Economic Benefits of State-Level Franchising Mechanisms for Multi-channel Video Programming Distributors (MVPDs)

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ABSTRACT

Internet protocol television (IPTV) has appeared as a competitor of cable television in the multi-channel video programming distributor (MVPD) market. The IPTV is the last component for telecom carriers who want to provide their customers with triple play services (TPS). Cable television operators already have the capability to provide TPS on their cable networks. In order to provide multi-channel video programs, a carrier should have been granted a franchise from a local government in the United States. The local franchising mechanism becomes an issue for delaying service launching, hampering fair competition, and leading to inefficient resource allocation by carriers. As an alternative mechanism, state-level franchising mechanism has been suggested. It is expected that the state-level franchising mechanism will shorten the launching period, improve competition in the MVPD market, and as a result, increase the consumer's welfare. In this regard, this study proposes a new approach to estimate the consumer's economic benefits from the changing the MVPD franchising mechanism from the local-level to the state-level. Based on an economic perspective, the IPTV diffusion patterns are estimated by using the Bass (1969) diffusion model. The diffusion model is used to estimate the IPTV demands at the state-level franchising mechanism as well as that of the local-level franchising mechanism. An estimate of the consumer's economic benefit is based on the difference between

demands on the state-level versus that of the local-level franchising mechanism. Results show that the state-level mechanism will grant consumers economic benefits of around 5.8 billion dollars in ten years. This result will encourage regulators and legislators to consider a state-level mechanism as a viable option for improving competition in the MVPD market and subsequently will increase consumer's welfare.

Keywords

Internet protocol television (IPTV); Triple play services (TPS); Multi-channel video programming distributor (MVPD); Local franchising authorities (LFAs); Bass model; Diffusion; Competition; Regulatory barriers

1. INTRODUCTION

Internet protocol television (IPTV) has appeared as an alternative to cable television in the multi-channel video programming distributor (MVPD) market. IPTV on the fiber optic network can provide the same services as cable television, such as multi-channel video services, video on demand (VoD) and so on (Ellis 2006). Thus the IPTV service will be a competitor to the cable television service. It is expected that launching IPTV will promote competition in the MVPD market.

IPTV is one way for telecom carriers to enter the market in triple play services (TPS). Telecom carriers may compete with cable companies, which already have a capability to provide the TPS through their cable networks. Since the launching of IPTV the TPS market has started a full-sized competition. This competition will give consumers more varied services and more economic benefits from the increased competition, such as lower prices, better customer services, and more service options.

However, a higher entry barrier remains for telecom carriers who want to launch the IPTV. Local franchising mechanism acts as entry barriers for telecom carriers. The process is too long for telecom carriers to enter the market especially due to negotiations with many local governments. The local franchising authorities (LFAs) require new comers to submit their network and business plans. That plans are exposed to the incumbent carrier, thus hampering fair competition.

To overcome these kinds of inefficiency, and as an alternative mechanism, the state-level franchising mechanism, in which state government will grant franchising of MVPD services to carriers, has been suggested. It is expected that state-level mechanism will shorten the franchising process, make it possible the early entry of telecom carriers, promote competition in MVPD market and as a result, grant consumers better economic benefits. In addition, since each local government has its own process, it estimates 10,000

different local processes in the country. In terms of the economy of scale in processing information, the state level franchising needs only 50 processes and subsequently leads to higher efficiency.

It is necessary for the state governments to evaluate the economic net benefits of the state-based franchising systems when they consider this option. However, there is little research on how much economic benefit the state-level franchising mechanism will give consumers against the current local-level franchising mechanism. This paper aims at proposing a model to measure the consumer's economic benefits of a state-level MVPD franchising mechanism against the local-level franchising mechanism. The economic benefit comes from the early provision of IPTV services by changing the mechanism from local government to state government. This paper adopts a diffusion model to estimate the demands at the state-level as well as at the local-level franchising mechanism, compares the differences between those demands and estimates the consumer's economic net benefits of the state-level franchising mechanism. The underlying rationale of the approach we adopt is that competition gives consumers benefits such as lower price, provision of various channel selection, better customer services, etc. The early provision of competition grants consumers these kinds of competition gains earlier.

2. IPTV AND TPS

2.1 IPTV

Internet protocol television (IPTV) describes a system where digital television service is delivered to subscribing consumers using the Internet protocol over a broadband connection. This service is often provided in conjunction with VoD and may also include Internet services such as Web access and voice over IP (VoIP) where it may be called triple play (Alfonsi 2005; Jain 2005; Wikipedia 2006a). In the past, this technology has been nearly impossible to use because of the slow dial-up download speeds inhibiting any form of video content to be received. Now, however, IPTV is expected to grow at a brisk pace in the coming years as broadband is now available to more than 100 million households worldwide.

In the U.S. two mega-carriers are proposing the IPTV service: AT&T Inc. (former SBC Communications) and Verizon Communications. AT&T launched its IPTV project ‘Lightspeed’ in 2004. Through the Lightspeed, AT&T will deploy a next-generation IP-based network to deliver IP-based TV, broadband and voice services using fiber-to-the-neighborhood and fiber-to-the-premises (FTTP) technologies. AT&T is adding about 40,000 miles of fiber, bringing fiber even closer to customers' homes. AT&T expects to

reach approximately 18 million households as part of its initial deployment, and additional homes as the technology scales and deployment costs decrease. AT&T plans a controlled market entry at the end of 2005 or early 2006, and will add more features and functionality and enter more markets beginning in mid-2006 (AT&T 2006; SBC 2004). The costs are estimated to be 4 billion dollars.

