3.5 billion items, the same as 2013. The outbound volumes per geographic region are taken from 2013 DPS. The allocation of outbound regional volumes among the other regions is based on the 2011 Regional Weight Study. Division of bilateral regional flows into bilateral country flows (using the principle of regional proportionality) relies on estimates from the volumes module.

Bilateral country flows are then collected into "regional/TD Groups" defined by geographic region and terminal dues group. Groups 122 and 300 have been subdivided to allow separate estimates for POs heavily engaged in e-commerce (China, Hong Kong, and Singapore). Not every geographic region includes all terminal dues groups. In total, there are 19 regional/TD Groups, three of which are composed solely of industrialized countries in regions Asia, North America, and Western Europe.

The *terminal dues module* is slightly revised version of the UPU's 2012 "terminal dues tool" (UPU 2012a). The "tool" is a UPU spreadsheet that allowed POs to forecast terminal dues they could expect to pay and be paid in 2014–2017.

The *domestic postage module* synthesizes available information on domestic postage rates from several sources and estimates the 2014 priority domestic postage rates by shape and weight step. For industrialized countries and other European countries, the primary source is survey of 2013 priority domestic rates by WIK. For other countries, the original source is a UPU database of 2008 priority domestic rates all countries, by shape and weight step. Rates for countries in Group 122 have been updated to 2014 using selected domestic postage rates reported annually by the UPU. Rates for countries in Group 345 have been updated to 2014 by assuming rate changes in line with inflation.

Output tables from these modules are brought together in the terminal dues model. The model estimates bilateral volumes, weights, terminal dues charges, and equivalent domestic postage charges in 2014 for 41 origins and destinations: 25 industrialized countries⁹ and 16 regional/TD Groups of non-industrialized countries. Separate estimates are calculated for letters, flats, and small packets. Estimates for the years 2015, 2016, and 2017 reflect user inputs defining anticipated growth rates, shifts in average weight per item, and changes in domestic postage rates.

⁹ Minor industrialized countries and territories are consolidated into a composite country, "Europe Minor."

4 Implications of the Terminal Dues Model

Implications of the terminal dues model can be illustrated by adopting a “base scenario” or baseline set of assumptions about development of the letter post after 2014. For purposes of this chapter, the base scenario assumes continuation of current trends in the years 2015–2017, resolving doubts in favor of the status quo. Volumes of letters and flats sent between industrialized country POs (ICs) are expected to decline annually by 5 % and 3 %, respectively, while small packets are expected to grow at 15 % per year. Volumes of flats and small packets sent by the major e-commerce POs (ECs)—China, Hong Kong, and Singapore—to the ICs are expected to grow by 20 % and 50 % per year, respectively. Similar but more muted trends are expected for shipments from ICs and ECs to ECs and developing country POs (DCs).

Under the base scenario, the composition and global distribution of letter post will change significantly from 2014 to 2017. Letters will decline from 59 % of the letter post to 49 %, while small packets increase from 25 to 37 %. The volume of letter post will increase modestly from 3.5 billion to 3.8 billion items. The main engine for this growth is the increasing e-commerce traffic from the Asia, which will increase its share of global postal letter post from 9 to 17 %.

4.1 *Terminal Dues vs. Equivalent Domestic Postage*

The primary cause of economic and competitive distortions arising from the current terminal dues system is the failure of the ICs to charge terminal dues equal to equivalent domestic postage. In 2014, about 87 % of all international mail was destined for the ICs: 68 % from other ICs, 6.6 % from ECs, and 12.6 % from DCs. Virtually, all of this mail is subject to the target system rate cap or the per kilogram rate available to DCs.

Table 2 compares the terminal dues charges and equivalent domestic postage rates for delivery of a kilogram of typical letter post items received by ICs in 2014. For example, under the UPU terminal dues system, the Austrian PO charges SDR 5.42 for a typical kilogram of letter post mail sent by an IC, whereas the equivalent domestic postage (70 % of normal priority rates) would imply a charge of SDR 9.03. The “terminal dues discount” is 40 %. Overall, ICs give each other an average discount of about 46 % from equivalent domestic postage. The discount for small packets is about 56 %. ICs give larger discounts for delivery of letter post items received from ECs and DCs, in both cases averaging about 75 %. These discrepancies between terminal dues and equivalent domestic postage are not rough approximations. They are derived from the 2012 UPU Convention and public tariffs. Nor will these discrepancies decline significantly over the course of the current terminal dues system.

