Video Program Costs and Cable TV Prices:
A Comment on the Analysis of Dr. Jeffrey Eisenach

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VIDEO PROGRAM COSTS AND CABLE TV PRICES: A COMMENT ON THE ANALYSIS OF DR. JEFFREY EISENACH

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I. INTRODUCTION

In a recent paper, Dr. Jeffrey Eisenach argues that video programming cost increases are not "to blame" for rising cable rates.[2] As stated by Dr. Eisenach: "It is clear on the basis of…common sense financial metrics that the cable operators' claims are unjustified: Programming costs are not rising relative to cable operators' revenues, profits, or other costs.… Thus, programming costs cannot properly be blamed for driving increases in the prices of cable TV services."[3]

Dr. Eisenach's analysis is fundamentally flawed for a number of reasons.

First, his work attempts to obscure a common sense, indeed fundamental, economic truth: higher marginal costs lead to higher prices, other things held constant. If video programming costs have risen, then those cost increases will lead inevitably to higher prices for cable TV and other multichannel video programming distributor ("MVPD") services, other things held constant. It is irrelevant whether programming costs rise or fall as a fraction of company-wide revenue or costs over the same time period as the costs increase. Thus, Dr. Eisenach's analysis provides no relevant information on the impact of programming cost increases on retail prices because his methodology of comparing costs and revenues over time has only the loosest connection to this issue of causation.

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[1] This study was prepared at the request of Time Warner Cable. The authors are (respectively) Professor of Economics and Law, Georgetown University Law Center and CRA Senior Consultant (Salop); CRA Vice President (Chipty); CRA Associate Principal (DeStefano); CRA Vice President and Director of Competition Modeling (Moresi); CRA Vice President (Woodbury).

[2] Jeffrey A. Eisenach, *Video Programming Costs and Cable TV Prices*, April 2010 (hereinafter, *Eisenach Video Costs*) at ¶5.

[3] *Eisenach Video Cost*s at ¶¶7, 9.

Second, as a matter of fact, video programming cost increases have been associated with increases in the prices paid by subscribers. For example, between 2003 and 2008 (the time period in Dr. Eisenach's paper), per-subscriber, per-month video programming costs for basic and expanded basic program services increased by 67.3% across all MVPDs.[4] Over the same period, the per-subscriber, per-month retail price for basic and expanded basic service offered by cable multi-system operators ("MSOs") increased on average by 27.5%.[5]

Third, Dr. Eisenach's methodology fails the economic principle of "*ceteris paribus*," the requirement of holding other factors constant. For example, Dr. Eisenach's comparison of video programming costs to the total revenues and total costs of the cable operators from their multiple lines of business does not control for the dramatic subscriber growth in cable's broadband and telephony services. As a result, it is no surprise that video programming costs have become a smaller fraction of total company revenue (or total company costs) of the cable operators; starting from a lower base, the new products are simply growing much faster than video. Thus, Dr. Eisenach's analysis obscures the impact of increased video programming costs on video subscription prices. His failure to hold relevant supply and demand factors constant confounds his interpretation of the data and renders his analysis meaningless.

Fourth, to illustrate the importance of his failure to satisfy the principle of *ceteris paribus*, and to make an apples-to-apples comparison with his so-called "common-sense" metrics,[6] we have recalculated his financial metrics, but after accounting for the growth in cable's broadband and telephony services. One way we do this is by comparing video programming costs to video-only revenues. Another way we do this is by comparing video programming costs to total revenues and total costs, but after controlling for the changing subscriber mix of video, broadband, and voice services.

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[4] SNL Kagan, *TV Network Summary - Basic Cable* (downloaded 05/14/2010); and SNL Kagan, *Media Trends, 2009*.

[5] *Implementation of Section 3 of the Cable Television Consumer Protection and Competition Act of 1992; Statistical Report on Average Rates for Basic Service, Cable Programming Service, and Equipment, Report on Cable Industry Prices*, MM Docket No. 92-266, Released January 16, 2009 (hereinafter *Commission's 2009 Annual Price Report*) at Table 2.

[6] *Eisenach Video Cost*s at ¶7.

Both analyses *reverse* Dr. Eisenach's results. We find that video programming costs account for a higher percentage of video revenues over time, and that video programming costs account for a higher percentage of mix-controlled total revenues and total costs. These comparisons demonstrate clearly how Dr. Eisenach's contrary results hinge on his failure to control for the growth in cable broadband and telephony subscribership. More generally, his overall approach is distorted by his failure to control for changes in relevant factors, and as such, his comparisons are meaningless.

Fifth, Dr. Eisenach suggests that higher program quality may be responsible for higher program costs, and hence for higher video programming fees. Yet, he provides no evidence to support his suggestion. Nor does he explain why his comparisons would demonstrate anything about program quality improvements relative to fee increases.

In light of this analysis, it is clear that Dr. Eisenach's comparisons should have no relevance to policymakers. Not only does Dr. Eisenach fail to test a relevant economic proposition, but his comparisons mask the harmful effects under consideration. That MVPDs have managed to expand their other lines of business and generate higher company-wide revenues and profits, despite increases in video programming costs, should not eliminate concerns about unjustified increases in video programming costs that lead to higher subscription prices charged by MVPDs. These higher prices are paid by the 30-40% of cable subscribers who currently subscribe only to video services, and those higher costs also may place upward price pressure on the prices of double-play and triple-play packages.

The remainder of this paper is organized as follows. Section II discusses Dr. Eisenach's analysis failure to satisfy the principle of *ceteris paribus* and explains how his analysis masks the impact of video programming cost increases on prices. Section III presents the ratio of video programming costs to video revenues, and to total revenues after controlling for the changing product mix. Section IV concludes.

II. DR. EISENACH'S FAILURE TO SATISFY THE PRINCIPLE OF *CETERIS PARIBUS*

Cable operators offer their subscribers three partially complementary services – video (*i.e.*, cable TV), broadband (*i.e.*, high-speed data), and telephony.[7] Dr. Eisenach compares video programming costs to the cable operators' total overall revenues and costs summed across all three services. He reports that video programming costs are a declining share of total revenue and total cost summed across the three services. Based on this comparison, Dr. Eisenach makes the claim that video programming costs are not to "blame" for rising cable subscription prices.[8]

Dr. Eisenach's methodology is flawed and leads to unreliable conclusions. First, it ignores the fundamental economic truth that higher input costs lead to higher prices, *ceteris paribus*. Second, his test cannot show whether or not video cost increases lead to higher retail prices. Dr. Eisenach's comparisons similarly can reveal nothing about whether the increases in costs were caused by increases in the quality of programming. Third, his test does not satisfy economists' *ceteris paribus* principle that one must control for changes in other relevant factors when interpreting empirical results, particularly when attempting to address causation. Dr. Eisenach ignores the changes in product mix and other demand and supply conditions. We demonstrate the significance of the omission of product mix controls by carrying out cost/revenue comparisons that control for changes in product mix. Our comparisons reverse Dr. Eisenach's results.[9]

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[7] Some subscribers take only video, while others opt for multiple services, or just data or voice. Based on public information from TWC's 10-K filings, we estimate that the percentage of video-only subscribers was in the 42-52% range in 2007 and in the 31%-43% range in 2009. The percentage of double-play subscribers was about 32% in 2007 and about 34% in 2009. The percentage of triple-play subscribers was about 16% in 2007 and about 24% in 2009. The percentage of subscribers who purchased no video services was about 9% in 2007 and 12% in 2009. Time Warner Cable Inc. Form 10-K, Annual Report, for the Period Ending 12/31/2009 (hereinafter *TWC 2009 10-K*) at 37, 42.