Verizon also started its IPTV services in 2004. The service is called 'FiOS.' Fiber-to-the-premises technology provides fiber-optic connections directly to homes and businesses to enable a broad array of voice, data and video applications. FiOS consists of three consumer Internet access services. At 30 Mbps, the fastest data service is ten times faster than consumer broadband speeds typically available today. Entry and mid-level services at speeds of 5 Mbps and 15 Mbps also beat the speeds and prices of today's consumer broadband (Verizon 2004). After launching the service at Keller, Texas on September 22, 2005, Verizon is expanding its services areas into Florida, Virginia, New York, Massachusetts, and Maryland. It provides more than 350 channels, more than 180 digital video and music channels, more than 20 high-definition (HD) channels, and over 2,200 on demand titles available to customers for $34.95 a month (Verizon 2006).

Many of the world's major telecom carriers are exploring IPTV as a new revenue opportunity and as a defensive measure against encroachment from more conventional

cable television services. In this sense, IPTV is the last component for telecom carriers which want to provide their customer with TPS.

2.2 TPS

Triple play service (TPS) is a marketing term for providing three services: high-speed Internet, television, and telephone service over a single broadband connection. TPS focuses on a combined business model rather than on solving technical issues or a common standard (Wikipedia 2006b). TPS is offered by cable television operators as well as by telecom carriers. It paves the way for these service providers to compete with one another.

For telecom carriers, TPS is delivered using a combination of optical fiber and digital subscriber loop (DSL) technologies to its residential base. This configuration uses fiber communications to reach distant locations and uses DSL over an existing plain old telephone service (POTS) twisted pair cable as the last mile of access to the subscriber's home. Cable television operators use a similar architecture called hybrid fiber coaxial (HFC) to provide subscriber homes with broadband, but use the available coaxial cable rather than a twisted pair for last mile transmission.

Some European companies are already providing TPS. In the United Kingdom, a broadband service provider Be Unlimited contracted Alcatel to roll out a triple play service

for its UK operations in July 2005. They use the company's 24Mb/s ADSL2+ service. Video Networks completed the first tests of its ADSL2+ network in September 2005, and was set to be the first UK operator to move to the technology for the delivery of triple play, with a full launch scheduled for the end of the year. Its 'HomeChoice' service will offer customers in London and Stevenage speeds of up to 24Mb/s (Paul-Budde-Communication 2005c).

In France, the success of broadband TV, which now has more than five million users, is helped by the underdevelopment of cable TV. In addition, France Telecom moved into the market early, and has concentrated on broadband TV over its DSL network. The first broadband TV services were launched in France at the end of 2003, followed by videoconferencing services in early 2004. The domestic telecoms operator of the utilities group Vivendi, Neuf Cegetel, a merger of Neuf Telecom and Cegetel, launched an 8Mb/s triple play service in November 2004. Iliad and TOnline, a German ISP, are providing TPS in France (Paul-Budde-Communication 2005a).

In Germany, cable companies invested €172 million in the expansion of triple-play services and technology in 2004. Some 4.1 million households had triple play access via cable by the end of 2005. German cable broadband provider Kabel Deutschland, which at 10 million customers has over half the cable households in Germany and is Europe's largest

single market operator, was scheduled to launch a triple play voice, video and data service covering one million homes in its Rhineland-Palatinate and Saarland networks by the end of 2005. Kabel Deutschland, ish, iesy and Kabel Baden-Württemberg planned to spend €185 million on improvements during 2005 (Paul-Budde-Communication 2005b).

What the companies pursue through the TPS is a competitive advantage of service bundling, which allows service providers to take advantage of retaining their own customers, reducing their overhead costs, inducing new customers, and exploring new markets (Chuang and Sirbu 1999; Crampes and Hollander 2005; Ulset 2002).

3. MVPD FRANCHISING MECHANISM

In the United States, to provide multi-channel video services a company needs a franchise from an LFA. As IPTV emerges as an alternative to cable television services, the local franchising mechanism becomes a debatable issue. Local franchising mechanisms act as an entry barrier for telecom carriers that want to enter the market. However, from the view of cable companies and local governments, the current franchising mechanism is not a new one, and all cable television operators already went through the process. The local franchising is one of functions of local governments who represent their people. In

opposition, for the telecom carriers, the negotiations with a lot of local governments are considered as a regulatory burden. Long-lasting negotiation with local governments delays telecom carriers' launching the IPTV service.

Verizon has negotiated with many local governments since 2004. During the negotiations, local governments, which have the right of final decision over granting MVPD franchising, request the telecom carriers expensive and detailed demands (Searcey 2005). The negotiation process also has been longer. This delay in granting franchise leads to the criticism that the local franchising mechanism prevents competition in the MVPD market.

