

Challenges Faced By Multichannel Video Programming Distributors*

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1 Introduction

While a full growth accounting analysis of the television content and distribution industry over the past twenty five years has not been performed (to my knowledge), I wager that such an analysis would uncover large productivity improvements and large increases to society's welfare attributable to this industry. Compared to 1991, there is orders of magnitude more diversity in content, more time spent viewing television, higher real expenditures, and higher subscription levels (consistent with consumers valuing the available programming more and more over time). Over this period of industry growth, a number of competition policy issues have waxed and waned in importance and public attention. In these comments, I will discuss academic research on some of these issues, and discuss challenges that remain in analyzing them.

The main uncertainty in the industry today is regarding the impact of new entrants using slightly different technological channels, so to speak. Netflix, Amazon, and Youtube are the most visible "tech" entrants into the video programming space. Their entry alters the relative importance of some of the classic competition policy issues in this industry. The specific matters I will comment on today are: bundling at the retail and wholesale level, the evolution and determination of programming costs, vertical integration of distribution with content and with hardware, and program diversity issues, particularly regarding the news media. My comments will address these issues with a focus on traditional multichannel video distribution providers (MVPD's), but I will also touch on effects on over-the-top (OTT) providers.

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2 Bundling

Bundling, that is the packaging of multiple content channels into one product, occurs at both the retail level and the wholesale level in this industry. The economic analysis of these two different types of bundling is different in many ways which warrants considering them separately.

2.1 Retail Bundling

A common anecdotal gripe of consumers is that they pay for hundreds of channels and only watch a handful. Why can't they pay less and only get the channels they want? However, this simplistic reasoning is not correct. One obvious retort is that consumers pay for the channels they want, as no one is forcing them to subscribe to a cable package, and the rest comes for free. In any case, the economic theory is more subtle, and theory's predictions turn out to be ambiguous in the sense that they depend on the values of certain parameters used in the theoretical model.

The main economic theory at play at the retail level is that bundling could be an instrument for price discrimination. Early papers (Stigler, 1963; Adams and Yellen, 1976), showed that a monopoly firm could profit, and consumer surplus could be lower, if the monopoly firm packages two goods together as opposed to selling them separately. These theoretical models and subsequent theoretical work are highly stylized. They often feature just two goods, no competition, and/or unrealistic consumer valuations chosen for tractability. Nonetheless, they provide some justification for wondering whether consumers could be made better off by regulations requiring firms to unbundle.

On the empirical side, unbundling has not occurred much worldwide, let alone in an quasi-experimentally exogenous manner. This lack of variation in unbundling presents an empirical challenge as no direct comparison set is available.¹ One approach, admittedly more speculative, is to create a realistic model of the industry that is general enough to predict what would happen under bundling and under unbundling. The parameters of the model can be chosen by statistical methods to match what we observe under bundling. The structure of the model can then be leveraged to simulate unbundling at the chosen parameters. This effectively resolves the issue of ambiguous theoretical predictions by choosing the parameter set which fits the data the best under bundling.

This is what my co-author and I do in a paper published in 2012 (Crawford and Yurukoglu, 2012). The usefulness of this exercise depends on how realistic the model is. The model we have makes many assumptions, but we claim that it captures many of the first-order short term relationships in the industry. Specifically, the model features consumers choosing what to watch, consumers choosing what bundle and what cable or satellite company to purchase from, cable and satellite companies choosing prices and bundles, and cable and satellite companies negotiating with content conglomerates over carriage fees, and content companies generating advertising

¹It will be informative to see what happens in Canada as they experiment with some regulated unbundling.

revenue from viewership. It accounts for heterogeneity in tastes because of demographics and also “unobservable” heterogeneity. It features competition between distributors and between channels. It also estimates the degree of bargaining power between channels and distributors.

Then, within the context of the model, with parameters chosen by statistical methods to match the past, we force the cable and satellite companies to offer channels à la carte.

To summarize our results: the average consumer is basically no better and no worse off under à la carte. Some consumers gain significantly: those who watch few channels, especially non-sports channels. Some consumers are hurt: for example households that watch more than 20 channels. These households either pay the same or less, but receive less content, or they pay more for the same amount or less content. Some households who value a small number of channels enter the market. These can be thought of as “cord-nevers” who would subscribe were à la carte available. One additional lesson from this analysis is that accounting for the renegotiation of carriage fees under the à la carte regulation is essential for getting realistic answers.

