



## **Programming Obstacles Facing Small Cable Companies**

### **Dale Lehman<sup>1</sup>**

#### **Attachment A**

The Commission seeks comment on a number of practices that affect small cable providers (multichannel video programming distributors, MVPDs). These include exclusive contracts, access to terrestrially delivered cable-affiliated programming, price discrimination, tying of desired programming with undesired programming, and good-faith negotiations. I will treat these in two broad categories: (i) practices which produce artificial economies of scale, thereby disadvantaging small MVPDs, and (ii) tying/bundling practices which may harm consumers and distort competition in programming markets.

#### **(i) Artificial Economies of Scale**

Provision of cable services is subject to economies of scale. Cable services require significant investments in plant and equipment. These investments do not increase proportionally with the number of subscribers – thus, average costs decline with the number of subscribers. These scale economies are a natural result of a production

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technology with relatively high fixed costs.<sup>2</sup> However, a number of practices of programmers create *artificial* economies of scale, further undermining the financial viability of small MVPDs.

Price discrimination, while a common business practice in many markets, is not justified when selling programming to MVPDs. Small MVPDs face a significant cost disadvantage relative to large cable or satellite providers.<sup>3</sup> This “volume discount” is not justified by cost savings associated with larger providers, as is the case with many volume discounts. It merely reflects the relative bargaining power of smaller MVPDs compared with larger ones. As a result, smaller MVPDs face a higher cost structure. Rural MVPDs compete directly with satellite providers who obtain more favorable rates for access to programming. This is an artificial cost advantage, however, since it would be erased if programming were available at comparable costs (with no increase in costs to the programmer). The Commission should require that programming contracts be available on a “most favored nation status” so that small MVPDs can obtain the same rates as large ones. At a minimum, programmers should be required to show that their costs are higher for providing programming to small MVPDs, and then should be permitted only to recover any higher costs through higher rates.

Exclusive contracts create another artificial scale economy. Exclusive contracts will always convey some market power to a downstream competitor that has exclusive rights to valuable upstream content that is protected by copyright. This is a policy issue in

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<sup>2</sup> “There had always been the basic network economies of scale in cable infrastructure with the high fixed costs of building a comprehensive wired network and the relatively lower variable costs of operation” in B.J. Bates and T. Chambers, “The Economics of the Cable Industry, chapter 8 in *Media Economics*, edited by Alexander, et al, Lawrence Erlbaum Associates, 2004 (at page 176). The chapter goes on to cite that “larger systems and MSOs could use their size to gain a degree of purchasing power (both for equipment and programming).”

<sup>3</sup> The American Cable Association (Comments, MB Docket No. 07-198, at page 17) estimates that their members pay per subscriber license fees that are 30% higher than those paid by major MSOs.

its own right, concerning the development of downstream competition. It is especially pernicious in the case of small downstream providers. They are unlikely to be party to exclusive programming contracts, so such contracts will necessarily make them less able to compete. Given that the incremental cost of distributing programming is negligible, it may be inefficient to preclude small MVPDs from being able to distribute such content through exclusive contracts (unless the fixed costs of content creation can only be recovered through the use of exclusive contracts). Recent work by Singer and Sidak highlights the potential damaging effects of exclusive contracts on downstream competition in the MVPD market.<sup>4</sup>

**(ii) Bundling/Tying**

There is a voluminous economics literature concerning bundling and tying arrangements. Distinctions are made between *pure* bundling where only a bundle is offered and *mixed* bundling where the buyer has a choice between a bundle or a stand-alone price. I will use the term *tying* to be equivalent to pure bundling. On one hand, bundling and tying arrangements are common business practices, even in competitive markets. This has been pointed out in comments made by Bruce M. Owen in this proceeding (“Wholesale Packaging of Video Programming”). On the other hand, many economics textbooks explain bundling as generally producing profits for the supplier at the expense of its consumers. In fact, the canonical example often offered is that of cable television programming.<sup>5</sup>

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<sup>4</sup> H.J. Singer and J.G. Sidak, 2007, “Vertical Foreclosure in Video Programming Markets: Implications for Cable Operators,” *Review of Network Economics*, 6, 3, 372-396.