Table 2 Volumes and terminal dues discounts, 2014

Destination	LP vol out (mil)	LP vol in (mil)	TD per LP kg for ICs (SDR)	EDP per LP kg for ICs (SDR)	TD discount for ICs (%)	TD discount for ECs (%)	TD discount for DCs (%)
Austria	113.4	158.1	5.42	9.03	40	83	82
Australia	56.6	156.7	5.20	7.31	29	79	77
Belgium	70.1	82.9	5.42	10.51	48	84	83
Canada	85.4	248.1	4.67	14.87	69	92	90
Switzerland	107.1	177.8	5.42	8.97	40	74	73
Germany	361.1	280.2	5.41	7.73	30	76	75
Denmark	44.0	50.7	5.42	14.04	61	82	81
Spain	83.1	61.6	5.45	5.93	8	59	57
Finland	15.5	27.6	5.42	15.09	64	89	89
France	190.4	357.3	5.41	9.24	41	73	72
Great Britain	444.1	183.2	5.42	9.78	45	83	82
Greece	36.3	18.3	5.42	7.94	32	70	69
Ireland	32.5	68.8	5.42	14.04	61	89	88
Israel	12.6	18.6	5.43	6.73	19	60	59
Iceland	1.4	1.8	5.42	6.63	18	61	59
Italy	70.2	128.8	5.42	13.13	59	83	82
Japan	36.5	171.4	5.08	7.70	34	69	67
Luxembourg	30.2	18.3	5.42	6.94	22	74	73
Netherlands	137.9	104.2	5.42	8.91	39	72	71
Norway	18.1	103.2	5.42	20.53	74	92	92
New Zealand	16.1	34.7	5.15	9.11	43	77	75
Portugal	30.7	24.0	5.42	6.62	18	62	61
Sweden	41.8	57.0	5.42	11.65	53	79	78
United States	505.1	457.2	5.49	7.05	22	79	76
Europe Minor	31.3	42.8	5.43	10.96	50	85	84
Totals/averages	2571.4	3033.4	5.36	9.98	40	77	75

Key: LP letter post, TD terminal dues, EDP equivalent domestic postage (70 % of priority postage), SDR special drawing rights, ICs industrialized countries, ECs e-commerce countries, DCs developing countries

In light of such large rate differences, it is obvious that for any set of mail flows, the total terminal dues charges levied by ICs will be significantly less than equivalent domestic postage. How much will depend on volumes and structures of specific flows? The cumulative economic distortions produced by discrepancies between terminal dues and equivalent domestic postage could be analyzed quantitatively using hypothetical flow data. The terminal dues model, however, aims to produce a more realistic picture of the distortions resulting by the UPU terminal dues system by estimating bilateral mail flows from UPU data. While the estimates are necessarily imperfect and incomplete, the model provides a reasonably clear

picture of the effects of differences between terminal dues and equivalent domestic postage on the global postal market.

4.2 *First: Total Undercharges*

Whether using hypothetical or estimated flow data, analysis of cumulative effects suggests that distortions created by the UPU terminal dues system can be summed up by two measures: (1) the total amount of undercharges implied by the terminal dues system and (2) the net transfer of economic value between POs. The total amount of undercharges provides a rough indication of the total *potential* competitive distortion implied by the system of terminal dues.¹⁰ The net transfer of economic value between POs measures the extent to which some POs *actually* benefit at the expense of others. Total undercharges equal the sum of net transfers and revenues from other sources, primarily higher rates on other postal items. In other words, when a PO undercharges for delivery of inbound international mail, it must make up the shortfall by a net advantage in the exchange of letter post with other POs and/or by charging higher rates to other mailers (or by getting money from other sources).

Undercharges implied by the UPU terminal dues system may be calculated by multiplying the total weight of each bilateral flow by, first, the terminal dues charge for a typical kilogram of letter post for that flow and, second, by the equivalent domestic postage that would be charged for the same kilogram. The undercharge is the latter minus the former.

An undercharge for delivery of a specific international postal item does not necessarily result in a distortion in the price which the origin PO charges the mailer for that item. If the price which the origin PO charges the mailer does not fully reflect the artificially low “cost” represented by terminal dues, then the distortion will be less than the full amount of the undercharge. The total undercharge measures how much an origin PO could undercharge outbound customers for international postal services and, similarly, the extent to which domestic mailers could be disadvantaged compared to foreign mailers.¹¹

Undercharging facilitated by the UPU terminal dues system is potentially anti-competitive. In almost all industrialized countries, domestic rates are required to be cost based (with some exceptions), i.e., rates must cover marginal costs plus an appropriate share of common costs. If the origin PO sets its prices for international mailers based on the terminal dues charges of the destination PO, the prices of the

¹⁰ The amount of total undercharges does not take into account factors such as own and cross-price elasticities which would be needed to estimate overall effects on the market.