[8] *Eisenach Video Cost*s at ¶9.

[9] Indeed, if these comparisons were taken at face value as Dr. Eisenach does, they would suggest the opposite causation – that higher programming costs resulted in higher subscriber rates. However, these comparisons also do not hold other factors constant.

A. The Economic Impact of Costs on Prices

There does not seem to be any controversy over the view that video programming costs paid by MVPDs have been rising dramatically.[10] According to the Federal Communications Commission ("Commission"), MVPD "[p]rogramming expenses increased on an average monthly basis by an estimated 6.9 percent, 8.3 percent, and 9.5 percent, respectively, for each of the three years between 2004 and 2007."[11] In addition, the Commission explains that, "[w]hile competition in the delivery of video programming services has provided consumers with increased choice, better picture quality, and greater technological innovation, prices continue to outpace the general level of inflation."[12] The Commission also concluded that cable operators incurred increases in programming expenses that were equivalent to more than half of the overall increase in price for expanded basic service for each year studied.[13]

Figure 1 presents some publicly available data on MVPD programming costs for basic and expanded basic programming, on a per-subscriber, per-month basis. Figure 1 also presents data on monthly cable subscription prices for expanded basic service (including the basic package). Between 2003 and 2008, basic and expanded basic programming costs increased by 67.3%, while the retail price for expanded basic service grew by 27.5%.[14]

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[10] For example, as a recent Morgan Stanley report stated it: "We continue to believe programming cost growth remains a structural problem for the industry, and the addition of retransmission consent payments will accelerate cost growth in the near-term." "We expect retransmission payments to drive 30-40% of total programming cost growth in 2010E-2014E." Morgan Stanley, *Cable/Satellite Pricing, Programming, and Payout Keys to 2010*, January 26, 2010 (hereinafter, *Morgan Stanley Keys*) at 4, 11.

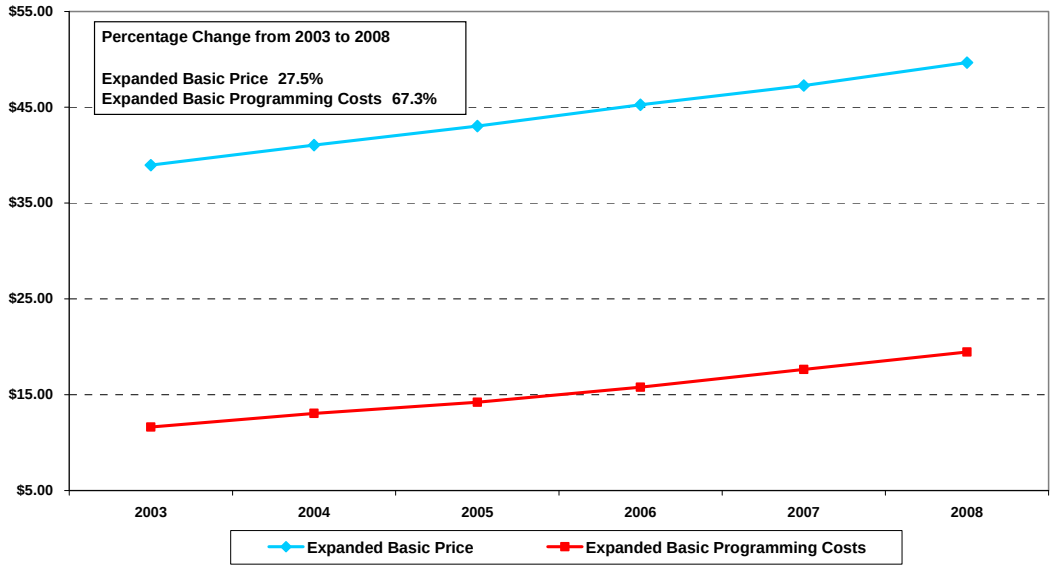
[11] *Commission's 2009 Annual Price Report* at ¶11.

[12] *Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, Thirteenth Annual Report*, MB Docket No. 06-189, Released January 16, 2009 (hereinafter, *Commission's 13th Annual MVPD Report*) at ¶4.

[13] *Commission's 2009 Annual Price Report* at ¶11.

[14] Over the same period, the per-subscriber, per-month retail price for digital service (including the expanded basic service) offered by cable MSOs increased by about 30% on average. Because basic cable networks include digital and HD networks that are offered on digital tiers, this price increase provides another relevant comparison to the cost increase of 67.3%, reported above. (A potential caveat is that the digital price reported by the Commission includes some digital equipment charges.) *Commission's 2009 Annual Price Report* at Table 2 and Attachment 5 at 49.

Figure 1: Expanded Basic Subscriber Price vs. Expanded Basic Programming Costs Per-Subscriber, Per-Month



Notes:
1. The expanded basic price is expressed as per-subscriber, per-month and includes the buy through for the introductory basic package.
2. Expanded basic programming costs are expressed as per-subscriber, per-month and include retransmission consent fees for broadcast networks and affilate fees for all major basic cable networks and some regional cable networks tracked by SNL Kagan.

Sources: Commission's 2009 Annual Price Report; SNL Kagan, *TV Network Summary - Basic Cable* (downloaded on 05/14/2010); and SNL Kagan, *Media Trends , 2009* .

Dr. Eisenach appears to question whether the MVPDs' higher programming costs resulting from affiliate fee increases have contributed significantly to the higher retail prices charged to subscribers.[15] Dr. Eisenach's skepticism seems somewhat surprising. Every economic textbook makes the simple point that higher industry-wide marginal costs lead to higher prices, *ceteris paribus*. This positive relationship between industry-wide marginal costs and prices applies to most market and demand structures. It applies to "perfectly competitive" markets where price equals marginal costs. It also applies to "imperfectly competitive" markets where individual firms face somewhat inelastic demands and charge prices in excess of marginal costs. These "imperfectly competitive" markets include markets in which firms sell differentiated products, such as video program services.[16]

[15] Dr. Eisenach's focus on "blame" obscures this point. *Eisenach Video Costs* at ¶9. However, in another recent paper, Dr. Eisenach concedes that "[i]n general, some portion of an increase in the cost of an input will be passed through to consumers…" Jeffrey A. Eisenach, *The Economics of Retransmission Consent*, March 31, 2009 (hereinafter, *Eisenach Retransmission Consent*), at note 46.