<sup>5</sup> For example, see R.S. Pindyck and D.L. Rubinfeld., 2004. *Microeconomics*, Prentice-Hall, at page 400.

A significant amount of material has been filed in this docket regarding bundling/tying – I will discuss the issues in terms of two areas: facts and theories.

**Facts:**

Concerning the facts, there is a dispute about whether or not bundling of programming actually happens. Bruce Owen provides evidence that there is a wide distribution among cable systems in terms of how many networks they carry (using Fox and NBC Universal as examples). The American Cable Association presents evidence that 30% of the channels on expanded basic and 45% of the channels carried on digital tiers are carried under tying or bundling arrangements imposed by programmers. In addition, 32 of the top 50 channels are distributed to virtually every cable and satellite households.<sup>6</sup> It is hard to reconcile these divergent “facts.”

A notable source of divergence may be the population the data is supposed to represent. The American Cable Association represents over 1,100 small and medium sized cable companies (most small MVPDs are members in order to take advantage of the relatively more attractive contracts negotiated by ACA). Owen reports data on the purchasing behavior for 4,200 “small cable systems.” The cable companies in ACA operate multiple “systems” which may account for the discrepancy. It is unclear why the variability of channels would be high within multiple systems operated by the same MVPD. It is possible that a single cable company operating multiple systems may show different purchasing arrangements across their systems – this could result, for instance, if they have acquired these systems at different points in time or operate under different

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<sup>6</sup> In one respect, it is not surprising that the most popular channels would be in most households. However, a closer look reveals some interesting puzzles. Among the top 50 channels (as reported in Table 6 of the American Cable Association Comments) are Fox Sports, Court TV, and Food. As I explore in section (2) below, it is precisely the combination of channels that appear to be mismatched that can make bundling profitable at consumers’ expense.

vintage contracts. In any event, it is not possible to reconcile the two data sources, since the ACA data is subject to nondisclosure agreements and the Owen data has not been publicly released. The Commission should insist on seeing the data, particularly when there is a factual dispute.

Programming contracts typically contain penetration requirements or minimum subscriber commitments. These essentially require the cable operator to carry the network on its basic or expanded basic tier and/or require it to be provided to almost all of its subscribers. This effectively ties such networks to all the others in the tier. Thus, I consider tying to be a common practice – presumably, this is why so much attention has been focused on the practice.

## **(2) Bundling and Tying Theory**

“If every segment of the audience was wild about one thing they screened, and hated the rest, they have done their job.”<sup>7</sup> This is the essence of bundling as an alternative to price discrimination. The Appendix illustrates the principle applied to wholesale video programming,, as well as showing how complex bundling actually is – and why so much economic theory has been devoted to its analysis with few unambiguous results. The Appendix shows the following:

- Wholesale bundling is generally profitable, sometimes at consumers’ expense.
- Wholesale bundling can increase efficiency by more widely distributing content for which there is no marginal cost of distribution.
- Wholesale bundling can decrease efficiency by leading to the creation of content that is not worth its cost.
- Bundling is complex and the issues must be resolved through empirical research and reliance on market mechanisms wherever possible.

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<sup>7</sup> “Getting better all the time,” *The Economist*, November 19, 1998.

This mirrors Bruce Owen's conclusion that "[T]here is no obviously appropriate model that permits one to characterize the outcome for wholesale or retail video programming. Hence, the welfare effect is indeterminate. It follows that regulatory intervention is little more than a stab in the dark."<sup>8</sup>

But I am less cynical, for several reasons. First, there is some empirical work that attempts to answer these questions. In a series of papers, Gregory Crawford has found that bundling has decreased consumer welfare in cable television markets.<sup>9</sup> The Commission should conduct a thorough analysis, including all relevant analyses, especially given the importance of the issue. In the meanwhile, there is one significant issue overlooked by the opponents of wholesale a la carte programming, as exemplified in the section of the Owen paper entitled "[R]etail bundling is not caused by wholesale packaging."