¹¹ If undercharges are not passed on in lower rates for mailers, the distortive effects of undercharging will appear elsewhere. The origin PO will book an extraordinary profit on the outboard item that will, *ceteris paribus*, artificially lower rates for other mailers.

origin PO will not fully reflect what the destination country considers to be the appropriate level of costs and what the domestic mailer must pay for similar domestic services.¹² Under such circumstances, competitors of POs would be disadvantaged in the end-to-end market and in the upstream and downstream portions of that market. Similarly, such prices would favor foreign mailers to the disadvantage of domestic mailers in the destination country. If foreign mailers and domestic mailers are competitors—e.g., competing e-commerce merchants—the anticompetitive effects at the buyers' level are apparent (Copenhagen Economics 2014, Chap. 2). While the distortive effects of undercharging are potential, it is clear that the UPU's cap on IC terminal dues is intended "to moderate the impact of TD on international tariffs" (UPU 2012b, para. 37).¹³

The magnitude of undercharging relative to equivalent domestic postage by ICs permitted by the UPU terminal dues in 2014 is summarized in Table 3. In 2014, the total market for delivery of international letter post items was about SDR 3.0 billion, measured by the sum of equivalent domestic postage charges. ICs undercharged for delivery services by about SDR 1.53 billion, roughly 53 % of the value of the market. Most of the "terminal dues discount," SDR 937 million, went to other ICs, and most of this amount was due to discounts for delivery of small packets (SDR 502 million). ICs undercharged for delivery of letter post items received from ECs by about SDR 206 million and from DCs by about SDR 384 million, effectively discounts of 72 % for each.

Under the base scenario, the extent of undercharging will not improve over the 4-year course of the terminal dues agreement. Total undercharging will grow to 2.2 billion in 2017, 56 % of the market. For the 4-year period, total undercharges amount to SDR 7.35 billion, two-thirds of which is due to undercharging for small packets.

4.3 Second: Net Transfers Between POs

Although undercharging creates a loss on inbound mail relative to equivalent charges for domestic mail, it is a benefit for outbound mail. The net effect on a PO is the combination of undercharges (and occasional overpayments) in outbound

¹² Terminal dues result in what amounts to false or at least inaccurate accounting because terminal dues are essentially barter transactions at prices that fail to reflect fair market value. A discussion of cost accounting and measures of cost is beyond the scope of this chapter. It should be noted, however, that whether prices charged between undertakings cover "attributable costs" (or some other measure of direct costs) is only one factor in determining whether a price agreement among competitors is unlawfully discriminatory or anticompetitive.

¹³ See also USPS (2012): "Increasing terminal dues rates, especially significant increases resulting from elimination of the cap or directly tying the rates to domestic mail rates, would result in a considerable increase in the cost of delivery of letter post mail abroad. To offset this increase, the Postal Service would be forced to cover its costs with rate increases to the mailers."