[16] Dr. Eisenach claims that "there is virtually no evidence of market power on behalf of programmers." He points out that in competitive markets, efficiency and consumer welfare are maximized "by equating the *cost* of

The rate at which marginal cost increases are passed through to consumers in the form of higher prices depends on several factors, including the structure and elasticity of demand and supply in the downstream retail market. For example, if a firm faces a constant elasticity demand curve and a constant marginal cost (*i.e.*, if the demand elasticity and the marginal cost are invariant to the output level), then the pass-through rate exceeds 100%. The exact pass-through rate will depend on the level of the demand elasticity.[17] If the firm instead faces a linear demand curve, then the pass-through rate varies between 50% and 100%, depending on the intensity of competition faced and whether the increase in marginal cost affects only that firm or the entire industry. In short, for firms like MVPDs selling differentiated products, the pass-through rate could be below 100%, equal to 100%, or exceed 100%, depending on the exact demand and cost structure, and whether or not the cost increases apply to all competitors.[18]

The impact on revenue also will depend on the market demand elasticity. For example, suppose that video programming affiliate fees were to increase for all MVPDs and, as a result, subscription prices were to rise by 10%. If the market demand elasticity for cable TV

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producing the last unit … to the *value* consumers place on that same unit." *Eisenach Video Cost*s at ¶6. However, Dr. Eisenach's description of the economic reality seems highly unrealistic. It is doubtful that the affiliate fees obtained by program service providers would be equal to their marginal costs of distributing the program service to additional subscribers. For most program services, those marginal costs would be zero, or close to zero *or even negative* in the case of programming that contains advertising, unless there are significant per-subscriber payments made by the program services to their content providers. Dr. Eisenach provides no evidence of such per-subscriber payments. Of course, neither we nor Dr. Eisenach (we presume) would suggest that marginal cost pricing would be a sustainable market equilibrium in a market with high fixed costs.

[17] For example, Dr. Eisenach quotes a 2001 Commission study that estimated the cable TV demand elasticity to be about -2.0. *Eisenach Video Costs* at note 15. If that demand elasticity were the own-price elasticity faced by each MVPD in the current market, and if that elasticity and the MVPDs' marginal costs were constant, then that would imply a pass-through rate of about 200%. Of course, the elasticity may have changed since that time in response to the dramatically growing importance of broadband and telephony offered by some MVPDs, as well as other factors. In another paper, Dr. Eisenach suggests that the market demand elasticity is less than unity. See Jeffrey A. Eisenach and Kevin W. Caves, *Retransmission Consent and Economic Welfare: A Reply to Compass Lexecon*, May 6, 2010 (hereinafter, *Eisenach Reply to Compass Lexecon*), at 16; and Austan Goolsbee and Amil Petrin, *The Consumer Gains from Direct Broadcast Satellites and the Competition with Cable TV*, 72 Econometrica 351 (2004).

[18] These standard pass-through results seem to be ignored by Dr. Eisenach when he asserts that the pass-through rate will be 100% only in atomistically competitive industries. *Eisenach Video Cost*s at note 14. In addition, Dr. Eisenach's focus on the short-run responses of cable operators has only limited relevance to his study, which covers 5-6 years. *Id* at ¶13. As we discuss immediately below, given that longer time horizon, it is particularly important to account for changes in other factors that could have affected revenue and cost changes. But Dr. Eisenach does not do so.

were equal to -1.5, then subscription revenues would decrease by about 5%. If instead the demand elasticity were equal to -0.5, then subscription revenues would increase by about 5%.

The fundamental principle at work in these examples is that an increase in industry marginal costs will be passed through to subscribers to some degree. Because video programming affiliate fees generally are set on a per-subscriber basis, a rise in video programming fees will entail an increase in the MVPDs' marginal costs. As a result, they would be expected to lead to an increase in subscription prices.[19] Whether programming costs rise or fall as a fraction of company-wide revenue or costs does not address the basic issue of the impact of cost increases on prices.

B. Causation and the Principle of Ceteris Paribus

Dr. Eisenach apparently attempts to gauge the impact of programming costs on prices charged to subscribers by comparing programming costs to overall revenues, costs, and profits over time.[20] The economic foundation of Dr. Eisenach's tests is unclear.[21] He does not explain how his comparisons provide any information about the magnitude of price increases caused by video cost increases. He also does not explain how his comparisons would show whether or not the video cost increases were accompanied by more than proportional increases in quality.[22] Nor does he explain how these metrics could be used to determine whether video cost increases were caused by increases in programmers' marginal costs of production.[23] He has proffered neither theory nor evidence related to these causation

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[19] This is true even if the firms sell a set of complementary products. In that situation, the price increases may be spread across the complementary products. As noted earlier, in 2007, 40-50% of TWC subscribers purchased only video services.

[20] *Eisenach Video Costs* at ¶9.

[21] For example, see *Eisenach Video Cost*s at ¶¶11-12.

[22] Marginal cost increases would lead to higher prices and harm to subscribers, unless the cost increases are accompanied by sufficient increases in quality. Dr. Eisenach briefly alludes to quality issues, though he does not provide any evidence about quality increases. *Eisenach Video Costs* at ¶¶8, 35, note 27. Dr. Eisenach's comparisons imply nothing about the relationship of video programming fees and program quality. Nor do they say anything about the programmers' cost of producing the video programming.

[23] Dr. Eisenach provides no evidence of increases in programmers' marginal costs. It is more likely that the programmers' cost increases involve fixed costs. Further, to the extent that the cost increases represent increases in payments to the content providers (e.g., the sports teams), they are more likely to represent a shifting of the rents upstream, rather than an improvement in quality.

issues. Instead, he merely asserts that his comparisons are "common-sense financial metrics" that provide useful information.[24]

Even aside from the lack of economic foundation for Dr. Eisenach's "tests," his comparisons provide no useful information because they fail to satisfy the fundamental economic principle of *ceteris paribus*, the requirement of holding other factors constant.[25] There are a variety of relevant economic factors to consider, yet he has ignored all of them.[26] As a result, Dr. Eisenach's metrics cannot possibly succeed in gauging the impact of increasing programming costs on prices and any attempt to use his analysis to do so would be useless.

C. The Growth of Cable Broadband and Telephony

One way in which Dr. Eisenach violated the *ceteris paribus* principle is his failure to control for the growth in broadband and voice services that has substantially outpaced the growth in video services in recent years. For example, from 2007 to 2009, the number of Time Warner Cable ("TWC") basic video subscribers declined by about 3%, while the number of digital video subscribers increased by 10.5%. Over the same period, broadband (data) and voice subscribers increased by 17.6% and 45.8%, respectively.[27]

These asymmetric growth rates create significant product mix issues. Dr. Eisenach simply looks at the overall (company-wide) revenues and costs relative to programming costs. But, that is not an adequate way to control for changes in the product mix purchased by MVPD subscribers. Broadband and voice services products may have different demand elasticities, and different revenue/cost characteristics, as well as different underlying demand growth

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[24] *Eisenach Video Cost*s at ¶7.

[25] Dr. Eisenach himself appears to recognize the relevance of the *ceteris paribus* principle. See, for example, *Eisenach Video Costs* at ¶18 ("holding other factors constant"); and at ¶24 ("other things equal"). His comparisons of various financial metrics over a 5-6 year time frame, however, do not hold other factors constant, even though there were significant changes in demand and supply factors.

[26] Some of the relevant factors include the following: demand changes flowing from other, unrelated changes in the quality of the firms' products; population, income or consumer preferences; other costs; market demand elasticity; and the introduction or growth in complementary products. Without controlling for these other factors, the comparison of these financial metrics over time also would reveal nothing about changes in the quality of the input.

[27] *TWC 2009 10-K* at 37 and 42. Similarly, SNL Kagan reports that between 2003 and 2008 the number of basic subscribers for all MSOs decreased by about 3%, the number of digital subscribers increased by 86%, while the number of broadband and voice subscribers increased by 162% and 544%, respectively. SNL Kagan, *Broadband Cable Financial Data, 2009* at 8.

factors. The potential for demand complementarities complicates the mix issues even more, particularly where some subscribers purchase only video services or do not purchase any video services, while others purchase double-plays and triple-plays.