A simple example is useful for explaining the economic effects: Consider two consumers: Alice and Bob. Alice likes ESPN and only ESPN. Bob likes a variety of channels, but some of them, for example HGTV, he just watches two or three times a month on which places a modest dollar value. Under bundling, Alice may really like ESPN, but not enough to pay for the bundle. Under à la carte, the price of ESPN will be lower than the price of the bundle and Alice will be better off. Bob is a big TV fan, and subscribes to the bundle. Under unbundling, he will continue to subscribe to the channels he likes the most. However, he faces a decision with channels like HGTV. Either the price of HGTV is too high for his moderate amount of watching, so he doesn't receive HGTV anymore, or he gets all these channels but ends up paying more than he did with the bundle. The increase of access for people like Alice are weighted against the increase in price or loss of access for Bob. We find on average that these effects offset each other.

On the supply side, we find that distributors benefit from unbundling (before any implementation costs), and that channels mostly suffer, mostly from decreased carriage revenue. While the public typically thinks of cable as a non-competitive business, it is not the case that cable is a monopoly. Satellite providers DirecTV and Dish Network have provided a degree of competition starting from the late 1990's. Furthermore, overbuilders like RCN and Wave, and recent entrants such as Verizon Fios, AT&T U-Verse, and Google Fiber provide an additional wire-based alternative in a sizeable number of markets. When thinking about retail bundling, one must ask themselves, if competition tends to work in favor of consumers, and if unbundling is good for consumers, why haven't any of the competitors found a way to try unbundling?² Similarly, many of the new OTT services are effectively bundles: Netflix, Amazon Prime, and Youtube all offer a huge variety of content. In the similar sector of streaming music, Spotify has had tremendous success in signing up users using a bundled model.

²One possibility is that programmers are able to prevent unbundling via contracts.

Our analysis did not consider any long term effects of unbundling. In particular, we did not consider whether unbundling would lead to either exit of existing channels, entry of new channels, or changes in the investment levels of any channels. Some worry that mandatory unbundling would lead some channels to exit the industry. However, it is not clear that this is the case, nor is it clear that if this were to happen, that such exit would be inefficient. Economic theory suggests that unbundling would improve the efficiency of investment decisions in content. Think of a channel considering investing in a new program. The channel alone bears the production cost of the investment. When the channel is part of the bundle, some of the fruits of the investment, for example if the new program were to become a smash hit, is shared with its fellow channels in the bundle. This positive externality leads to under-investment in channel quality. When the channel is unbundled, the only limit to benefiting from the fruits of its investment is the ability to perfectly price discriminate, which is a friction in nearly every industry, and seems unavoidable for a multitude of reasons.

2.2 Wholesale Bundling

The main competition policy concern with wholesale bundling (also referred to as “tying”) that arises from economic theory is the possibility of foreclosure. The basic idea in these theories, for example Whinston (1990) and Nalebuff (2004), is that a firm with market power in one market (call this the market for product A and suppose there is a monopoly) can leverage that power to keep out entrants in another market (product B) by requiring a customer to purchase both products in order to receive either product. Customers who want both A and B will purchase both from the monopoly in A firm. These can shave enough potential product B sales from the potentially more efficient producer of product B, such that that producer can not meet its fixed costs, and thus does not produce at all.³ The story in this industry would be that by bundling popular channel A with channel B, potentially more efficient entrants into the genre of channel B are deterred from entering. These issues are not mere theory, these are issues that courts have had to confront. Cablevision had sued Viacom over wholesale bundling practices, but this dispute was settled in late 2015.

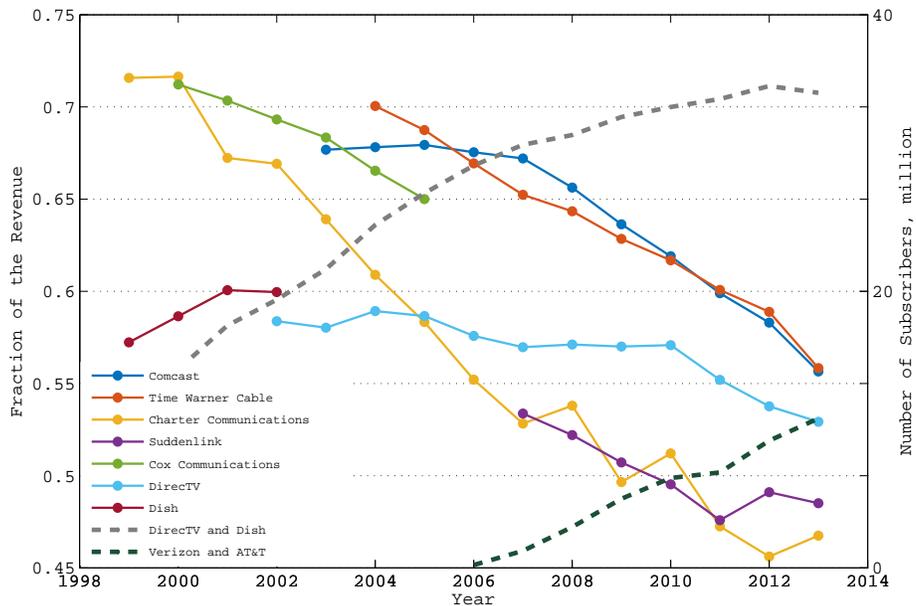
Unfortunately, there is even less empirical evidence on the effects of wholesale bundling. Ho et al. (2012) study the video rental market prior to digital distribution, however their analysis focuses on the business strategy aspect of signing wholesale bundling contracts. This is clearly an area where more empirical analysis would have high value. A limiting challenge is that the theoretical effects depend on the efficiency advantage of unknown potential entrants who never actually enter. This unobservability renders the route of analysis by model simulation quite difficult in this case.