Owen cites retail bundling as existing from the beginning of the cable industry. This is off the point, however. Given the technology at the time (analog), unbundling was prohibitively costly to implement. At the present time, wholesale bundling/tying prevents the evolution of retail packages that might better meet consumer preferences. While retail packaging may or may not occur on its own, packages geared to consumers of small MVPDs cannot develop when wholesale networks are bundled. The cable operator in effect purchases the programmer's bundle for the retail consumer; there is no rationale for the cable operator to then unbundle that programming for their retail subscribers.

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<sup>8</sup> Owen, at page 34.

<sup>9</sup> M. Coppejans and G.S. Crawford, 1999, "Bundling in Cable Television: Incentives and Implications for Regulatory Policy (unpublished); G.S. Crawford, 2004, "The Discriminatory Incentives to Bundle in the Cable Television Industry," Economics Working Papers in Oxford; G.S. Crawford and M. Shum, 2007, "Monopoly Quality Degradation and Regulation in Cable Television," *Journal of Law and Economics*, 50, 181-219; G.S. Crawford and J. Cullen, 2007, "Bundling, product choice, and efficiency: Should cable television networks be offered a la carte?" *Information Economics and Policy*, 19, 379-404.

They can only lose money in the process (as well as violating many of their programming contracts), since they have already paid for the bundle. However, a small MVPD that wishes to purchase a smaller bundle of programming (hopefully at lower cost) for its subscribers cannot do so if programmers require the purchase of the larger bundle.

A recent paper from Liebowitz and Margolis provides another defense of bundling as common practice.<sup>10</sup> While most of their focus is on other advanced technology industries, they do have a section on cable television. In it, they state “We also assume that cable operators are sufficiently able to maximize profits that they do not include any stations where value to the bundle is less than the cost of the station.”<sup>11</sup> They go on to argue that bundling benefits consumers of cable television. However, their assumption basically assumes away the problem. It is precisely the obligation to carry stations whose value is lower than their cost that small MVPDs object to.<sup>12</sup>

In view of the complexities associated with bundling, I do not advocate forced retail unbundling – it is best left to the retail market to determine what packages of programming are best for consumers. But, the market cannot discover this if wholesale tying arrangements are required for access to programming. Retail and wholesale bundling are not identical issues; wholesale unbundling is a necessary (but not sufficient) condition if retail packages are to be customized for different sets of consumers.

The Comments filed by programmers (in particular, the papers by Owen, Baumann and Mikkelsen, and Eisenach, as well as recent work by Hazlett and Liebowitz and Margolis) raise a number of other defenses of bundling/tying which need further

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<sup>10</sup> S.J. Liebowitz and S.E. Margolis, 2008, “Bundles of Joy: The Ubiquity and Efficiency of Bundles in New Technology Markets,” The Free State Foundation, Perspectives from FSF Scholars, Vol. 3, No. 2.

<sup>11</sup> Liebowitz and Margolis, at page 33.

<sup>12</sup> See myriad comments from small MVPDs in the filing of the American Cable Association as evidence.

elaboration. These include, advertising revenue, option value, economies of scope, market power, and entry. I examine these in turn.

### **Advertising Revenue**

Much is made of the fact that networks on the enhanced basic tier are supported by advertising revenues. Such revenues are large and important to programmers. The claim is made that such revenues will decline if programming is unbundled because there will be less total viewers of programming. This claim cannot be substantiated by appeal to today's advertising marketplace, however.