Table 3 Undercharges by industrialized countries, letter post 2014

Destination	TD for LP from ICs (mil SDR)	EDP for LP from ICs (mil SDR)	Under-charge for ICs (mil SDR)	EDP for LP from ECs (mil SDR)	Under-charge for ECs (mil SDR)	EDP for LP from DCs (mil SDR)	Under-charge for DCs (mil SDR)	Total under-charge
Austria	64.7	102.9	38.2	7.5	5.6	29.2	21.9	65.7
Australia	42.6	60.7	18.1	39.2	27.5	28.4	19.5	65.0
Belgium	34.0	63.0	29.0	4.1	3.2	16.1	12.3	44.5
Canada	94.9	264.8	169.9	54.7	48.1	65.0	57.0	275.0
Switzerland	72.8	115.0	42.3	5.3	3.3	21.2	13.0	58.5
Germany	111.8	152.3	40.6	10.7	7.0	41.8	27.3	74.8
Denmark	20.9	51.6	30.8	2.1	1.6	8.5	6.2	38.5
Spain	19.2	26.4	7.2	1.2	0.5	4.6	1.8	9.5
Finland	11.4	30.3	18.9	1.9	1.6	7.6	6.4	26.9
France	145.0	236.0	91.0	10.9	6.6	43.0	25.8	123.4
Great Britain	72.6	125.2	52.6	9.9	7.4	38.8	29.1	89.1
Greece	7.5	10.6	3.0	0.5	0.3	1.9	1.0	4.3
Ireland	28.3	70.1	41.8	4.7	4.0	18.5	15.4	61.2
Israel	5.8	9.1	3.3	0.4	0.1	1.4	0.6	4.0
Iceland	0.7	0.9	0.1	0.0	0.0	0.1	0.1	0.2
Italy	52.9	122.4	69.5	6.0	4.5	23.6	17.7	91.8
Japan	52.2	70.8	18.6	28.0	15.5	21.1	11.6	45.7
Luxembourg	7.5	9.2	1.7	0.5	0.3	2.1	1.3	3.3
Netherlands	42.6	66.9	24.3	3.0	1.8	11.8	6.9	33.0
Norway	42.6	154.0	111.4	10.0	8.8	39.1	34.5	154.7
New Zealand	10.8	17.3	6.5	7.5	5.1	5.6	3.7	15.3
Portugal	9.9	11.5	1.6	0.5	0.2	1.9	0.9	2.7
Sweden	23.5	48.2	24.7	2.1	1.4	8.2	5.6	31.7
United States	117.4	192.2	74.8	71.1	49.4	84.8	58.0	182.3
Europe Minor	16.5	34.0	17.5	2.1	1.7	8.3	6.5	25.7
Totals	1108.0	2045.4	937.4	284.0	205.5	532.6	384.1	1527.0

Key: LP letter post, TD terminal dues, EDP equivalent domestic postage (70 % of priority postage), SDR special drawing rights, ICs industrialized countries, ECs e-commerce countries, DCs developing countries

and inbound mail flows. Net transfers reflect actual economic transfers, and they affect different POs very differently.

The overall effect of the UPU terminal dues system may appear benign to the casual observer. DCs pay lower terminal dues than ICs. Do terminal dues not foster an international subsidy of poor countries by rich countries that is similar to a desirable cross-subsidy between urban and rural areas in domestic postal services? Basically no. While the UPU terminal dues system does benefit POs in the neediest

developing countries by reducing the cost of postal communications with industrialized countries, this positive effect is a minor by-product of much larger effects.

Table 4 shows the estimated net gains or losses of individual ICs in 2014.

The major transfer of economic value implied by the UPU terminal dues system flows is between the ICs for the simple reason most international mail is sent between ICs. ICs are trading discounts for delivery of inbound mail at more or less fixed rates (fixed by the target system “cap”). This scheme benefits net exporting countries and hurts net importing countries, since exporters are getting more discounted services. It also benefits POs with low unit costs and hurts those with high unit costs, since the low-cost POs are trading relatively cheap services for relatively more expensive services. In this manner, the terminal dues system creates “winners” and “losers” among ICs. The main winners are low-cost exporters, and the main losers are high-cost importers. While individual country data must be regarded as highly approximate in the terminal dues model, it appears that the main winners in this intra-IC exchange are the United States, Germany, the United Kingdom, the Netherlands, and Spain. The main losers are Canada, the Nordic countries, Switzerland, Italy, France, Japan, and Ireland. In 2014, the implied intra-IC subsidy was about SDR 418 million.¹⁴

As a group, ICs also subsidized ECs and DCs. The total net transfer from ICs to the three ECs—China, Hong Kong, and Singapore—was about SDR 209 million. The net transfer to the 138 DCs was about SDR 386 million. About 90 % of this net transfer was derived from IC undercharges for delivery of inbound items received from ECs and DCs. A small amount is due to IC overpayments for delivery of letter post items sent from ICs to DCs. Among DCs the major beneficiaries are 20 relatively large countries that account for 70 % of the outbound letter post.¹⁵ About 80 % of the IC net transfer to ECs and DCs is due to the exchange of small packets.

The burden of the IC transfers to ECs and DCs falls unevenly on the intra-IC winners and losers. The IC losers tend to be high-cost countries, so the economic cost of delivering letter post mail from ECs and DCs at low, fixed rates is greater for IC losers than IC winners. Overall, the net economic transfer from IC losers to ECs and DCs in 2014 was about SDR 372 million, while the net transfer from IC winners was about SDR 231 million.

