

Be Careful What You Ask For:

A Comment on the OECD's Mobile Price Metrics

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In its bi-annual COMMUNICATIONS OUTLOOK (2009), the Organization for Economic Cooperation and Development ("OECD") concludes that mobile telephone prices in the Netherlands are consistently among the lowest, while prices in the United States are consistently among "the most expensive."¹ Prices in the Netherlands are reported to be no less than half of those in the United States, and in some cases nearly one-fifth the size.² However, if the Dutch's prices are really so much better, would American consumers prefer the mobile pricing plans offered in the Netherlands to their own?

Given usage patterns in the United States, the answer is "No." As explained in more detail below, I demonstrate in this PERSPECTIVE that *American consumers would pay more for service at their current usage levels if they faced the pricing plans offered in the Netherlands*. Accordingly, both the OECD's approach to measuring mobile prices and the manner in which the reported results are used are invalid (or at least misleading) and contribute little to the policy debate. The analysis here outlines a superior approach to comparing mobile prices across countries.

I. The OECD's Flawed Data Set

The OECD's pricing methodology focuses on the usage baskets defined to compute consumer expenditures on service.³ The OECD computed "best" prices for three arbitrarily defined usage

levels—low-usage (44 outbound voice minutes per month); medium-usage (114 outbound voice minutes per month); and high-usage (246 outbound voice minutes per month).⁴

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While perhaps consistent with a few European countries, these usage levels are exceedingly low by United States and Canadian standards. The average mobile consumer in the United States yaps about 800 minutes per month, nearly four times as much as the "high use" basket.⁵ The typical Canadian talks about 400 minutes per month.⁶ Moreover, the high-use basket includes only 55 text messages per month, whereas the typical American consumer thumbs over 400 of such messages per month.⁷ Since pricing plans for mobile phone services are dependent on usage, such large discrepancies between assumed and actual usage are plainly problematic (at least to reasonable persons).

A simple solution to this problem is to alter the definitions of the baskets, which could be accomplished either by changing the minutes

assumptions in the current three baskets or expanding the number of baskets. While this solution provides more data, it still does not permit meaningful comparisons of prices across countries, which appears to be the purpose of the OECD's computations.

Indeed, from the dicta of the OUTLOOK, the purpose of creating the mobile price index is to provide a meaningful measure of relative prices across OECD Member Countries, supporting statements such as—Country A has “the least expensive [] offers” and Country Z has the “highest monthly prices.”⁸ A natural interpretation of such comparisons is that the consumers in Country Z, with its “high” prices, would prefer the prices offered in Country A, with its “low” prices. This spin on the OUTLOOK'S mobile pricing data is the standard media response.⁹ If this preference for regime switching is not supported by analysis of payments under the two pricing regimes, then clearly there is a defect in the pricing methodology, its interpretation and use, or both.

II. Understanding the Importance of Usage

Mobile prices are almost always a function of the quantity consumed. Carriers offer numerous pricing plans suited to the usage levels of heterogeneous consumers. These offerings are a response to the preference of most consumers for non-metered pricing (due largely to risk aversion and uncertainty regarding actual usage or variations in usage across months).¹⁰

In mobile markets, which are workably competitive in most OECD countries, sellers target their offerings to match the demand levels of their customers. In a country such as the Netherlands with low average usage, the pricing plans will be designed for the low usage consumer. Alternately, where usage is high, such as the United States or Canada, the pricing plans are designed to satisfy the high usage consumer. If a service provider fails to match the needs of its customers, then the provider

will not acquire or retain customers and its rivals will quickly steal its customer base, thereby threatening its financial stability. Marketing, which is largely an effort to match the product and service portfolio to the needs of consumers, is one of the most significant tasks of the mobile service provider.¹¹

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III. The Problem With the “Basket” Approach

To demonstrate one problem with pricing baskets and cross-country comparisons of prices, consider a comparison between two countries: U and N. Assume Country U has only four customers with usage levels of 100, 800, 800 and 800 minutes per month, and a price vector of $p_{U,100} = \$20$ and $p_{U,800} = \$50$. In Country N, its four customers have usage levels of 100, 100, 100 and 800 minutes, and these consumers face the price vectors $p_{N,100} = \$10$, $p_{N,800} = \$100$.