Advertisers pay for time based on the number and quality of the viewers they expect. Today, they must adjust their willingness to spend on advertising according to the fraction of the television audience that is expected to watch particular programming, the likelihood they will see the ads, and the likelihood they will make purchases as a result of the ads. With today's bundled tiers, the number of subscribers to a cable system is a weak gauge of the number of actual viewers who make purchases based on the ads that are run.

If subscribers made active choices to subscribe to particular networks, the likelihood they would watch those networks increases. The quality of the audience (in terms of being able to predict some of their characteristics) will also increase. As a result, the value of advertising time may increase. Further, it is not certain that the number of viewers and total viewing time will decrease, as claimed by the programmers. Total viewing time may remain constant if people substitute time on the channels they subscribe to for time they currently spend watching channels they only watch occasionally. The number of viewers may not decrease if innovative pricing structures

emerge (as discussed under “Option Value” below) or if the quality of programming increases (as discussed under “Entry” below).

### **Option Value**

The papers filed by the wholesale programmers appeal to “option value” as a motivation for the efficiency of bundling. The idea is that a subscriber may not obtain enough value from a network to justify subscribing to it, but may occasionally find programming worth watching. The option to watch programming, in case there is some programs worth watching, has value to consumers. Presumably, this value would be lost in a wholesale a la carte world.

There are several problems with this argument. First, if this option value is high enough, then consumers will, in fact, subscribe to a network for the option to watch its programming. Second, pay per view makes it possible to collect payment in the event that particular programs appeal to particular consumers (rather than the entire channel). Third, other pricing schemes may evolve to capture option value if it is indeed that large. For example, with digital technology, a person could subscribe to packages of different numbers of hours of programming on particular channels. For example, I could purchase 5 hours of viewing time per month on the Economics Channel. This would be a pricing structure than could collect significant option value, where it exists.

Owen takes the argument a step too far in the following passage:

“The payment to carry less desirable content may take the form of a price discount on the more popular content if the MVPD agrees to take both. As a result, the competitive price for a package of content may be less than the competitive price for a stand-alone unit of content...by itself.”<sup>13</sup>

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<sup>13</sup> Owen, at page 38.

This may well be true for particular less desired channels, especially new ones. But, bundling is not necessary in order to get such channels carried by MVPDs. There is no reason why a programmer can't offer a negative stand-alone price – simply pay MVPDs to carry the new network. Bundling is a red herring in this case.

To the extent that option value is important, it is possible that the option value is negative – consumers may actually prefer to have less choice. Some consumers dislike having to scroll through myriad channels that don't have programming worth watching.

### **Economies of Scope**

There are certainly economies of scope in producing programming. Eisenach develops this argument extensively. Programmers can share many costs across different channels; e.g., studios, cameras, personnel, etc. It is true that economies of scope often result in bundles, but bundling is not necessary for programmers to utilize economies of scope. The cost savings in producing multiple channels will be realized regardless of whether or not the channels are sold as a bundle to cable operators.

There are economies of scope in producing automobiles with bumpers. It is possible to produce these separately and consumers can purchase an automobile without a bumper, but they would pay considerably more, due to the economies of scope. This example is a bit different than video programming, however. It is not costly to separate one channel from the others as it is with automobiles and bumpers. In both cases, the relative price of the bundle will be low compared with purchasing the components (channels) separately, but the automobile will actually be more expensive without the

bundle while the bundle of channels should not be more expensive without the other channels included.<sup>14</sup>

Eisenach also claims there are economies of scope in the promotion of different networks – a programmer can advertise one channel on its other channels. This is a textbook example of potentially inefficient decision making.<sup>15</sup> Advertising time is no cheaper, in terms of opportunity cost, if a programmer owns a channel than if they do not. Either way, the market value of advertising time represents the cost of using that time. The time should be put to its most valuable use, not automatically devoted to cross promotion of a programmer's networks.