In section 621(a)(1) of the Communications Act of 1934, as amended: "a franchising authority … may not unreasonably refuse to award an additional competitive franchise."1 Greater competition in the market for the delivery of multi-channel video programming is one of the primary goals of federal communications policy (FCC 2005a; 2005c). This means that LFAs can not unreasonably refuse to award competitive franchises. Thus, Verizon contended that the single biggest obstacle to widespread competition in the video services market is the requirement that a provider obtain an individually negotiated local franchise in each area where it intends to provide service (Verizon 2005a).

[1] 47 U.S.C. § 541(a)(1).

Against this inefficient franchising mechanism, and as an alternative, the state-level franchising mechanism, was proposed and discussed in a broad area. State public utility commissions (PUCs) are trying to modify the franchising granting mechanisms in Texas, New Jersey, Indiana, etc. Texas is the first state which moved to the franchising mechanism from the local government into the state. In Texas, the state government could grant the MVPD franchise instead of local government by amending its state law (Sheng 2005). In the House, congressmen are discussing the potential advantage of changing the franchising mechanism. The federal communications commission (FCC) also proposed a notice of proposed rulemaking to discuss this issue on November 2005 (FCC 2005c).

AT&T adopted a different strategy from that of Verizon. Without trying to negotiate with each local government, AT&T tried to change the local franchising mechanism to the state franchising mechanism by amending state law. As Texas has changed the state law, AT&T applied to the franchise and was granted. Verizon also applied and was granted its franchise in twenty one communities on October 21, 2005 (Verizon 2005b). Table 1 shows the status of granting the Verizon MVPD franchise at the local- and state-level.

State franchising mechanism			
State	Negotiation Started	Approval Franchising	Service Launching
Texas	Sep. 30, 2005	Oct. 21, 2005 (21 communities: Allen, Carrollton, Colleyville, Coppell, Denton, Double Oak, Flower Mound, Fort Worth, Garland, Grapevine, Hebron, Highland Village, Irving, Lewisville, Lucas, Murphy, Parker, Plano, Rowlett, Southlake and St. Paul)	Dec. 12, 2005 (Carrollton, Coppell, Flower Mound, Fort Worth, Irving, Lewisville)

Local franchising mechanism					
County	Approval Franchising	Service Launching	County	Approval Franchising	Service Launching
Beaumont, California	2004		Massapequa, New York	Sep. 27, 2005	Jan. 24, 2006
Keller, Texas		Sep. 22, 2005	Fairfax, Virginia	Sep. 27, 2005	
Temple Terrace, Florida	May 17, 2005	Dec. 6, 2005	Woburn, Massachusetts	Sep. 28, 2005	Jan. 24, 2006
Herndon, Virginia	Jul. 19, 2005	Nov. 21, 2005	Apple Valley, California	Nov. 8, 2005	
Bradenton, Florida	Aug. 30, 2005		Nyack, New York	Nov. 28, 2005	
Manatee, Florida	Aug. 30, 2005	Feb. 1, 2006	South Nyack, New York	Nov. 29, 2005	
Murrieta, California	Sep. 6, 2005		Hillsborough, Florida	Feb. 1, 2006	

Table 1. Franchising Granting of Verizon for MVPD

Table 1 show that the local-level franchising mechanism takes approximately 2-3 months which is four times longer than the state-level mechanism. For example, Texas law

mandates that the state government is to make the franchise decision within sixteen business days.

Several rationales contend for the change of MVPD franchising mechanism from the local government to the state. First, the current local franchising mechanism forces a new entrant to telegraph its deployment plans to the incumbent video competitor, allowing the incumbent not only to take steps to prolong the franchise process and delay the onset of competition, but also to entrench its position in the market before the new entrant has the opportunity to compete. Second, the mechanism simply takes too long, due to such factors as inertia, arcane, lengthy application procedures, bureaucracy, or in some cases, inattentiveness or unresponsiveness at the LFA level. Third, the new entrant build-outs and serves an entire franchise area on an expedited basis or to match all of the concessions previously provided by the incumbent in order for it to gain its original monopolistic position in the local area, despite the vastly different competitive situation facing the new entrant. Fourth, it involves outrageous demands by some LFAs that are in no way related to video services or to the rationales for requiring franchises (Verizon 2005a).

From the perspective of competition, current franchising mechanisms create delay in cable competition, due to the tardiness of the service launching of IPTV. Negotiations with too many local governments hamper the franchise's ability to provide customers with

services within a reasonable period of time. For instance, Verizon would have to negotiate with more than 10,000 municipalities in order to offer service throughout its current service area (Ranii 2005). Verizon has already hired hundreds of lawyers to progress its negotiation with local governments.

In order to promote competition in the cable market and to grant consumers competitive gains, it is necessary to consider changing the franchising mechanism in the MVPD market. When state governments consider these changes, they should be concerned about the costs against the benefit from this change. The economic benefits from increased competition can be a critical factor in discussing changing franchising mechanisms.

4. LITERATURE ON TECHNOLOGY DIFFUSION

A technology diffusion model is adopted to estimate demands in two different franchising mechanisms in this study. In general, three kinds of research streams can be identified in the area of technology diffusion: forecasting model, which usually uses auto-regressive models; causal relationship models, which typically use cross-sectional country-level data and econometric methods; and case study, which focuses on a certain country or a certain region and explains some factors that influence technology diffusion.