Video is a much more mature service than broadband or voice. Because the growth in broadband, voice, and other services dramatically affects total costs and revenues, it is hardly surprising that programming costs as a percentage of total costs for all the companies' products have decreased over time. Similarly, it is not surprising that video programming costs as a percentage of total revenues for the sum of all three services also have decreased over time.[28] As a result, Dr. Eisenach's comparisons are misleading, if not totally irrelevant. They certainly do not rebut the fundamental economic point that increases in video programming costs likely would contribute to increases in video prices charged to subscribers, *ceteris paribus*.

1. Illustrative Example

These product mix complexities can be simply illustrated by a numerical example of a single-product firm that decides to expand by taking on a new line of business. That new line of business obviously will involve additional costs and will generate additional revenues. As a result, the costs of the old product will become a smaller percentage of company-wide revenue and costs. But that comparison obscures the effect of cost increases on prices.

For example, suppose that a firm initially sells only product-A, which involves costs of $100 and revenues of $200 from selling 100 units of product-A. Suppose that the marginal cost and the unit price of product-A are $1 and $2, respectively. Suppose that at some point in time the firm adds product-B, which has total costs of $100 and revenues of $300 (say, for 100 units).[29] In this case, total costs for the two products taken together are $200 and total revenues are $500. As a result, the costs of product-A now fall from 50% of the firm's total (company-wide) revenue down to 20% of total company-wide revenue for the two products

[28] *Eisenach Video Cost*s, Figures 1-5.

[29] For simplicity, we assume the two products are neither substitutes nor complements. Thus, the introduction of product-B does not lead the firm to change the price of product-A and does not affect the sales volume of product-A.

(*i.e.*, $100/$500). Similarly, the costs of product-A fall from 100% of total costs to 50% of total company-wide costs (*i.e.*, $100/$200).

But, these declines in the percentages accounted for by the costs of product-A do not imply that marginal cost increases for product-A would not contribute to price increases. That claim would be silly. To illustrate, suppose that at the same time that the firm adds product-B, the marginal cost of product-A rises from $1 to $2, and the firm passes through half of this cost increase (*i.e.*, 50 cents) as a price increase. As a result, the price of product-A increases by 25% from $2 to $2.50. Suppose that the firm's sales volume of product-A falls by 50% from 100 units to 50 units, and hence the revenue from product-A falls by 37.5% from $200 to $125 and its company-wide revenue rises from $200 to $425 instead of rising to $500.[30,31]

Note that the total cost of product-A remains equal to $100 since the marginal cost has increased from $1 to $2, but sales volume has fallen from 100 units to 50 units. The overall effect of the increase in the marginal cost of product-A and the introduction of product-B would be to reduce the costs of product-A from the initial value of 50% of total revenue down to 24% (*i.e.*, $100/$425) of the now higher company-wide total revenue. This impact is consistent with the 25% price increase and 37.5% revenue decrease of product-A caused by the cost increase. Similarly, the cost of product-A also becomes a smaller percentage of company-wide costs, falling from 100% down to 50% (*i.e.*, $100/$200).

These declines certainly would not imply that the marginal cost increases have failed to have an impact on prices. The price of product-A increased by 25% in the example. Instead, it is the failure to account for the addition of the new line of business that obscures the fact that the price increase for product-A was the direct result of the increase in the marginal cost of product-A. In this context, it becomes clear that Dr. Eisenach's focus on ratios of costs from one product line (video, in this case) to company-wide total revenues and costs has no connection with nor provides any information about the magnitude of the effects of a

[30] Since the initial margin of product-A equals 50% (i.e., ($2-$1)/$2), the own-price elasticity of product-A is equal to -2.0 (i.e., 1/50%). To keep the illustrative numbers simple, the example then assumes that the demand for product-A is linear. It follows that a 25% price increase and an elasticity of -2.0 imply a volume reduction of 50% (i.e., 25% times 2). That is, the sales volume of product-A falls from 100 to 50.

[31] There are two effects of the price increase on revenue. On the one hand, the higher price increases revenue, given the number of customers. On the other hand, the higher price decreases revenue by reducing the number of customers. Since demand is elastic (i.e., its price elasticity exceeds unity), the revenue for product-A declines.

marginal cost increase in one product line on the retail price for that product (or any multi-play option including that product).

These conclusions do not hinge on the assumption that the firm takes on a new line of business, as opposed to simply a change in mix of business among several products. The same qualitative results would follow if product-B became a higher share of total business. For example, suppose that the firm initially sold product-A and product-B at a cost of $100 each and earned $200 in revenue from product-A and $300 in revenue from product-B. Now suppose that customers begin to buy three times as much product-B and that the costs and revenues of product-B also triple. As a result, the share of product-A costs will fall from 20% of company-wide revenue (*i.e.*, $100/$500) down to about 9% (*i.e.*, $100/$1100). The share of product-A costs will fall from 50% of company-wide costs (*i.e.*, $100/$200) down to 25% (*i.e.*, $100/400). As above, a simultaneous price increase for product-A would not change the picture. If the marginal cost of product-A doubled to $2 per unit, and its revenue fell by 37.5% down to $125, as above, then product-A's cost still would fall from the initial level of 20% of company-wide revenue down to about 10% (*i.e.*, $100/$1025). As before, this decline certainly would not imply that the marginal cost increase has failed to have a significant impact on price.

2. Application to Dr. Eisenach's Metrics

These simple examples illustrate the inherent defects in Dr. Eisenach's analysis and the irrelevance of his results stemming from his failure to satisfy the *ceteris paribus* principle. Even though Dr. Eisenach appears in principle to recognize the importance of "holding other factors constant,"[32] he ignores substantial changes in the composition of subscriber purchases over time, and he incorrectly concludes that video programming cost increases can only be "blamed" for rising video cable rates if video programming costs account for an increasing share of cable operators' overall, company-wide revenues or costs. The same defect would apply if other demand and supply factors changed over the time period under consideration.

As the examples suggest, increases in video programming costs are masked by Dr. Eisenach's comparisons because they fail to account for the faster growth of broadband and

[32] *Eisenach Video Costs* at ¶18.

voice services relative to video services. This is especially true because the product mix effects at issue here have been substantial. In 2004, broadband and telephony accounted for only 19.3% of the revenues of TWC (including Adelphia). By 2009, these services accounted for 35.9% of revenues.[33] Thus, these differential growth rates obscure the importance of video programming cost increases. As in the illustration, this is true regardless of what Dr. Eisenach thinks the ratios are showing.

III. COMPARISON OF VIDEO PROGRAMMING COSTS TO VIDEO REVENUES AND MIX-CONTROLLED TOTAL REVENUES

To demonstrate the importance of the changing product mix to Dr. Eisenach's results, we have carried out two comparisons. First, we have compared video programming costs to video-only revenues (rather than the sum of video, broadband, and telephony revenues). Second, we have compared video programming costs to total revenues (for all three products), but after controlling for the changing product mix. We have carried out these analyses both for TWC (taking into account its acquisition of part of Adelphia) and for all MVPDs.[34]

A. Comparison of Video Programming Costs to Video Revenues

Dr. Eisenach argues that "[i]f increases in cable rates were explained by rising programming costs, then one would expect to see programming expenses increasing relative to cable revenues."[35] He finds that programming costs are decreasing relative to total revenues.[36]

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[33] Time Warner Cable Inc. Form 10-K, Annual Report, for the Period Ending 12/31/2006 (hereinafter *TWC 2006 10-K*); Time Warner Cable Inc. Form 10-K, Annual Report, for the Period Ending 12/31/2007 (hereinafter *TWC 2007 10-K*); Time Warner Cable Inc. Form 10-K, Annual Report, for the Period Ending 12/31/2008 (hereinafter *TWC 2008 10-K*); *TWC 2009 10-K*; Adelphia Communications Corporation Form 10-K, for the Fiscal Year Ended December 31, 2005 (hereinafter *Adelphia 2005 10-K*).