### **Market Power**

Owen rejects the idea of “must-have” programming and claims that, by a variety of measures, programmers lack market power. This ignores the obvious relevance of copyright protection for programmers. Copyright exists as a deliberate means to convey market power to content producers. If programmers really have no market power, then copyright would be of little value to them.

The real question is whether entry into programming markets is sufficiently free so as to render any market power minimal. I turn to this in the final section.

### **Entry**

A strand of the economic theory of bundling addresses the potential for bundling to inhibit entry or exclude rivals. The work of Barry Nalebuff explores this possibility.<sup>16</sup>

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<sup>14</sup> The exception is the case where a channel has a negative value, as discussed under option value above. This may well be the case for some channels, but bundling is not needed in order to “sell” such channels – only the right price (negative) is required.

<sup>15</sup> For example, see I.Png and D.Lehman, 2007, *Managerial Economics*, Blackwell Publishing., pages 411-412.

<sup>16</sup> B. Nalebuff, 2005, “Exclusionary Bundling,” *Antitrust Bulletin*, 50, 3, 321-371; B. Nalebuff, 2004, “Bundling as an Entry Barrier,” *The Quarterly Journal of Economics*, 119, 1.

Hal Varian explains the logic in the context of the example of bundling office suite software into one bundle:

“In many cases, the only way a potential entrant could effectively compete would be to offer a bundle with both products. This not only increases development costs dramatically, but it also makes competition very intense in the suite market – a not so sweet outcome for the entrant.”<sup>17</sup>

Similarly, entrants into the video programming market must compete against an entire bundle of networks rather than competing against individual channels. This makes development costs much higher, limits entry, and changes the nature of competition from individual networks to packages of networks. Thomas Hazlett cites the not-very-surprising fact that virtually every programmer in the FCC a la carte proceeding in 2004 testified against a la carte programming (he cited this as evidence that a la carte would hurt entry, but it can indicate exactly the opposite when *existing* suppliers protest a policy change).<sup>18</sup> In the Appendix I show that tying can lead programmers to produce programming that is worth less than its cost – that inefficiency may be compounded by the possibility that tying can also exclude entrants from the video programming marketplace.

## **Conclusions**

The Commission should take actions to prevent creation of artificial economies of scale and/or artificial entry barriers. This means prohibiting exclusive contracts, ensuring access to terrestrially delivered and other video wholesale programming, and limiting price discrimination by providing most favored nation access to programming contracts.

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<sup>17</sup> H.R. Varian, 2004, “Competition and Market Power,” in *The Economics of Information Technology*, (by H.R. Varian, J. Farrell, and C. Shapiro), Cambridge University Press, at page 21.

<sup>18</sup> MB Docket 04-207.

Bundling and tying of video programming content raises complex and important issues. This should not preclude the Commission from further study, particularly concerning the potential impacts of wholesale bundling on competition in markets for content creation and distribution. It should not deter the Commission from limiting tying arrangements at the wholesale level. Given that it would be better for the market to determine the fates of retail packaging, it is important that MVPDs have a realistic opportunity to design packages that match their subscribers' needs. The Commission is wisely relying on intermodal competition to discipline pricing in the video marketplace, and the best way to ensure that this competition will explore different wholesale programming packages is if the wholesale cost structure permits this option. At present it does not.

There remains a valid concern raised by Owen, Hazlett, and others – that unbundling mandates would be meaningless without regulation of prices. If the Commission were to require networks to be offered on an unbundled basis at the wholesale level, then this requirement would only be meaningful if it were associated with regulation of the stand-alone prices for these networks. Absent any regulation of prices, unbundling could be meaningless (unless bundling of programming was not permitted at all – something nobody is advocating in this proceeding). However, it is possible to make wholesale unbundling meaningful without resorting to full-blown regulation of prices. The Commission could require that all wholesale networks that are included in any programming bundles be made available on a stand-alone basis, and further, that the sum of the stand-alone network prices not exceed the price of any bundle

in which they are contained.<sup>19</sup> This would still provide flexibility for how programmers choose to price their individual networks while constraining the potential deleterious effects of tying.