Forecasting models, which explain technology diffusion, have been shown with various research tools. The innovation diffusion model was proposed to show the diffusion pattern by internal and external factors (Bass 1969). Retrospective population models of diffusion tend to emphasize success and innovations while ignoring diffusion failure or re-invention (Grantham and Tsekouras 2005). Automated frameworks for forecasting the diffusion of innovations utilize existing diffusion information from market areas, and examine similar products previously introduced into the market (Ilonen, Kamarainen, Puumalainen, Sundqvist and Kälviäinen 2006).

Causal relationship models usually use econometric models and economic theories. The differences in the magnitude of the network externality coefficient, the importance of the switch to digital technology, market competition, and fee payment have been shown as critical factors affecting mobile telecom diffusion (Jang, Dai and Sung 2005). Socio-economic factors also have been spotlighted as determinants for technology diffusion, regarding the digital divide (Wareham, Levy and Shi 2004). GDP per capita and Internet access costs are found to best explain the observed growth in computer hosts per capita (Kiiski and Pohjola 2002).

Case studies explain specific factors within a certain market which were not usually explained by the econometrics models and country-level data. The study on the

technological and regulatory determinants of the diffusion of mobile telecom services in the European Union (Gruber and Verboven 2001) and in Central and Eastern Europe (Gruber 2001) reveals that diffusion speed is faster in countries that have adopted mobile telecom services late, implying a pattern of convergence in the diffusion levels. The number of firms, simultaneous entry, the size of the fixed telecommunications network, and the length of the waiting list have been found to be influential factors for mobile diffusion. There have been various trials to explain the diffusion pattern using different perspectives, such as the concept of lead market factors in Portugal, Finland, Japan, and Korea (Beise 2004; Botelho and Pinto 2004; Frank 2004; Iimi 2005; Park and Yoon 2005).

5. RESEARCH DESIGN

5.1 Estimation Model

The change of MVPD franchising mechanism from local to state level signifies the earlier provision of competition in the MVPD market. From the perspective of a price mechanism, the provision of competition means increase in supply. The earlier provision of competition can be interpreted by the earlier increase in supply. According to microeconomics, the increase in supply by competition leads to the increase in the

consumer surplus, such as a lower price even though the producers surplus has decreased as following Figure 1 (Carlton and Perloff 2000; Pindyck and Rubinfeld 2004).

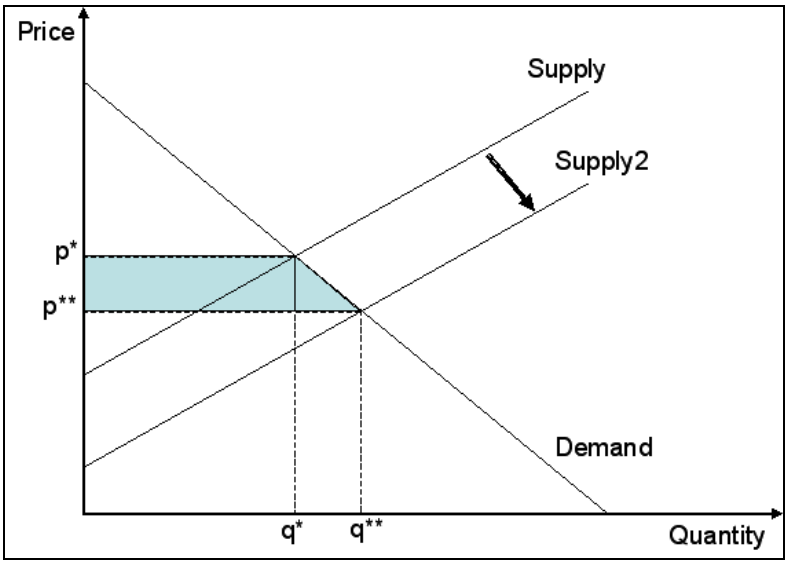

Figure 1. Consumers' Surplus by Increased Competition

The amount of consumer's economic benefit results from the increased competition is an essential factor to be considered in the discussion about the change in the MVPD franchising mechanism. In order to estimate the net benefit came from the change in the franchising mechanism from the local-based to the state-based, it is necessary to estimate the demands on the IPTV for each mechanism. Bass (1969) diffusion model is used to estimate the demands on the IPTV at each mechanism.

In the Bass model, adopters are classified as innovators, early adopters, early majority, late majority, and laggards. This classification of group is based upon the timing

of adoption. Innovators, who decide to adopt an innovation independently of the decisions of other individuals in a social system, are expected to be the first adopters. Aggregate groups, except for innovators, are defined as imitators who are influenced in the timing of adoption by the decisions of other members of the social system (Bass 1969; Wade 1995). The Bass model represents the number of new adopters at time t with the following equation (1).

$$n(t) = \frac{dN(t)}{dt} = p[m - N(t)] + \frac{q}{m} N(t)[m - N(t)]. \quad (1)$$

Where $N(t)$: The cumulative number of adopters at time t

$n(t)$: The number of adopters at time t

m : The potential maximum number of adopters

p : The coefficient of innovation

q : The coefficient of imitation

In equation (1) $p[m - N(t)]$ represents adoptions due to buyers who are not influenced in the timing of their adoption by the number of people who already have bought the product. $\frac{q}{m} N(t)[m - N(t)]$ represents adoptions due to buyers who are influenced by the number of previous buyers (Mahajan, Muller and Bass 1990). If no data are available, parameter estimates can be obtained by using either management judgments or the diffusion history of analogous products (Mahajan et al. 1990).