In the OECD's approach, an usage level is chosen and expenditures are computed, and then strong claims are made about relative prices across countries. Following that approach, we choose usage level 100 for this example, and observe that the lower price is in Country N (\$10 versus \$20). The OECD would conclude, then, that Country N has lower mobile prices than Country U. A media and blogger frenzy would follow claiming Country U lacks competition, good policy, or possesses some other defect causing high prices.

However, if we instead select 800 minutes as the benchmark, then it is Country U that has the

lowest prices (\$50 versus \$100). Now, the media and blogosphere harps on the high prices in Country N and proffers a range of excuses to explain them. But as is obvious in this case, which country has the lowest price depends on the basket selected. The country with the lowest price depends the usage levels chosen and, in this case, such price comparisons are not robust to that choice.

This example is purely hypothetical. But, the same dramatic movements in “rank” appear in the OECD’s own analysis. For example, on a low-to-high price scale, Germany moves from a rank of 5th for the “low use” basket to a rank of 22nd for the “high use” basket—a seventeen position shift. Belgium ranks 12th for the “low use” basket, but 24th for the “high usage” basket (a twelve position move). Between the “low use” and “high use” baskets, Turkey jumps from 24th to 12th (twelve positions) and the United Kingdom jumps from 17th to 6th (eleven positions).

Are Germany, Belgium, Turkey and the United Kingdom high price or low price countries? The OECD’s approach cannot provide an answer, other than sometimes they are low priced countries, and sometimes they are not. This conclusion is not very helpful.

One might respond to this critical observation that the United States, unlike some other countries, is consistently found by the OECD to be a high price country. But, this OECD conclusion is inextricably tied to the baskets it chose, which are not representative of actual usage consumers in the United States. The basket approach cannot answer the policy-relevant question of whether consumers in Country U would prefer U’s own prices or those of Country N?

To see how an answer can be obtained, consider again the hypothetical scenario above. Country U’s four consumers pay \$170 with their own prices or \$310 with Country N’s prices. Plainly,

Country U prefers its own prices, despite the fact that the 100 unit customer pays more under U’s tariffs. Alternately, Country N consumers pay \$130 at own prices or \$110 with Country U’s prices, so Country N also prefers the prices of Country U. If we focused solely on the 100 unit customer, as in the OECD’s analysis, then Country N has the “lowest” prices. But, if we look across all customers, then Country U’s prices are preferred by both countries.

The choice of usage level is clearly important when comparing *countries* (and not consumers). An arbitrarily selected “representative” customer (or *un*-representative in this case), provides very little information. But even more important is that a proper comparison requires consideration not only of a country’s mean usage but its *distribution* of usage. This distribution is entirely ignored by both the OECD and its critics who focus on differences in mean usage across countries and how these compare to actual usage levels.¹²

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IV. A Better Comparison

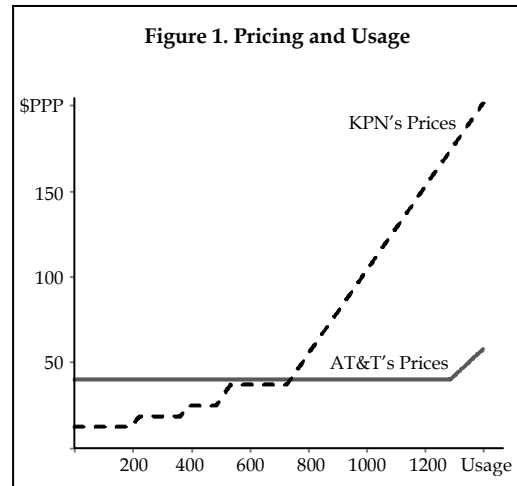
Setting aside the hypothetical example, I now incorporate actual prices into the analysis. To do so, I first obtain list prices for two countries—the United States and the Netherlands. In the OECD analysis, the United States is consistently a “high price” country and the Netherlands is consistently a “low price” country.¹³ The implication of the OECD’s analysis is that consumers in the United States would prefer the prices observed in the Netherlands. Mimicking

the OECD, I use AT&T's prices for the United States and KPN's prices for the Netherlands.¹⁴ In limiting my attention to these carriers I do not mean to belittle the issue of carrier selection for such comparisons. Carrier selection is very important, since carriers target different types of consumers and consumers seek out low prices. The limited carrier set used by the OECD is a significant defect in their analysis. To reduce the dimension of the analysis, only voice minutes are considered.¹⁵