³There are several subtleties in the economic theory here that are necessary to avoid the “one monopoly profit” principle that emerges in simple models.

3 Programming Costs

Programming costs refer to the (typically) linear per-subscriber fees paid by downstream distributors to content providers. The actual contracts are of course more complicated than a single number, but the linear per-subscriber fee is the focus of attention in both industry discussion of content-distribution relationships and academic research. The following graph, Figure 1, plots the ratio of the difference between video revenue and programming costs divided by video revenue over time for a handful of publicly traded cable and satellite firms. The higher the value of this ratio, the larger the fraction of surplus going to the distributor. In other words, channels want this number to be low, and distributors prefer this number to be high.

Figure 1: Downstream Markups



Notes: This figure from Doudchenko and Yurukoglu (2016) shows the ratio of video revenues minus programming costs to video revenues over time for a group of publicly traded MVPD's. The data is from their annual 10k reports. The dashed lines represent total U.S. subscriber numbers for satellite and telco's, respectively.

There are two key relationships to note. First programming costs relative to video revenues have been increasing, and increasing faster than retail prices. Second, larger cable providers such as Comcast seem to pay lower costs than smaller cable providers. We explore these relationships in preliminary work in Doudchenko and Yurukoglu (2016).

Economic bargaining theory suggests that the share going to content should increase when contents best outside option increases. Compared to the mid-1990s, content has more paths to delivery into households. First, the rise of satellite distributors increased the outside option for content: before satellite, if a cable company dropped the content, they had no alternative

avenue into peoples homes. With satellite, if the cable company drops the content, the content may still be available on satellite, and hardcore fans might switch companies. All else equal, this creates leverage that can work in favor of the content companies. The rise of Verizon and AT&T create a similar dynamic. Finally, the threat of going over-the-top directly to consumers pushes in the same direction.

Another interesting phenomenon in this industry is that larger distributors in terms of total subscribers tend to pay lower per-subscriber fees. That this occurs is part of the folk-wisdom in this industry; and there is a host of supporting anecdotal evidence. The graph above is also suggestive in this direction. Economic theory does not make clear predictions in general for whether large distributors will pay less, equal, or more for inputs. Reasonable assumptions can deliver all three possibilities. One set of assumptions that delivers what we see in this industry is that the outside option is better for larger distributors than for smaller distributors. This is a theory put forth in Katz (1987). This would be the case, for example, if under a hypothetical carriage disagreement between Comcast and Food Network, Comcast would be able to start its own Food Network for cheaper than Cox, or another smaller cable provider, would be able to. The actual step of creating need not ever happen for this to generate size effects. The threat is enough. Furthermore, it is reasonable to believe that Comcast would enjoy such an advantage because of its scale as well as its scope in having programming assets.⁴

We have some preliminary results on two implications of size effects in Doudchenko and Yurukoglu (2016). First, size effects mean that mergers between distributors, like Charter and Time Warner Cable, should result in lower programming costs for the new entity. Holding the quality of content fixed, such monopsony power is a good thing in this constant marginal cost industry. Similar to the case of bundling, the dynamic effects on programming investment are unknown. In theory, programming quality could improve or deteriorate. Second, these size effects create a barrier to entry for new competitors, including over-the-top distributors. Effectively, to offer low prices and gain market share, one must have low programming fees. However, to achieve low programming fees, one must have high market share and scale. Eliminating such effects might result in increased entry, however one must balance this against the loss of incentive to grow large by cutting price or becoming more efficient in order to achieve input cost decreases.