Using the approach described by Dr. Eisenach, we combined Adelphia and TWC financials for the year 2004-2005 to reflect TWC's 2006 acquisition of Adelphia's subscribers. *Eisenach Video Costs* at note 13. As a result of their joint acquisition of Adelphia's assets, Comcast and TWC gained about 1.7 million and 3.2 million net subscribers, respectively, giving TWC about 65% (i.e., 3.2/(1.7+3.2)) of Adelphia's subscribers. Thus, for the year 2004-2005, we allocated about 65% of Adelphia's subscribers, revenues, and costs to TWC. For simplicity, in the text we refer to the combination of TWC and Adelphia as TWC.

[34] As noted above, TWC acquired 65% of Adelphia's subscribers in 2006.

[35] *Eisenach Video Cost*s at ¶18.

[36] In his 2009 paper, Dr. Eisenach used data from a 2006 Morgan Stanley report (cited in *Eisenach Retransmission Consent* at note 45) to conclude "there simply is no evidence that programming costs have increased relative to [video revenues]." *Eisenach Retransmission Consent* at 26, Figure 7. However, a closer

Dr. Eisenach's results are *reversed* when the comparison is restricted to video programming costs and video revenues. As shown in Figure 2a, TWC's video programming costs are an increasing percentage of video subscription revenues. Programming expenses increased from 28.9% of total video revenues in 2004 up to 34.9% by 2009.[37] Similarly, video programming costs are an increasing percentage of video subscription revenues for all MVPDs.[38] (See Figure 2b.) Programming costs increased as a share of MVPD video revenues from 31.1% in 2004 to 34.6% in 2008.

Dr. Eisenach's contrary results hinge on his failure to control for the growth in cable broadband and telephony by cable subscribers.[39] His approach masks the importance of programming cost increases and so obscures the basic point that higher costs lead to higher prices, *ceteris paribus*.

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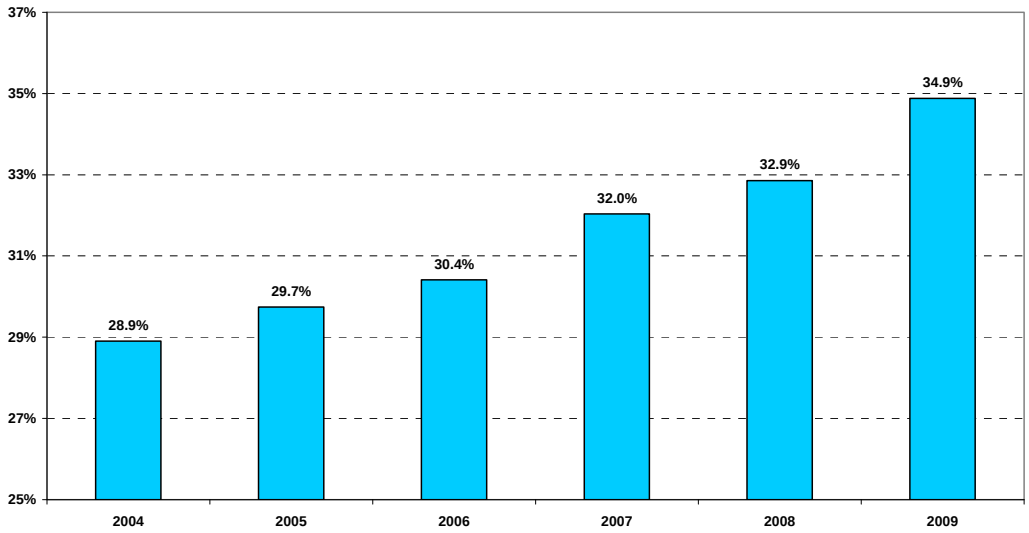
look at his Figure 7 indicates that between 2003 and 2006 (the last year for which Dr. Eisenach apparently had actual costs and revenues), video programming expenses increased from 35% of total revenues to 37%. Moreover, a more recent Morgan Stanley report estimated that cable companies' programming costs were about 28% of video revenues in 2003, increased to about 34% in 2009, and are forecasted to be about 39% in 2012. *Morgan Stanley Keys* (Exhibit 4) at 4. Another recent Morgan Stanley report estimated that TWC programming expenses increased from 27.9% of video revenue in 2004 to 37.2% in 2009 and projected that by 2012, programming expenses would account for 41.5% of TWC's video revenues. Morgan Stanley, *Time Warner Cable Inc: Reacceleration of Growth, Raising Estimates & Target* (April 30, 2010), Exhibit 17 at 20.

[37] We exclude 2003 because TWC restated its income statement to reflect revised accounting rules in 2006. We included 2004 and 2005 because the 2006 10-K presents information for the restated income statements for 2004 and 2005 "so that the basis of presentation would be consistent with that of 2006." *TWC 2006 10-K* at 59.

[38] To be comparable to Dr. Eisenach's financial metrics for individual MSOs, we have broadened the measure of video costs and prices, to span additional video program services, beyond basic and expanded basic. In Figure 2b, MVPD video costs are the per-subscriber, per-month programming costs and MVPD video revenues are the per-subscriber, per-month revenues from the sale of basic, expanded basic, and premium subscription services. It is unclear, however, whether video revenues include any video equipment revenue. SNL Kagan, *State of DBS 2006* at 14-5.

[39] This comparison also fails to control for other relevant factors that might have changed over the 5-6 year period, so we make no causation claims based on the cost/revenue ratio.

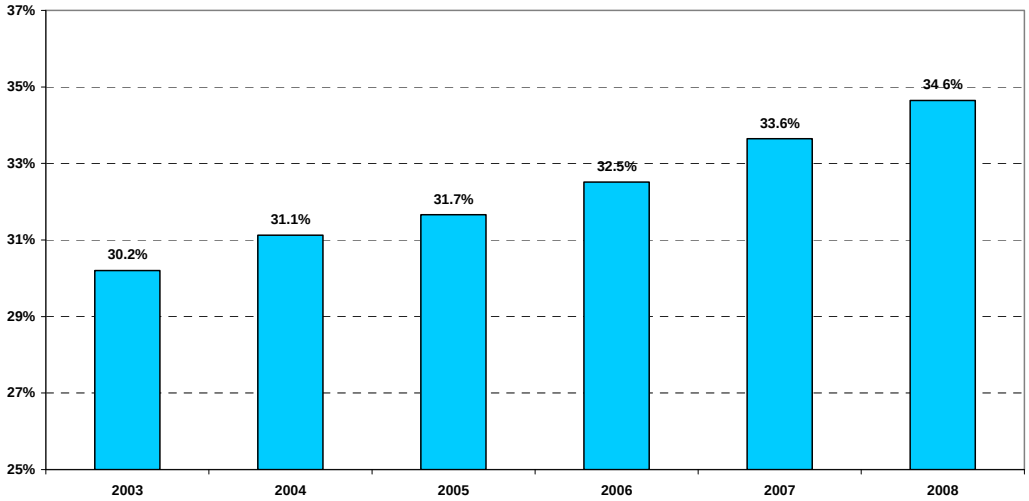
Figure 2a: Video Programming Costs as a Share of Video Revenues, for Consolidated TWC and Adelphia



Notes:
1. Video revenues include both subscription and advertising revenues.
2. Data for 2004-2005 consolidate TWC and Adelphia, by assigning about 65% of Adelphia subscribers, revenues, and costs to the combined entity.
3. Data for 2006 adjust the number of subscribers reported in TWC's 10-Ks to account for the fact that reported revenues and costs only reflect Adelphia revenues and costs "for the five months following the closing of the Adelphia/Comcast Transactions." See *TWC's 2008 10-K* at 64 and 66.