The different treatment of IC winners and losers is still more pronounced if one considers the relative sizes of the POs since the winners tend to be the largest ICs. One way to take size into account is to divide the net gain or loss by the volume of outbound letter post items. Outbound letter post is an appropriate divisor since outbound mailers constitute the only available “tax base” if a PO operates its

¹⁴ In the model, results for the United States and Canada are substantially affected by the fact that the US ships a large volume of small packets to Canada, and the equivalent domestic postage rate in Canada is established by reference to relatively high parcel post rates since Canada Post offers no letter post services for small packets. Omitting the US–Canada exchange, the USPO received a net transfer from other ICs of about SDR 43 million in 2014.

¹⁵ Five countries account for one-third of the outbound letter post generated by DCs: India, Thailand, Czech Republic, South Africa, and Poland.

Table 4 Net transfers by industrialized countries, letter post 2014

Destination	Gain on outbound LP to ICs (mil SDR)	Loss on inbound LP from ICs (mil SDR)	Net gain (loss) to/from ICs (mil SDR)	Winner/ loser	Net gain (loss) to/from ECs (mil SDR)	Net gain (loss) to/from DCs (mil SDR)	Total net gain (loss) (mil SDR)	Total net gain (loss) per outbd LP (SDR)
Austria	40.8	-38.2	2.6	W	-5.7	-22.2	-25.4	-0.22
Australia	15.8	-18.1	-2.2	L	-27.9	-19.8	-50.0	-0.88
Belgium	24.7	-29.0	-4.3	L	-3.2	-12.5	-20.0	-0.29
Canada	21.4	-169.9	-148.5	L	-48.3	-57.1	-253.9	-2.97
Switzerland	38.6	-42.3	-3.6	L	-3.4	-13.3	-20.3	-0.19
Germany	137.9	-40.6	97.3	W	-7.3	-28.3	61.6	0.17
Denmark	15.3	-30.8	-15.5	L	-1.6	-6.3	-23.4	-0.53
Spain	29.8	-7.2	22.6	W	-0.5	-2.1	20.0	0.24
Finland	5.4	-18.9	-13.5	L	-1.6	-6.4	-21.5	-1.39
France	69.8	-91.0	-21.2	L	-6.8	-26.4	-54.3	-0.29
Great Britain	158.2	-52.6	105.7	W	-7.9	-30.3	67.5	0.15
Greece	12.9	-3.0	9.9	W	-0.3	-1.1	8.4	0.23
Ireland	11.2	-41.8	-30.6	L	-4.0	-15.5	-50.1	-1.54
Israel	4.5	-3.3	1.2	W	-0.2	-0.6	0.4	0.03
Iceland	0.5	-0.1	0.4	W	0.0	-0.1	0.3	0.20
Italy	23.9	-69.5	-45.6	L	-4.6	-17.9	-68.2	-0.97
Japan	10.3	-18.6	-8.3	L	-15.8	-11.8	-35.9	-0.98
Luxembourg	10.7	-1.7	9.0	W	-0.4	-1.4	7.3	0.24
Netherlands	49.3	-24.3	25.0	W	-1.9	-7.3	15.8	0.11
Norway	5.8	-111.4	-105.7	L	-8.9	-34.5	-149.0	-8.24
New Zealand	4.5	-6.5	-2.1	L	-5.2	-3.8	-11.0	-0.68
Portugal	10.9	-1.6	9.3	W	-0.3	-1.0	8.1	0.26
Sweden	14.7	-24.7	-10.0	L	-1.5	-5.7	-17.2	-0.41
United States	209.5	-74.8	134.7	W	-51.5	-60.4	22.7	0.04

Europe	11.0	-17.5	-6.5	L	-1.7	-6.6	-14.8	-0.47
Minor								
Totals	937.4	-937.4	0.0		-208.7	-386.0	-588.2	-0.23
- IC winners	665.0	-247.5	417.5	W	-76.0	-154.8	186.7	0.11
- IC losers	272.4	-689.9	-417.5	L	-134.4	-237.7	-789.7	-0.97

Key: same as previous table

international service on a break even basis, i.e., without surcharges on domestic mailers or payments from government. The last column in Table 4 shows the net gain or loss from net transfers per outbound letter post item for each IC. Per outbound letter post item, IC losers lost SDR 0.97 per item, while the IC winners gained SDR 0.11 per item.

The bottom line in all this is remarkable. The entire global net subsidy fostered by the UPU terminal dues system in 2014 was paid by 14 or so IC losers and their mailers. IC losers bear a disproportionate share of the net transfer from ICs to DCs and ECs, and they transfer to IC winners a sufficient amount to offset all of their net transfer to DCs and ECs (SDR 231 million) while leaving the IC winners with a significant net gain (SDR 187 million). All together, in 2014, the UPU terminal dues system implied a net loss for IC losers of SDR 790 million. About two-thirds of this net loss was due to the exchange of small packets.