The key concern of this study is in the gap of diffusion between the local franchising mechanism and the state's. We represent it as competition gain, which means the gain of consumers due to increased competition led by the change of MVPD franchising mechanism.

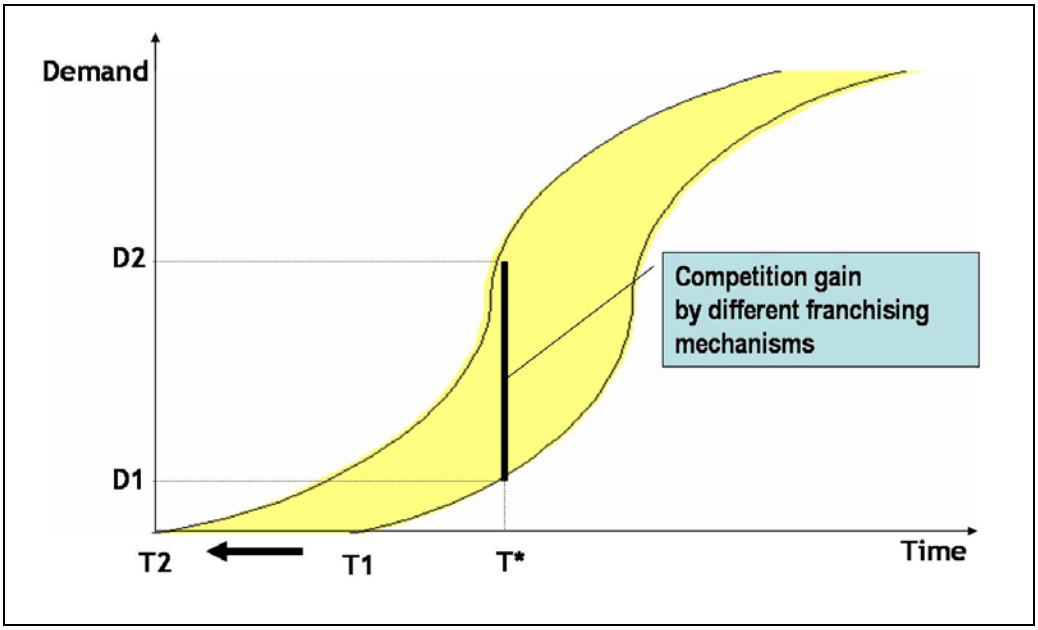

Figure 2. Competition Gain from the Change of MVPD Franchising Mechanism

IPTV is a new service which was launched since 2005. In order to estimate its diffusion pattern, it is necessary to use proxy services with similar diffusion pattern (Mahajan et al. 1990). There are five services that have the similar treats to IPTV: terrestrial television, cable television, direct broadcasting by satellite (DBS), digital television, and high-speed Internet services. The similarity of diffusion pattern of IPTV with those services

depends on the similarity of service aspects of IPTV with those services. The similarity aspects are type of content, charging system, policy and regulation, and marketing effect of the adoption (Yu 2002).

The innovation and imitation coefficients of IPTV are estimated by the weighted average of those of similar services in this study.

$$Inn_{IPTV} = \sum_{i=1}^{m} s_i Inn_i \qquad i = 1, \ldots, m \qquad (2)$$

$$imi_{IPTV} = \sum_{i=1}^{m} s_i imi_i \qquad (3)$$

$$s_i = \frac{c_i}{\sum_{i=1}^{m} c_i} \qquad (4)$$

$$c_i = \frac{\sum_{j=1}^{n} w_j t_{ij}}{\sum_{j=1}^{n} w_j} \qquad j = 1, \ldots, n \qquad (5)$$

Where Inn_i : Innovation coefficient of service i

imi_i : Imitation coefficient of service i

s_i : Similarity index of service i with the IPTV (relative similarity)

c_i : Closeness index of service i with the IPTV (absolute similarity)

w_j : Weight of a treat j

t_{ij} : Similarity of service i with the IPTV in terms of a treat j

Each innovation and imitation coefficients for the services (Inn_i , imi_i) were

estimated by ordinary least square (OLS) regression. Using these coefficients and a similarity index, the innovation and imitation coefficients for the IPTV are estimated. Projections of the number of subscribers of the IPTV are carried out for two different scenarios which are the case of local franchising mechanism and that of state franchising mechanism. The difference of launching time between two mechanisms could be long. In the case of state-level franchising, the number of franchises is very small as compared to the local franchise, and the processing time is also very short. In the case of Texas, the state law imposes that the decision for franchise be made within sixteen business days. In opposition, the local franchise has an unlimited time span for the decision. However, the difference of launching time between the two mechanisms is conservatively set as two years in this study, not to over-estimate the consumer's economic benefit of the state-based franchising mechanism.

Scenario 1: Local franchising mechanism in which the IPTV will be launched from 2008.

Scenario 2: State franchising mechanism in which the IPTV will be launched from 2006.