Sources: TWC 2006-2009 10-Ks; and *Adelphia 2005 10-K*.

Figure 2b: Video Programming Costs as a Share of Video Revenues, for all MVPDs

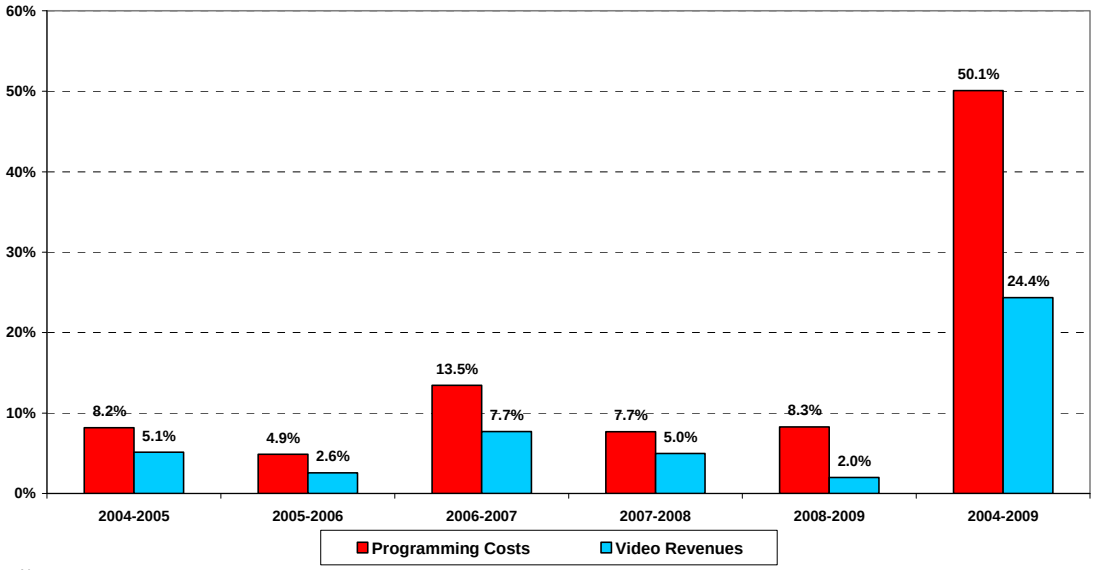


Notes:
1. Video programming costs as a share of video revenues is calculated as per-subscriber, per month programming costs divided by per-subscriber, per-month program revenues.
2. Per-subscriber, per-month programming costs are calculated by dividing average monthly programming costs (for basic cable networks, premium cable networks, and retransmission consent fees) for all MVPDs by average monthly subscribers across all MVPDs.
3. Per-subscriber, per-month program revenues are calculated as the weighted average of Kagan-reported "Programming Revenue Per Sub/Month" for DBS and cable separately, where the weights are the number of DBS and cable subscribers, respectively.

Sources: SNL Kagan, *TV Network Summary- Basic Cable and Premium Networks* (downloaded on 05/14/2010); SNL Kagan, *Media Trends, 2009*; SNL Kagan, *2009 Basic & HD Cable Network Economics*; and SNL Kagan, *State of DBS 2006*.

Figures 3a and 3b make the same point in a somewhat different way. Figure 3a compares TWC's annual percentage change in video programming costs per-subscriber with its annual percentage change in video revenues per-subscriber. Video programming costs have risen faster in percentage terms. From 2004 to 2009, video programming costs increased by about 50% while video subscription revenues increased by only about 25%. Figure 3b reports the analogous comparisons for all MVPDs, based on the data used in Figure 2b. From 2003 to 2008, video programming costs rose by 52% while video revenues grew by only 33%.[40] Thus, MVPD video price/cost margins, including TWC's price/cost margin, have declined over the period.

Figure 3a: Percentage Change in Programming Costs and Video Revenues, Per-Basic Video Subscriber/Month, for Consolidated TWC and Adelphia

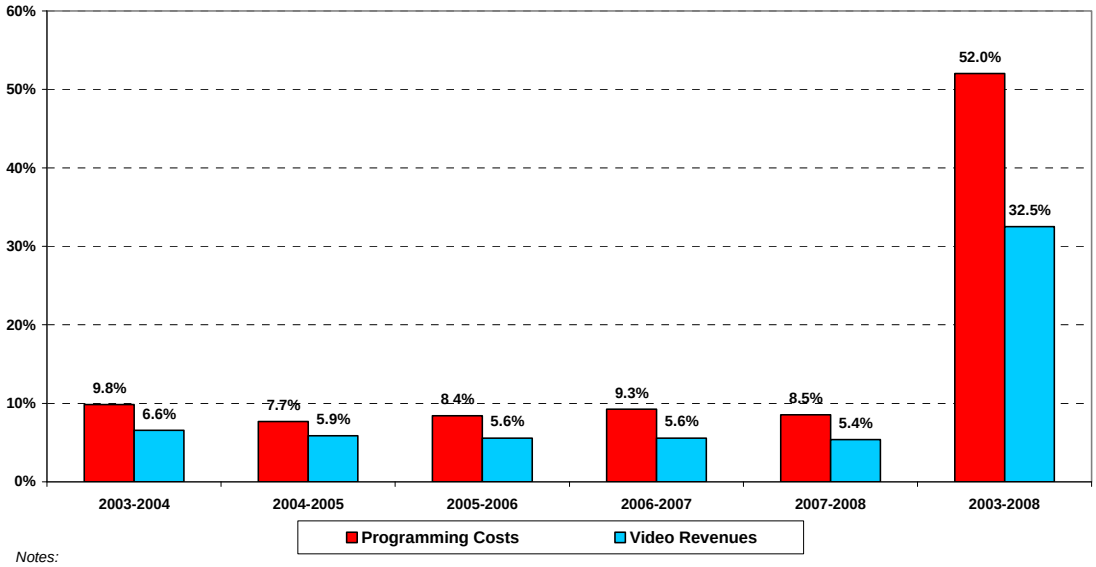


Notes:
1. Video revenues include both subscription and advertising revenues.
2. Data for 2004 - 2005 consolidate TWC and Adelphia, by assigning about 65% of Adelphia subscribers, revenues, and costs to the combined entity.
3. Data for 2006 adjust the number of subscribers reported in TWC's 10-Ks to account for the fact that reported revenues and costs only reflect Adelphia revenues and costs "for the five months following the closing of the Adelphia/Comcast Transactions." See *TWC 2008 10-K* at 64 and 66.