Under the base scenario, the position of the IC losers will not improve over the next 3 years. In 2017, IC losers will suffer a net negative transfer of SDR 1.3 billion; almost 80 % will be due to small packets. Over the 4-year course of the agreement, IC losers will transfer about SDR 4.0 billion to other groups. IC winners will have a net gain, SDR 779 million because all their transfers to ECs and DCs are more than covered by a net transfer from IC losers of SDR 1.9 billion. The burden on the IC losers is about SDR 1.68 per outbound letter post item, while the IC winners gain about SDR 0.12 per outbound item.

The portrait of economic distortions that emerges from the terminal dues model and base scenario depends to a significant degree on approximations and assumptions. To test the overall correctness of this portrait, it is necessary to consider to what extent different assumptions result in materially different patterns of distortion.

While a complete sensitivity analysis is beyond the scope of this chapter, a few examples may be informative. If the annual growth in small packets dispatched by ICs and ECs is 20 % greater than that assumed in the base scenario, the 4-year total of undercharges will increase by about SDR 322 million or 4.4 %. The net transfer from IC losers will increase by SDR 192 million or 4.7 %. If the percentage of priority domestic postage rates equivalent to terminal dues is assumed to be 60 % (instead of 70 %), total undercharges will decrease by SDR 1.9 billion (−26 %)—47 % of the estimated market value—and the net transfer from 12 IC losers (two IC losers are changed to winners) will be reduced to SDR 2.9 billion (−28 %). Conversely, if equivalent domestic postage is taken to be 80 % of priority domestic postage, total undercharges rise to SDR 9.3 billion (+26 % increase)—60 % of the market—and net transfers by 15 IC losers increase by SDR 882 million (+22 %). If domestic postage rates in the ICs increase by 4 % per year (instead of 2.3 % as assumed in the base scenario), total undercharges will increase by SDR 372 million (+5.1 %) and the net transfer by the IC losers will increase by SDR 171 million (+4.2 %). Such considerations suggest the overall pattern of distortions revealed by the base scenario is substantially correct even though quantities will vary depending on assumptions.

5 Conclusions

The proposition that the UPU terminal dues create significant economic distortions and anticompetitive effects cannot be seriously contested. This chapter considers the further problem of estimating the quantity of economic distortions implied by the current UPU terminal dues system, in effect from 2014 through the end of 2017. The chapter describes a plausible, if approximate, model for evaluating these distortions and suggests that the pattern of economic distortions that is revealed is not particularly sensitive to the assumptions adopted. This analysis suggests the following conclusions, simplified by use of round numbers:

First, the economic distortions implied by the UPU terminal dues may be summarized using two measures. *Total undercharges* measures the potential for economic distortions and anticompetitive effects resulting from the pricing behavior by POs. *Net transfers between PO* measures the portion of total undercharges financed by transfers of economic value between POs, i.e., the extent to which some POs are benefitting at the expense of others.

Second, total undercharges fostered by the UPU terminal dues system are substantial compared to the real value of the market, i.e., the domestic postage that would be charged for delivery services provided. When terminal dues are compared to equivalent domestic postage rates, it appears that POs are undercharging each other for delivery of inbound international letter post by 40–60 %. Undercharges for letter post items from EC and DCs approach 70 % or more. Total undercharges will amount to approximately SDR 7.5 billion over 4 years, plus or minus perhaps two billion. About two-thirds of this is due to undercharging for delivery of small packets.

Third, the net effects of undercharging vary very substantially among post offices. POs (and their mailers) are, in effect, subsidizing each other. ICs are subsidizing ECs and DCs. Some ICs are subsidizing other ICs. The total amount of implied net transfers is on the order of SDR 4 billion over 4 years. Approximately, SDR 1.5 billion in net transfer benefits three POs specializing in e-commerce: China, Hong Kong, and Singapore. Another SDR 1.5 billion is divided among 138 DCs, most of it going to the largest and least needy POs. The remaining net transfer, approaching SDR 1 billion, benefits a dozen or so, generally very large, ICs. Under the UPU terminal dues system, the entire cost of this global network of postal subsidies is paid by 12–15 ICs and their mailers, including the POs of Canada, the Nordic countries, Switzerland, Italy, France, Japan, and Ireland.

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