4 Vertical Integration

Much content is vertically integrated in this industry. NBC is integrated with Comcast. Cablevision and Rainbow Networks share a history and shareholders, and similar for Time Warner and Time Warner Cable. Perhaps the most visible vertical integration is between regional sports

⁴Chipty and Snyder (1999) looks at another avenue that would generate size differences in negotiated fees, specifically the shape of the advertising surplus function. They conclude that the concavity of the advertising surplus function implies that larger distributors should be at a bargaining disadvantage. Their effect could exist but be outweighed by the Katz (1987) scale effects in reality. That is, the two theories have opposite predictions, but they do not preclude the other force from existing.

networks (RSNs) and distributors: Comcast, DirecTV, Time Warner Cable, Charter, and Cox all have ownership interests in regional sports networks. The economic theory of vertical integration highlights a few key effects: vertically integrated entities may avoid the so-called double marginalization problem, and vertical integration may result in more efficient investment patterns. On the other hand, vertical integration might lead to foreclosure, whereby a vertically integrated unit does not deal with a rival of its sister unit: for example, a cable-owned RSN might not deal with a satellite provider. Short of full exclusion, the cable-owned RSN might charge a higher price to the satellite provider as it internalizes the effect of serving the satellite provider on its downstream distribution profits.

In Crawford et al. (2015), we explore the double marginalization and foreclosure effects. We find that, the efficiency effects of removing double marginalization are substantial, and outweigh costs from foreclosure. However, a regulatory policy, such as the FCC's program access rules, can push the industry towards realizing the efficiency benefits without suffering losses from foreclosure. Regarding foreclosure, we find that absent any such regulations, some integrated channels would be exclusive to their distribution arm, and other integrated channels would negotiate prices with rival distributors significantly higher than what they negotiate were they not integrated. Earlier work in Chipty (2001) found some favoritism in carriage of vertically integrated content, but concluded that this behavior was pro-competitive.

Again, our analysis does not consider investment. Here, one theoretical suggests vertical integration should be good for achieving efficiency in non-contractible investment with an intuition similar to that under bundling. When a content provider makes a non-contractible investment, some of the benefits will accrue to the downstream distributor while the costs are borne entirely by the investor. This creates a misalignment of incentives that could lead to socially sub-optimal investment levels. More empirical research in this direction would be valuable.

An analogous issue arises in hardware. This has received notable policy attention recently with the discussion on set-top boxes. It is not out of the question that similar issues could arise with monitors, tablets, and/or television sets in the future. While the flow of money is slightly different here, the economics are the same. Complementary goods lead to a double marginalization problem. Integration can solve the double marginalization problem, but might lead to foreclosure. Given the entry of OTT firms which also make hardware (including the rumored entry by Apple), integration of hardware and distribution seems like an area of future competition policy issues. Furthermore, firms could be integrated across all three areas: for example Comcast with its NBCU content, X1 set-top box and navigation system, and its distribution infrastructure.

5 Program Diversity and Externalities associated with Television Consumption

This final section argues that the challenges faced by multichannel video distributors have special importance because of the role of television in culture and in information acquisition. Television programs, including televised sports, have a large market share of conversation. Research suggests that behavior learned from watching television can affect outcomes such as gender stereotypes and teen pregnancy (Jensen and Oster, 2009; Kearney and Levine, 2014), as well as cognitive skills (Gentzkow and Shapiro, 2007). It is indisputable that some television shows are cultural phenomena. They are also exports which potentially shape the views of the world towards the US.

Related, television news is a major source of information. Research suggests that television news affects elector turnout and partisan voting (Gentzkow, 2006; DellaVigna and Kaplan, 2007; Martin and Yurukoglu, 2015). This role of media creates externalities on society which should figure in a benevolent regulatory policy framework. For example, unbundling may decrease the fraction of population who has access to news programs that differ from their own opinions. This could in turn drive polarization cycles. While the research on this is not definitive, erring on the side of caution might be appropriate when formulating regulatory policy towards this special industry.

6 Conclusion

The multichannel video industry has been a hotbed of classical issues in competition and regulatory policy including evaluating horizontal mergers, evaluating vertical mergers, bundling, tying, exclusive dealing, and rate regulation. Competition policy issues arise when firms have market power. While technology has increased the level of competition throughout all levels in the industry, market power remains an issue. My goal in these comments was to illustrate how economic modelling can be useful to help guide policy choices, for example in thinking about policy toward product bundling and policy towards vertical integration. The primary mode of analysis is via economic model counterfactual simulation methods. A key caveat is that predicting the long term effects of policy changes on content quality and diversity is challenging. Given the huge progress in the quality and diversity dimensions that the industry has achieved over the last twenty five years, these under-studied long term effects may be the most consequential. Finally, given the special role of television media in both culture and news, competition policy in this industry can have important effects on social outcomes.

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