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<sup>19</sup> It is important that this be combined with a “most favored nation” requirement to limit price discrimination. That is, programmers cannot set different stand-alone prices for each cable operator, depending on which networks they decide to purchase.

**APPENDIX**  
**THE THEORY OF BUNDLING AS APPLIED TO WHOLESALE CABLE**  
**PROGRAMMING**

A series of examples will illustrate the main results of the economic theory of bundling, as applied to the sale of wholesale cable programming. One important finding is that there are few generalized results – bundling can increase or decrease consumer welfare and efficiency – it is a complex empirical matter to determine the likely effects. For the first part of this discussion, I will ignore all costs. This makes the examples simpler and will clarify how and why costs are important to consider.

The simplest example shows that bundling is not always profitable, and provides guidance as to when bundling may be profitable. Consider two cable channels, the High quality channel and the Low quality channel. Assume there are two MVPDs, A and B, and their willingness to pay (maximum) for these two channels is given in the following matrix:

Example 1

		Channel	
		High	Low
MVPD	1	\$2.50	\$0.50
	2	\$2.00	\$0.40

Absent bundling, the programmer would set prices of \$2 for channel High and \$0.40 for channel Low in order to sell to both MVPDs and maximize profits (remember

that there are no costs being considered at present).<sup>20</sup> Programmer profits = \$4.80 and Total Consumer Surplus = \$0.60.

With bundling, the programmer would set a price of \$2.40 for the bundle of two channels, yielding exactly the same profits and consumer surplus. In this example, bundling achieves little – the only reason to bundle would be if packaging the two channels together was more convenient. This is a case where bundling is uninteresting from a policy perspective and the reason derives from the fact that the MVPD preferences are perfectly correlated – both value High more than Low by the same proportions.

A more interesting case derives if we switch MVPD 2’s preferences for the two channels:

Example 2

		Channel	
		High	Low
MVPD	1	\$2.50	\$0.50
	2	\$0.40	\$2.00

Now, absent bundling the programmer would charge \$2.50 for channel High and \$2.00 for Low: profits would be \$4.50 and total Consumer Surplus equals 0. With bundling, the bundled price would be \$2.40, yielding profits of \$4.80 and Consumer Surplus of \$0.60. In this example, bundling increases both profits and Consumer Surplus. This case poses little policy dilemma – bundling is good for both sellers and buyers. Not so in the next example, however:

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<sup>20</sup> It is worth noting that I am also assuming that the same prices must be set for all MVPDs for each channel – that is, there is no price discrimination. That is why economists generally view price discrimination and bundling as two alternative means for extracting consumers surplus.

### Example 3

		Channel	
		High	Low
MVPD	1	\$2.50	\$0.50
	2	\$2.20	\$0.80

Here, both MVPDs prefer channel High but not by the same proportions. Absent bundling, the prices would be \$2.20 for High and \$0.50 for Low, yielding profits of \$5.40 and total Consumer Surplus of \$0.60. With bundling, the bundle would be priced at \$3.00, with profits equal to \$6.00 and total Consumer Surplus of \$0. This is the typical case explored in many economics texts wherein bundling is profitable for suppliers at the expense of consumers:

“Bakos and Brynjolfsson (1999, 2000, 2001) have explored this issue in considerable detail and show that bundling significantly enhances firm profit and overall efficiency, but at the cost of a reduction in consumer surplus. They also note that these effects are much stronger for information goods than for physical goods, due to the zero marginal cost of information goods.”<sup>21</sup>

It is the imperfect correlation of consumer tastes that permits this result.<sup>22</sup> While it is clear that consumer tastes for cable programming are imperfectly correlated, it is important to note that the result depends on strict assumptions about costs – namely, that there are none.