The difference of demand can be calculated from the diffusion estimation with scenarios. That is the difference in the number of subscribers between the two different

franchising mechanisms. The economic benefit of the state franchising mechanism as compared with the local mechanism can be estimated by multiplying the increased number of subscribers in the case of state mechanism with the price reduction by the competition.

$$B_t = \Delta p \times \Delta D_t \qquad (6)$$

Where B_t: The economic benefit of the state franchising mechanism, compared with the local mechanism

Δp: Price reduction by competition

ΔD_t: The difference of demand between the state franchising mechanism and the local one

Thus total *competition gain* in ten years by the state-level franchising mechanism (B) can be estimated by the following formula.

$$B = \sum_{t=1}^{10} B_t = \Delta p \sum_{t=1}^{10} \Delta D_t \qquad (7)$$

5.2 Data Collection

To estimate the diffusion pattern correctly, initial data showing the increasing pattern are essential. Historical data are used to estimate the innovation and imitation coefficients for each service. Table 2 shows the description of data which are used in estimating the coefficients. Figure 3 shows the diffusion patterns of telecom and

broadcasting services in the U.S.

	Estimation period	Data points
Terrestrial television	1950-2005	56
Cable television	1952-2004	53
Direct broadcasting by satellite	1993-2004	12
Digital television	1998-2005	15 (half years)
High-speed Internet service	1999-2004	6

Table 2. Data Description

Source: (FCC 1997; 1998a; 1998b; 2001; 2002a; 2002b; 2004; 2005a; Research-NTI 2006; Warren Communications News 2005)

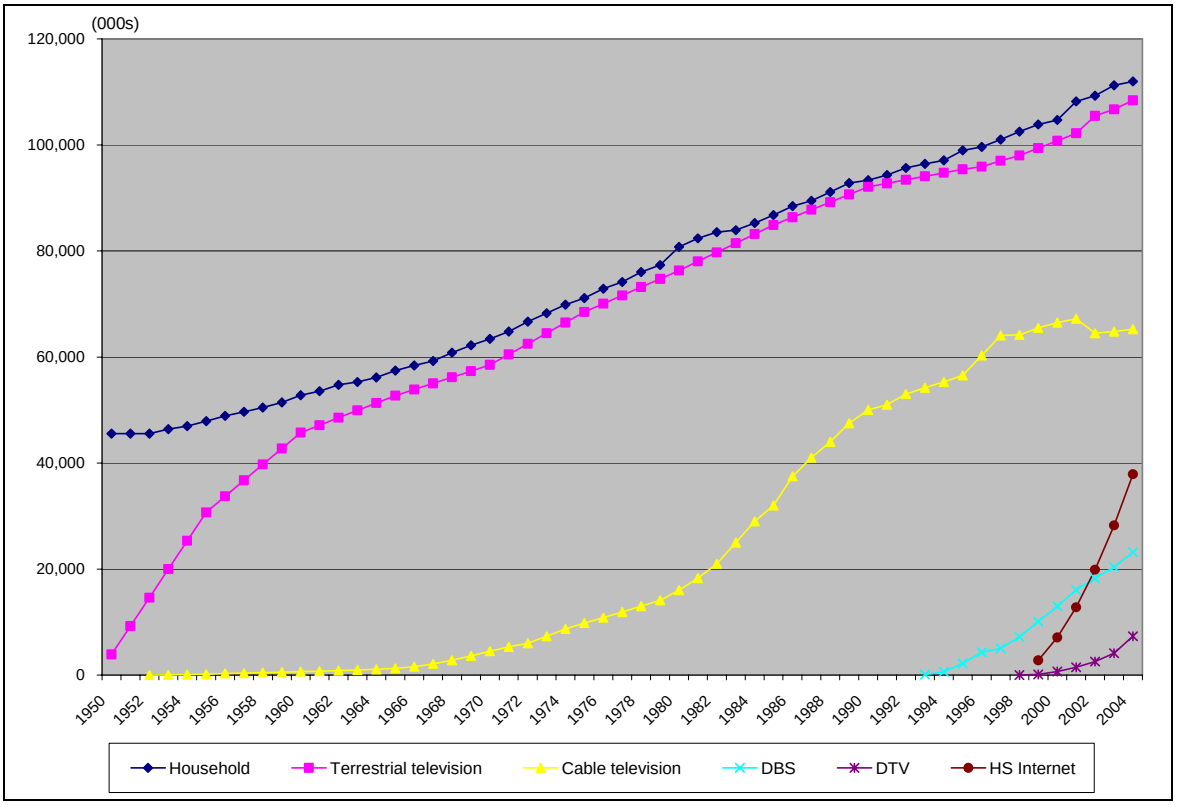

Figure 3 Diffusion Patterns of Telecom and Broadcasting Services in the U.S.

6. ANALYSIS

For each service with similar aspects to the IPTV, the innovation and imitation coefficients are estimated. At different potential levels the optimal level of potential subscribers has been searched by comparing the root mean squared error (RMSE) (Evans 2002). Table 3 shows the results of estimation for each service.