Minimum expenditures at different usage levels are illustrated in Figure 1. Total minutes (inbound and outbound) are measured along the horizontal axis. To account for Calling Party Pays ("CPP"), U.S. billed minutes for the KPN prices (where CPP applies) are assumed to be 53% of total minutes.¹⁶ In the U.S., 65% of total minutes are assumed to be free member-to-member and weekend/evening volumes (and thus billed at a price of zero).¹⁷

As shown in Figure 1, below about 350 minutes, KPN's prices are better by a meaningful amount (about half of AT&T's prices). Between this level and about 550 minutes, the prices become much closer. Over the 550-750 minute range, the prices are roughly identical. After this level of usage, KPN's plans rise (linearly) and are always above prices in the United States.¹⁸ KPN does not offer an unlimited plan—AT&T does (as do all other major carriers in the United States).¹⁹

Switching to the "low prices" in the Netherlands forces consumers in the United States to pay about 14% more per month for service at existing usage levels.



From Figure 1 it is apparent that for customers with fewer than about 500 total minutes of usage, the preferred price is KPN's price. This is the usage range considered in the OECD's analysis. For those with more than 750 minutes, the preferred price is always AT&T's. This is the usage range ignored in the OECD's analysis. Plainly, which firm's prices are preferred depends on usage levels, and the OECD's conclusions depend on the usage levels assigned to their baskets.

Comparing the prices between countries requires consideration of the full distribution of consumers, not just a few representatives (such as the average customer). Using data from a recent survey on mobile customers in the United States, total expenditures for mobile services are computed for American consumers using both AT&T's and KPN's pricing plans. To compare prices across countries, I compute expenditures for 1000 customers drawn from distributions matching the actual usage data.²⁰ I assume the average usage in the U.S. is 830 minutes per month and 129 minutes per month for the Netherlands.²¹ When using KPN's prices, billed minutes are assumed to be 60% of total minutes to account for CPP. I also assume only 35% of domestic calling is billed due to applicable free calling features of AT&T's plans. Customers are assumed to optimize by choosing the best pricing plan for their usage level.

Just for illustration, I also compare AT&T's and KPN's pricing for Dutch consumers.²² As in the domestic case, I assume that only 35% of total minutes are peak minutes under AT&T's plans and only 70% of total minutes are billed under KPN's plans (total minutes includes both inbound and outbound minutes).²³ This CPP-adjustment has a larger value than in the U.S. because CPP discourages calls to mobile phones since such calls have a positive price to the originator.

Table 1 summarizes the results of the simulation. The reported expenditures are a rounded average of a few repeated simulations. Usage levels are assumed constant across the pricing regimes.²⁴

Table 1. Home vs. Foreign Tariffs

Country	@ U.S. Prices	@ Neth. Prices	Savings (%)
U.S.	\$43,000	\$49,000	- 14%
Neth.	\$40,000	\$13,000	- 208%

Table 1 confirms (the unsurprising result) that the offerings of each country's carriers are tailored to the demand profiles of their customers. American consumers are better off with the price structure in the United States and Dutch consumers are better off with the pricing structure in the Netherlands. If American consumers pay AT&T's prices, then they pay \$43,000 per month for service, or an ARPU of \$43 per month (for this simulation).²⁵ In contrast, at KPN's prices, the same usage would cost \$49,000, or \$49 per month. Switching to the "low prices" in the Netherlands forces consumers in the United States to pay about 14% more per month for service at existing usage levels.

Similarly, consumers in the Netherlands, given their very low volume profile, would pay about three times as much for service at their usage levels if KPN's prices were replaced with AT&T's.

In contrast to the conclusions of the COMMUNICATIONS OUTLOOK 2009, the Netherlands is not a low priced country in general. When their consumers act like American consumers, the Netherlands has relatively high prices. But, prices in the Netherlands are well suited for the Dutch; they would not like AT&T's pricing plans anymore than would Americans prefer KPN's.

This analysis demonstrates that international comparisons of prices across arbitrarily-selected baskets do not provide a reliable indicator of relative prices when the consumer demand profiles vary significantly. An interesting analysis would be to compare pricing levels across all countries using the method presented here. In some cases, another country's pricing plan may lead to lower prices in the home country. In such instances, the case for "high price" and "low price" countries is stronger. However, differences in regulatory regimes and cost structures (and other "exogenous" determinants of prices) must be considered (e.g., Calling Party Pays versus Receiving Party Pays). We have made an effort to adjust for CPP here, but it is admittedly crude.