<sup>21</sup> H. R. Varian, J. Farrell, and C. Shapiro. 2004. *The Economics of Information Technology*, Cambridge University Press, at page 20.

<sup>22</sup> Example 2 is a common textbook type example, where the consumer tastes are negatively correlated. While this seems unrealistic when applied to wholesale programming sold to MVPDs, Example 3 is much more plausible. MVPD tastes are certainly imperfectly correlated.

Consideration of costs is essential if we are to understand bundling.<sup>23</sup> Bundling often reduces costs and largely explains many examples of bundling of physical goods (e.g., automobiles and bumpers, left and right shoes, etc.). In the wholesale video cable programming case, such physical unbundling costs do not appear to be relevant.<sup>24</sup>

Cost considerations can also explain the usefulness of mixed bundling, where consumers are given a choice between a bundle and separate consumption. When production is costly, it is not profitable to have consumers purchase bundled goods for which the marginal production cost is high relative to the consumer's valuation of that good. Mixed bundling permits such consumers to avoid purchasing the costly item and allows the supplier to avoid having to produce it (which is costly) and decrease the price of the bundle in order to sell it (to the consumer that does not want it). Presumably, these cost considerations do not apply to digital cable programming.<sup>25</sup>

There are important programming costs to consider, however. There may be negligible incremental costs to *distribution* of programming, but there are significant costs for the *creation* of content. Thomas Hazlett makes the point that with public goods (such as television programming), it is inefficient to preclude consumers from obtaining a good for which the marginal cost is zero but for which their marginal value is positive.<sup>26</sup> Thus, bundling can result in more efficient distribution, since consumers obtain more programming through bundling (without any increase in the costs of creating that

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<sup>23</sup> The importance of costs is explored in detail in D.S. Evans and M. Salinger, 2005, "Why Do Firms Bundle and Tie? Evidence from Competitive Markets and Implications for Tying Law," *Yale Journal on Regulation*, Winter 2005, 22, 1.

<sup>24</sup> Considerations of option value and advertising would still be relevant, and I discuss these above.

<sup>25</sup> While retail customers may exhibit these extreme tastes, there is no reason for a small MVPD to apply mixed bundling since they are already paying for the bundled channels at the wholesale level.

<sup>26</sup> T.W. Hazlett, "Shedding Tiers For A La Carte? An Economics Analysis of Cable TV Pricing," George Mason School of Law Working Paper 06-05, 2006.

programming). This effect is true, as far as it goes. There is more to be said about programming costs, however.

Consider Example 3 above and suppose that there is a cost of \$1.50 per channel to produce the content. There are still no distribution costs. With bundling, the bundled price will still be \$3 and profits = \$3 = \$6 - \$3 (for the content creation costs for two channels). Consumer surplus is still zero. Absent bundling, the second channel would not be created since the total willingness to pay is \$1.30 while the cost of creating the content is 20 cents higher. The High channel would be priced at \$2.20, providing profits of \$4.40 - \$1.50 = \$2.90. Consumer surplus would be \$0.30. So, bundling creates larger profits, smaller consumer surplus, and results in the creation of a channel whose content is not worth its cost. This is an inefficient outcome.

It is important to note that this result is not a general one. If we change the lower right hand cell in Example 3 so that MVPD B is willing to pay only \$0.70 for channel 2, then bundling results in lower profits than no bundling, and the inefficient creation of content is avoided. Thus, it is possible, but not certain, that bundling can result in the inefficient creation of content. The commonsense intuition behind this possibility is that bundling insulates programmers from direct feedback from the market concerning the value of individual channels. This shifts competition from direct competition between channels to competition between programming bundles.

My conclusions concerning bundling of television programming are:

- Wholesale bundling/tying can, but may not, lead to increased programmer profits at consumers expense
- Wholesale bundling/tying may increase or decrease economic efficiency
- The effects may be significant, but the issues are complex and require considerable empirical effort in order to determine which effects predominate.