	Potential subscribers*	Innovation		Imitation		R^2
		Coefficient	Significance	Coefficient	Significance	
Terrestrial television	100%	0.1110	0.000	0.1150	0.001	0.854
Cable television	70%	0.0280	0.023	0.2340	0.000	0.585
Direct Broadcasting by Satellite	50%	0.4620	0.122	0.5850	0.064	0.580
Digital television	60%	-0.1770	0.353	0.5180	0.005	0.835
High-speed Internet service	40%	0.0200	0.696	0.3390	0.022	0.998

Table 3. Results of Estimation for Services

* Percentage of the number of households

The estimated coefficients show that the services, which are at the stage of maturity and have a long history, have low values of coefficients, while the new and short-history services which are in the growth stage, have higher values of coefficients.

In order to estimate the innovation and imitation coefficients of the IPTV, the weight for each service is necessary. A similarity index which represents the degree of

similarity of each service with the IPTV (Yu 2002), is adopted. The similarity index for each service was calculated by weighted averages, in the respect to type of contents, charging system, policy and regulation, and marketing effect & intention of the adoption. The ratings were done by the Delphi process in Korea (Yu 2002).

The innovation and imitation coefficients and the level of potential subscribers for the IPTV are calculated using the similarity index and estimators of similar services. The innovation coefficient is found to be 0.0866, imitation coefficient is 0.3688, and the level of potential subscribers is 55% of the number of households in the United States.

	Similarity index	Innovation	Imitation	Potential subscribers*
Terrestrial television	0.1587	0.1110	0.1150	
Cable television	0.2106	0.0280	0.2340	70%
Direct Broadcasting by Satellite	0.2059	0.4620	0.5850	50%
Digital television	0.2059	-0.1770	0.5180	60%
High-speed Internet service	0.2190	0.0200	0.3390	40%
	1.0000	0.0866	0.3688	55%

Table 4. Innovation and Imitation Coefficients of IPTV

* Percentage of the number of households

The level of price reduction should be calculated to project the economic benefit of competition. The ratio of price reduction is estimated by averaging the differences of price

per channel between competitive regions and non-competitive regions. Using the data from 1995 to 2004, the average price reduction is estimated by 9.81%.

	Jul-96	Jul-97	Jul-98	Jul-99	Jul-00	Jul-01	Jan-03	Jan-04	Average
Non-competitive group	0.620	0.640	0.650	0.650	0.650	0.661	0.657	0.665	0.649
Competitive group	0.580	0.550	0.570	0.570	0.605	0.608	0.601	0.599	0.585
Price reduction ratio	-6.45%	-14.06%	-12.31%	-12.31%	-6.92%	-8.02%	-8.52%	-9.92%	-9.81%

Table 5. Price Reduction Ratio between Competitive and Non-Competitive Regions

Source: (FCC 2005b)

The average rate per subscriber is used to estimate the economic gain for each subscriber. The average monthly price estimated in 2006 for expanded basic programming packages is $41.17 (Kagan Research LLC). This price is used for calculating the economic benefits per user.

7. RESULTS

Economic benefits realized by changing the MVPD franchising mechanism from local to state-based are estimated by the difference of demand in two different mechanisms and the price reduction ratio by the competition. The estimations are made by three

different scenarios, such as optimistic, neutral, and pessimistic. The neutral scenario is that the potential subscribers can reach 55 percent of the number of households in the U.S. This potential level is calculated by weighted-averaging the optimal level of potential subscribers for four similar services. The optimistic and pessimistic levels are adopted from the results of similar services. The optimistic level comes from the highest level which is for the cable television service, while the pessimistic level is the lowest value of the high-speed Internet service (40%).

	Gross Value			Net Present Value		
	Optimistic (70%)	Neutral (55%)	Pessimistic (40%)	Optimistic (70%)	Neutral (55%)	Pessimistic (40%)
2006	330.47	258.95	188.84	330.47	258.95	188.84
2007	747.72	585.89	427.27	712.11	557.99	406.92
2008	906.02	709.93	517.72	821.78	643.92	469.59
2009	1,027.98	805.49	587.42	888.01	695.81	507.43
2010	1,075.52	842.74	614.58	884.83	693.32	505.62
2011	1,023.72	802.16	584.98	802.11	628.51	458.35
2012	879.22	688.93	502.41	656.09	514.09	374.91
2013	681.38	533.90	389.36	484.24	379.44	276.71
2014	481.03	376.92	274.88	325.58	255.12	186.05
2015	314.64	246.54	179.80	202.82	158.92	115.90
Sum	7,467.70	5,851.45	4,267.26	6,108.06	4,786.08	3,490.32

Table 6. Economic Benefits from the Change of MVPD Franchising Mechanisms

* Percentage of the number of households

For three different scenarios gross values are calculated and net present value at the time of 2006 are estimated. For estimating the net present value the risk-free interest rate is considered as 5%. Table 6 and Figure 3 show the economic benefits from the change of MVPD franchising mechanisms.