Sources: TWC 2006-2009 10-Ks; and *Adelphia 2005 10-K*.

[40] By comparison, the basic and expanded basic video programming costs increased by 67.3%, while the price of expanded basic service (including the introductory basic package) increased by 27.5%, and the price of digital service (including the expanded basic service) increased by 29.8%.

Figure 3b: Percentage Change in Programming Costs and Video Revenues, Per-Basic Video Subscriber/Month, for All MVPDs



Notes:
1. Per-subscriber, per-month programming costs are calculated by dividing average monthly programming costs (for basic cable networks, premium cable networks, and retransmission consent fees) for all MVPDs by average monthly subscribers across all MVPDs.
2. Per-subscriber, per-month program revenues are calculated as the weighted average of Kagan-reported "Programming Revenue Per Sub/Month" for DBS and cable separately, where the weights are the number of DBS and cable subscribers, respectively.

Sources: SNL Kagan, *TV Network Summary- Basic Cable and Premium Networks* (downloaded on 05/14/2010); SNL Kagan, *Media Trends, 2009;* SNL Kagan, *2009 Basic & HD Cable Network Economics;* and SNL Kagan, *State of DBS 2006.*

B. Comparisons Controlling for Product Mix

To further illustrate the importance of the changing product mix to Dr. Eisenach's results, we also compared the cost of video programming to measures of total revenues and costs for all three services (video, broadband, and voice). However unlike Dr. Eisenach, we controlled for changes in product mix by holding the composition of purchases among the three services constant over time.

Dr. Eisenach's results also are reversed with these comparisons that control for product mix. In particular, we find that TWC's programming expenses as a percentage of its total revenue (for all three services) rose in the 2004-2009 period, after holding the composition of purchases constant. TWC's programming expenses as a percentage of its total costs also increased, after holding the composition of purchases constant.

The revenues and costs associated with non-video services – broadband and telephony – have increased substantially as the provision of non-video services have grown. As previously described, TWC's basic subscribers fell by 3% in the 2007-2009 period, while broadband

subscribership increased by nearly 18% and telephony subscribership increased by more than 45% over the same period. In this context, a proper *ceteris paribus* analysis has to account for this changing product mix.

We accounted for changes in the product mix by fixing the number of subscribers for video, broadband, and telephony at their 2007 levels.[41] We constructed indices for total revenues and total program expenses that reflect changes in underlying costs, holding the number of subscribers for each service fixed.[42] Given the composition of purchases in 2007, we compared video programming expenses to TWC's composition-controlled total revenues and total costs for all three products. In that way, the programming cost share of total revenue or total cost is not distorted by changes in the composition of subscriber purchases.

1. Video Program Expenses as a Share of TWC's Composition-Controlled Total Revenues

Figure 4 shows video programming costs as a share of the total revenues of TWC (including Adelphia) after controlling for the shifting composition of subscriber purchases.[43] As indicated in the blue bars in that figure, this share rose steadily from 20% in 2004 up to 24.3% in 2009. By contrast, had we used Dr. Eisenach's methodology that fails to control for these shifts, program expenses would have exhibited no rising trend during the period, as shown by the red bars in Figure 4. This suggests that Dr. Eisenach's results are a consequence of the fact that purchases of broadband and telephony services grew far more rapidly than purchases of video services.[44]

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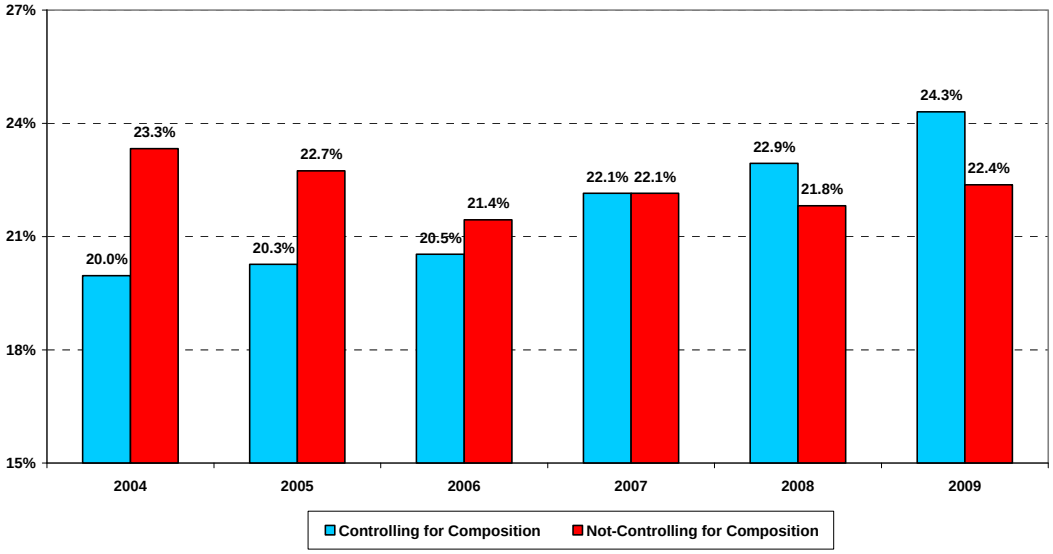
[41] We use 2007 because it is in the middle of the 2004-2009 period.

[42] We calculate total revenues in any year as the per-subscriber revenues for video (including advertising), broadband, and voice services times the number of subscribers to video, broadband, and voice in 2007, respectively. We calculate total programming expenses in any given year as the per-subscriber programming expense in that year times the number of video subscribers in 2007.

[43] TWC's and Adelphia's 10-Ks disaggregate revenues into video, broadband, voice, and advertising. We treated advertising revenues as video related revenues. We excluded from the analysis Adelphia's revenues from "Corporate & Other", which was described in Adelphia's 10-K to "include revenue from our security monitoring business and our long-distance telephone resale business." *Adelphia 2005 10-K* at 76. This exclusion does not affect our results.

[44] Dr. Eisenach also compares video programming expenses to the overall profitability of TWC over time. *Eisenach Video Cost*s at ¶24. This comparison is infected by the same issues of changes in the product mix and other factors that change the costs and demand for broadband and telephony services, as well as video services. As a result, these comparisons are as distorted and meaningless as his other comparisons. They do not support his claim that increases in video programming costs have no significant effect on cable TV prices.

Figure 4: Video Programming Costs as a Share of Overall Revenues, for Consolidated TWC and Adelphia



Notes:
1. We control for composition by assuming that, in all years from 2004 to 2009, the number of basic video, high-speed data, and voice subscribers are the actual number of subscribers in 2007. For each year, programming costs and revenues are calculated based on programming cost per-subscriber and revenue per-subscriber in each year.
2. Data for 2006 adjust the number of subscribers reported in TWC's 10-Ks to account for the fact that reported revenues and costs only reflect Adelphia revenues and costs "for the five months following the closing of the Adelphia/Comcast Transactions." See *TWC 2008 10-K* at 64 and 66.

Sources: TWC 2006-2009 10Ks; and *Adelphia 2005 10-K*.

2. *Video Programming Expenses as a Share of TWC's Composition-Controlled Total Costs*

Dr. Eisenach contends that "[i]f increases in cable rates were explained by rising programming costs, then one would expect to see programming expenses accounting for an increasing share of overall MSO cost structures."[45] In fact, video programming costs are an increasing percentage of TWC's total costs, after controlling for the changing product mix.