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V. Caveats

Naturally, this analysis has its warts and could be extended and improved in a variety of ways. I could, for example, expand the analysis to include other carriers in the United States and in the Netherlands. In the United States,

consumers typically have the choice of four or more mobile phone companies.²⁶ Some carriers target smaller volume customers, while others aim for large volume customers. It is not difficult for a low volume consumer to find a better deal than that offered by AT&T's individual plans either with AT&T or another carrier (of which there are many).

For example, Sprint offers a 200 minute plan and T-Mobile a 300 minute plan. All carriers offer prepaid plans with per-minute pricing, as do a number of Mobile Virtual Network Operators like Boost Mobile ("MVNOs") (Boost offers a \$0.10 minute plan without a monthly fee). Regional carriers are viable option for many American consumers and offer highly competitive offerings. Metro PCS, for example, offers an unlimited calling (and text and data) plan in over 4600 cities and towns for only \$40 per month. While these smaller and regional carriers may not be able to meet the need of every customer, they obviously meet the needs of many. To ignore these options, as the OECD has done, presents a highly distorted view of the mobile marketplace in the United States and perhaps other countries, particularly when the hypothetical customers they use are not representative of the typical American consumer.

It is not my intention here to analyze the problem of carrier selection in such calculations. I stress, however, that the carriers selected by the OECD should include a sufficient number of carriers to adequately represent the best prices available in a given country for all relevant usage baskets.²⁷ At present, the OECD's methodology fails in this regard.

Additional realities that could impact pricing in a particular market but are ignored by the OECD and here include, but are not limited to, the following: the geographic scope of the network;²⁸ prepaid plans; family plans; customer reward plans; handset subsidies; contract lengths; rollover minutes; the use of exchange

rates or PPP adjustments; grandfathered plans; SMS and MMS messages; handset insurance; quality of customer service; quality of service; international prices; data plans; calling party pays versus receiving party pays; and mobile termination rates. This list of market realities is not exhaustive, and each of these items may have important implications for price comparisons across countries.

Plainly, the complexity of the issue demands humility and temperance in conclusions reached based on inter-country mobile price comparisons.

VI. Policy Recommendations

Hopefully this analysis has shed some light on the problems with both the construction and interpretation of a mobile price index useful for comparing prices across countries. To help move the process forward constructively, I set forth a few policy recommendations.

Expand the Number of Baskets to Reflect Usage Levels. If the basket approach is to be used (and it undoubtedly will), the number of baskets should be expanded to reflect usage levels across all Member Countries. Usage is on the rise, however, so the choice of baskets must accommodate significant growth over the coming years. Under current conditions in the United States, a high-use basket should be in the 2000 minute per month range.

Investigate the Distribution of Usage. As shown here, picking a few usage baskets does not permit meaningful comparisons of mobile prices across countries. Incorporating the full distribution of usage (or usages) is required to compare countries. The OECD should study the distribution of usage in its Member Countries and allow that data to guide its analysis.

Accurately Represent the Pricing Options. The carrier set selected by the OECD for pricing analysis should include a sufficient number of carriers to represent adequately the best prices

available in a given country for all relevant usage baskets. Choosing the largest carriers only, as the OECD did, may significantly misrepresent the options faced by consumers.

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Explicit Recognition of Complexities. The OECD should thoroughly qualify its computations and explicitly list what is and what is not considered. At present, the OECD trivializes the complexity of comparing mobile pricing plans across highly heterogeneous countries. For the data to be used wisely and effectively, the readers must be fully aware of the limitations of reported statistics so as to limit improper interpretation.

Provide Data, Not Conclusions. Given the complexity of mobile pricing, the OECD should primarily document the variety of pricing plans offered in each country, rather than create price indexes of dubious merit. Researchers and analysts can then use these prices to construct whatever index they prefer. This approach is ideal for many reasons. First, the OECD can ask carriers to provide the pricing information the providers advertise to their customers, thereby easing data collection and reducing criticisms on the choice of plans. Second, the OECD will provide the valuable service of cataloging published pricing plans over time, something absent from the market today (at prices affordable to the average researcher). Third, given that usage levels will be dynamic over time, documenting published pricing plans rather than summarized expenditure levels allows researchers to form summary price measures based on actual market conditions. Finally, this approach allows the OECD to serve as a useful and policy-relevant provider of data, rather than a purveyor of “filtered” data of questionable credibility.

NOTES:

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¹ OECD COMMUNICATIONS OUTLOOK 2009, pp. 274-7, 296-8 (available at: http://www.oecd.org/document/44/0,3343,en_2649_34225_43435308_1_1_1_1,00.html)

² OUTLOOK 2009 at 296-298.