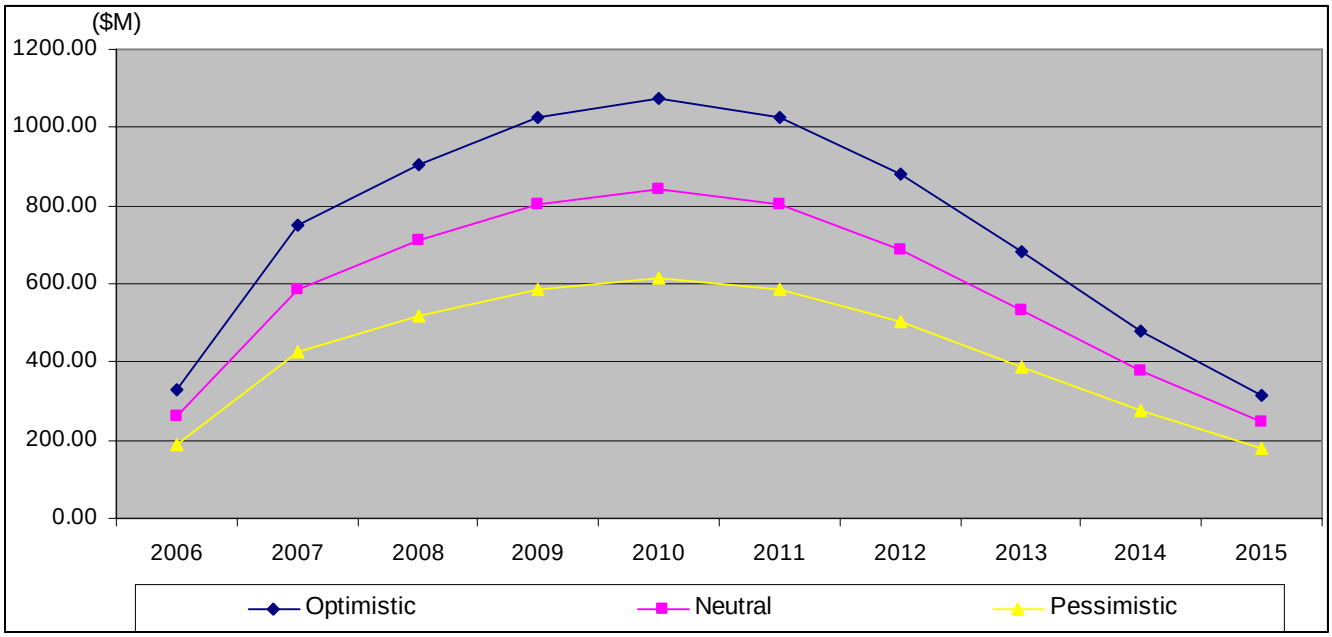

Figure 4. Economic Benefits from the Change of MVPD Franchising Mechanisms (Gross Values)

8. CONCLUSION AND IMPLICATIONS

The MVPD franchising mechanism is a licensing system, which could be a regulatory barrier for new comers. It is evident that higher entry barrier makes a market

inefficient. Even though the entry barrier plays a role in protecting an unqualified service from access to customers and imposing carriers to provide universal service to most customers in the base of fairness, it could be a regulatory hurdle when the barrier delays service launching, hampers efficient allocation of resources, and requests unnecessary business plan. There are several problems to be raised regarding the local franchising mechanism for the MVPD. The current mechanism has a legal rationale. The local MVPD franchise is one of the properties of local governments representing their people. There is a practical inertia that the current franchising mechanism is not a new one. All cable television operators already went through the process. However, it is necessary to evaluate other alternatives so that a choice can be made in terms of the economic view. The delay of competition is at the cost of the consumer's welfare. Because of all that, the state-level franchising mechanism could be one of the options we can select.

This study explores an approach to evaluate the customer's economic benefits for the state-level mechanism. The results show that the state-level mechanism can provide around 5.8 billion dollars in ten years additionally when the franchising mechanism has moved from the local to the state-based. From the economic perspective it has an implication that a state-level mechanism can increase the customer's welfare. This study provides a new approach for evaluating the options, and shows evidence in favor of this

change.

The franchising mechanism for the IPTV influences the TPS market directly. It is expected that TPS will be a playground for competition in the future of the communication industry. TPS can change the market structure, players, and telecom policy. Distorted competition due to an inefficient franchising mechanism will lead to the hindering market growth and distortion of the optimal solution for the efficiency in the economic view. In that sense, a relevant franchising mechanism will be needed and the state-level franchising mechanism can be one of the solutions.

This study has a few limitations as well. First of all, this study focuses on only economic aspects. The MVPD franchising mechanism is linked with the legal system between local and state, federal governments. The MVPD franchising has been regarded as a local property on which the local citizen has the authority. Thus, it is alleged that the local governments has a legal rationale to play an agent role in MVPD franchising. Even if the mechanism of local governments has several malfunctions, it has its own rationale to be kept on. A follow up study needs to address the issue of how to coordinate local authority with the state governments' management in terms of an MVPD franchising mechanism.

The second limitation is about methodology. In this study the similarity index that represents the similarity of current provided services with the IPTV is borrowed from a

case study in Korea. It could be different in the U. S. because of the different background, market structure, history, and different disposition of customers. Similarity analysis in the U.S. market should be followed in the future study.

The third concern, which is also a subject for future study, is that diffusion patterns could be influenced by the launching time of a service. It could be different from the diffusion pattern when the service launches in 2006 from that in 2008. The same diffusion pattern is assumed in this study regardless of the launching time. The demand depends only on the level of potential subscribers.

From the practical perspective, telecom carriers can not launch their IPTV services to all areas in the U.S. at the same time. However, the assumption of this study is that service could be implemented to all areas at the same time. In the future study, a practical scenario could be set up and the results could show the relevant implications from the practical perspective.

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