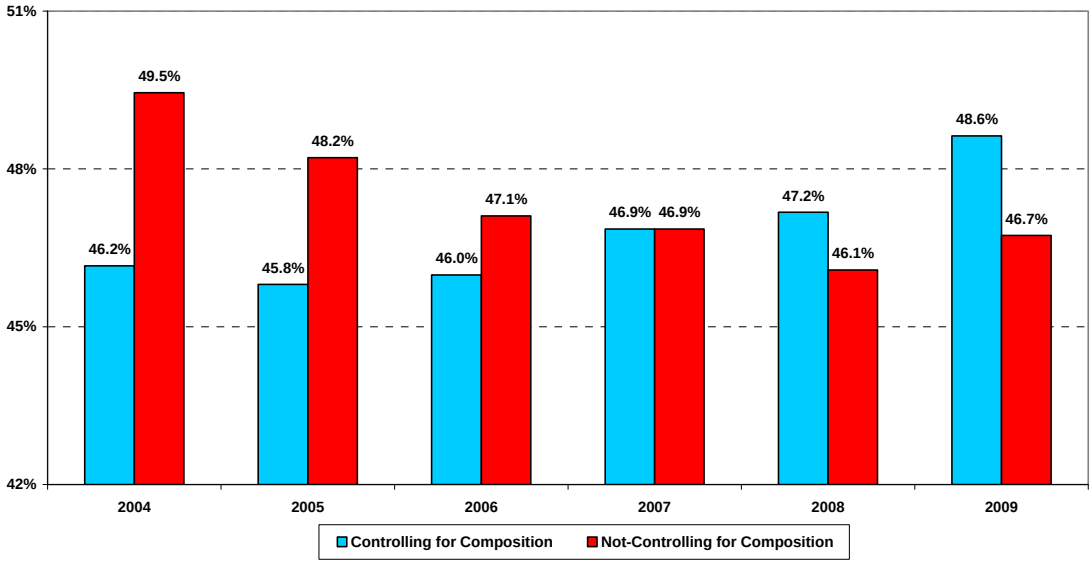
We calculated the share of TWC's programming costs as a fraction of its overall costs, after controlling for the rapid growth in broadband and telephony services relative to video services by maintaining a constant composition of purchases.[46] The results are reported in

[45] *Eisenach Video Cost*s at ¶12.

[46] TWC's 10-Ks disaggregate costs into six components: video programming, broadband, voice, employee, video franchise fees, and other direct operating costs (some 10-Ks combine the last two components). To control for composition changes, we combine the last three cost items (employee, video franchise fees, and other direct operating costs) into an "Other Costs" aggregate and calculate per subscriber "Other Costs" using "customer relationships" as a measure of subscribers. "Customer relationships represent the number of subscribers who receive at least one level of service, encompassing video, broadband and voice services, without regard to the number of services purchased. For example, a subscriber who purchases only broadband service and no video service will count as one customer relationship, and a subscriber who purchases both video

Figure 5. The blue bars show TWC's programming costs as share of its total costs from 2004 to 2009, after controlling for the changing product mix by maintaining a constant composition of sales.[47] The chart indicates that video programming costs as share of total costs for a composition-controlled product mix increased modestly from 46.2% in 2004 to 48.6% in 2009.[48]

Figure 5: Video Programming Costs as Share of Overall Costs of Revenues, for TWC Only (Adelphia 2004 - 2005 not Included)



Notes:
1. We control for composition by assuming that, in all years from 2004 to 2009, the number of basic video, high-speed data, and voice subscribers are the actual number of subscribers in 2007. For each year, programming costs and revenues are calculated based on programming cost per-subscriber and revenue per-subscriber in each year.
2. Data for 2006 adjust the number of subscribers reported in TWC's 10-Ks to account for the fact that reported revenues and costs only reflect Adelphia revenues and costs "for the five months following the closing of the Adelphia/Comcast Transactions." See *TWC 2008 10-K* at 64 and 66.

Sources: TWC 2006-2009 10-Ks; and *Adelphia 2005 10-K*.

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and broadband services will also count as only one customer relationship." *TWC 2008 10-K* at 10. We do not combine Adelphia and TWC for the pre-acquisition period (2004-2005). The reason is that Adelphia's 10-Ks do not separately report broadband costs, which we would need to carry out the calculations described in the text.

We calculate per subscriber programming costs as programming costs divided by basic video subscribers. Ideally we would control also for changing composition of video sales between basic and digital. Unfortunately, TWC's 10-Ks do not disaggregate programming costs into basic and digital.

[47] As in the previous section, to control for changes in the composition of subscriber purchases, we fixed the number of TWC subscribers of video, broadband and voice services at their 2007 levels.

[48] The modest increase is not surprising because other costs also increased. Using 2007 as our subscriber base year, composition-controlled non-video programming costs (including broadband, voice, employees, franchise fees, and other direct operating costs) rose by about 40% over the 2004-2009 period. While some of these costs may be common to the video and non-video services, the decline in the number of video subscribers combined with the rapid increase in non-video subscribers suggests that these increases were largely the result of the growth in non-video services.

For comparison, we calculated this same ratio using Dr. Eisenach's methodology that does not account for this shifting product mix. For each year, we calculated the share of TWC's actual video programming costs to actual costs for the sum across the three services. As shown by the red bars in Figure 5, a failure to control for composition presents a dramatically different picture. Actual programming costs as share of total cost for the three services decreased from 49.5% in 2004 to 46.7% in 2009. Failure to control for the shifting product composition biases Dr. Eisenach's results.[49]

IV. CONCLUSIONS

In light of this analysis, we conclude that Dr. Eisenach's comparisons are irrelevant. Dr. Eisenach argues that programming costs are not rising relative to cable operators' revenues, profits, or other costs, and therefore, programming cost increases cannot be "blamed" for driving increases in the prices of cable TV services. However, he has failed to test any relevant economic proposition or shed light on the central issue of consumer harm from increases in programming costs.

All that his ratios possibly can show is that programming cost increases were accompanied by other changes, some of which have benefited the MVPDs. But, those other factors do not alter the basic concern that unjustified video programming cost increases lead to higher retail prices. His methodology violates the basic principle of *ceteris paribus*, and as a result, masks the harmful effects under consideration. While our own calculations reverse his results, his approach is so severely flawed as to be meaningless. For example, consumers would be harmed by an increase in the price of Windows operating systems, even if the computer OEMs simultaneously reduced their cost of acquiring microprocessors or computer memory.

Similarly, unless quality-adjusted programming costs fell, cable subscribers would be harmed by programming cost increases. Dr. Eisenach has provided no evidence on quality increases, nor has he provided any evidence that networks' marginal costs have increased. Given the nature of content production costs, it is more likely that the networks' cost increases involve fixed costs. Further, to the extent that the cost increases represent increases in payments to the content providers (e.g., the sports teams), they are more likely to represent a shifting of

[49] As above, we make no causation claims based on these comparisons.

the rents upstream, rather than an improvement in quality. Thus, it is unlikely that the programming cost increases are efficiency-based. Certainly, Dr. Eisenach has not provided any evidence supporting the claim that quality-adjusted programming costs might have fallen in recent years.

For these reasons, Dr. Eisenach's comparisons should have no relevance to policymakers.