³ CTIA Press Release, *CTIA Responds to Flawed OECD Report on Usage and Cost for Mobile Phone Calls* (September 1, 2009)(available at: <http://www.ctia.org/blog/index.cfm/2009/8/11/CTIA-Responds-to-Flawed-OECD-Report-on-Usage-and-Cost-for-Mobile-Phone-Calls>); J. Glassman, *Wires Crossed: An OECD Report on U.S. phone Costs Short-Circuits the Truth*, FORBES.COM (September 9, 2009)(<http://www.forbes.com/2009/09/09/cellphones-cost-oecd-opinions-contributors-james-glassman.html>); C. Gurdgiev, *Bursting the OECD's Bubble*, BUSINESS AND FINANCE MAGAZINE (Ireland) (2009); S. Avery, *Cellphone Talk Isn't Cheap, OECD Ranks Canada Third in 'Medium-Use' Usage Plans, and Has Far Fewer Subscribers Than Other Nations* (Aug. 26, 2009)(available at: <http://www.theglobeandmail.com/report-on-business/cellphone-talk-isnt-cheap/article1249022>); M. Hartley, *Cellular Rates Less Than in U.S., OECD Study Finds* (August 12, 2009)(available at: <http://www.nationalpost.com/scripts/story.html?id=1883096>).

⁴ Inbound minutes make up about 20-30% of total minutes. See G. Campbell, *Global Wireless Matrix 2Q09*, Bank of America/Merrill Lynch Research (June 2009).

⁵ *Id.*; *CTIA Semi-Annual Wireless Industry Survey, Year-End 2008* (2009)(available at: www.ctia.org); Nielsen Media, *Call My Cell: Wireless Substitution in the United States* (September 2008) (available at: <http://www.nielsenmobile.com/documents/WirelessSubstitution.pdf>).

⁶ *CTIA Semi-Annual Wireless Industry Survey, Year-End 2008* (2009).

⁷ *Id.*

⁸ This language appears in the OUTLOOK 2009 at 275-7. While such cross-country comparisons are explicit in the report, the OECD explicitly states the purpose of its computations is to “follow pricing trends (at 275).” Following pricing trends is a very different task than comparing rates across countries at some point in time. In some cases (but not all), a defective price index may still indicate whether or not prices are rising or falling, even if the index is useless as a relative measure of prices across countries. Following trends, however, does not appear to be the primary purpose of the index, at least for the authors of the OECD report. The OECD’s insatiable lust for rankings led the authors to compare not trends but levels of prices across countries. Their computations are largely meaningless in that regard, as others have shown and we demonstrate here.

⁹ *Mobile prices cheapest in Netherlands – OECD*, RTE Business (August 11, 2009) (“Mobile phone calls are cheapest in the Netherlands and most expensive in the US among the major developed economies, a new report by the Paris-based OECD showed today”).

¹⁰ See, e.g., O. Shy, *HOW TO PRICE: A GUIDE TO PRICING TECHNIQUES AND YIELD MANAGEMENT* (2008) (“it is widely observed that consumers subscribing to services prefer flat-rate payment plans over paying separately for each unit of consumption (at 360)”; H. Mitomo, T. Otsuka and K. Nakaba, *Behavioral Economic Interpretation of the Preference for Flat Rates: The Case of Post-paid Mobile Phone Services*, in *CONTRIBUTIONS TO ECONOMICS: TELECOMMUNICATIONS MARKETS* (P. Curwen, J. Haucap and B. Preissl, Eds. (2009) at pp. 59-73; P. Fishburn, A. Odlyzko, and R. Siders, *Fixed-fee versus Unit Pricing for Information Goods: Competition, Equilibria, and Price Wars*, in *INTERNET PUBLISHING AND BEYOND: THE ECONOMICS OF DIGITAL INFORMATION AND INTELLECTUAL PROPERTY* (B. Kahin and H. Varian Eds (2000)) at pp. 167-89 (“There are three main reasons that probably lead consumers to prefer flat-rate pricing, and they were recognized a long time ago ... (at 172)”).

¹¹ OUTLOOK 2009 at 274-5 (“Mobile markets in the OECD are largely competitive and operators shifted their marketing over the past two years to attract new customers. *** Operators are adjusting their marketing to those who may use fewer minutes ...”).

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¹² *Supra* n. 3.

¹³ OUTLOOK at 274-6.

¹⁴ *Id.* at 296-298. Prices were observed on September 1, 2009 (www.att.com; www.kpn.com). Pricing plans have three components: fixed fee, minutes allowed, and overage charges. For AT&T, the plans include: (39.99, 450, 0.45); (59.99, 900, 0.40); (79.99, 1350, 0.35); and (99.99, Unlimited, 0); for KPN, the plans include (in Euros): (10, 130, 0.3); (15, 240, 0.30); (20, 320, 0.30); and (30, 480, 0.30). I use a U.S. Dollar Purchasing Power Parity adjustment of 1.23.

¹⁵ Extending the analysis to multiple services, while feasible, complicates the exposition since all usage levels would need to be varied, turning a two-dimensional problem (payments and usage) into a multi-dimensional problem (payments and usage for all of many goods). Also ignored are taxes and fees. These other factors can be included in a more thorough analysis, but the analysis would be significantly more complex and not shed much additional light on my demonstration.

¹⁶ CTIA's *Wireless Industry Indices: Semi-Annual Data Survey Results: A Comprehensive Report from CTIA Analyzing the U.S. Wireless Industry, Year-End 2008 Results* (rel. May 26, 2009), at 198. If Calling Party Paid applied, then the inbound share of total minutes would, of course, fall. To keep the analysis conservative, I do not make an adjustment for reduced inbound minutes (which may also reduce total minutes). As the share of inbound minutes declines, the difference between U.S. consumers' payments in the two countries gets larger.

¹⁷ This data point was also provided by Campbell, *supra* n. 4. Also see OECD, *Baskets for Mobile Services (2005 Methodology Revision)* (available at: <http://www.oecd.org/dataoecd/3/23/43488777.pdf>) (assuming weekend and off-peak calling of about 50%). AT&T's market share is about 27%, which is a naïve estimate of in-network calls. See *In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993 Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services*, Federal Communications Commission, WT Docket No. 08-27 (Rel. January 16, 2009), at Chart 1.

¹⁸ KPN has a plan selection program on their website. Typing in 830 minutes, the average for the U.S. consumer, the plan recommendation leads to a monthly bill of about \$240 (PPP) (adjusting for the rounding of minutes, the price is closer to \$200). Given the free minutes available from AT&T, the same customer would spend about \$50.

¹⁹ Over this usage range, the unlimited plan is not invoked.

²⁰ Minutes of Use usage data for the United States was provided by The Nielsen Company, and is based on their 60,000 strong mobile subscriber bill panel. The distribution of minutes-of-use can be closely approximated using a highly parsimonious approach that may be useful for future research. For purposes of simulating U.S. consumers, I matched the actual usage data to a central χ^2 distribution with 1.65 degrees of freedom by minimizing the Root Mean Squared Error between the actual and fitted distributions. The simulated distribution is very close to the actual distribution. An alternative approach is to use or resample the actual data to generate many distributions. Doing so does not alter the results, and the simulated distribution is easier to work with. For example, by using this matched distribution, it is easy to scale the distribution to match the means of the two countries and the simple simulation facilitates replication by others.

²¹ Campbell, *supra* n. 4.

²² I have no data to confirm the shape of the assumed distribution for the Netherlands, so the analysis must be viewed as illustrative and preliminary. The distribution is generated by shifting the U.S. distribution to match the mean usage of 129 minutes per month.

²³ Campbell, *supra* n. 4; Nielsen, *supra* n. 20.

²⁴ Obviously, if prices rise, quantity falls. Asking whether or not an American consumer would prefer KPN's prices at a level of usage well below current consumption is a different and somewhat peculiar question.

²⁵ This ARPU is not the actual for the United States, but for this simulated sample of 1000 customers paying AT&T's Individual Plan prices. The expenditure is based on voice minutes only. The Average Revenue Per Minute ("ARPM") for the U.S. from the simulation is about \$0.08, which is slightly above but close to the actual U.S. value (\$0.05). For the Netherlands, the ARPM is 0.19, which is also close to the actual value (\$0.22).

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²⁶ *In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services*, WT Docket 06-17, ELEVENTH REPORT, 21 FCC Rcd 10947 (2006) (“11th CMRS Competition Report”) at App. A, Table 11.

²⁷ It makes no sense to include multiple carriers offering roughly equivalent prices targeted at high volume users, but exclude carriers that tailor offerings to low volume users. A better approach is to include one of each type.

²⁸ Holland is about half the size of South Carolina.