

World Television Trade: The Economic Effects of Privatization and New Technology*

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INTRODUCTION

The most obvious result of an Italian court's decision in 1976 to allow free entry into commercial television broadcasting has been a tremendous influx of American movies and series onto Italian television screens. Italian viewers have followed the imports. The combined audience share of the new private networks primarily featuring this programming exploded, from 6% in 1979 to 46% by May/June of 1983—nearly matching the 47% combined share of Italy's three state-owned and controlled networks, RAI1, RAI2 and RAI3 (Werba, 1986a). Prior to the 1976 decision, the well-respected RAI organization had enjoyed a virtual monopoly.

The Italian experience with commercial television has been watched with trepidation by policy makers worldwide. Sovereign nations in Europe and other parts of the world are now undergoing or anticipating the expansion and privatization of broadcast systems and the introduction of cable and other multichannel video technologies. What will be the long-term effects of this unleashing of new technology and free market forces on the program

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menus of television systems throughout the world? Will American dominance continue in Italy and be repeated elsewhere? Or will earlier expectations of de Sola Pool (1977) and others eventually materialize—that expanded broadcast capacity and new delivery systems such as cable, VCRs, and DBS will serve to increase the amount and variety of domestically produced programs?

This chapter addresses these questions from an economic perspective, focusing on the major nations of Western Europe and Japan, for which data are most accessible. Our thesis is that although increased presence of American programming worldwide is inevitable, new opportunities for domestic production within U.S. trading partner nations are being created in the process. In particular, the domestic commercial infrastructures which support television systems in those countries (e.g., their advertising industries) are rapidly developing as a result of privatization and new technology, stimulated in the short run by the demand for American-made programs. In the long term, however, development of these commercial infrastructures, especially in support of the “pay” media, such as premium channels and prerecorded videocassettes, should economically benefit these nations’ domestic production industries *relatively* more than they benefit American and other imported programming. While this long-term development appears to be now underway, a significant variable in its progress remains the trade and domestic media policies of America’s trading partners.

Following an introduction to the main facts about world trade in television programs that previous research has revealed, we set out in Section II an economic framework which provides a rationale for the historical dominance of program trade by the United States. In Section III we use the economic model to suggest likely effects of privatization and new technologies on program trade, and then conclude with a policy discussion in Section IV.

U.S. Dominance

A 1973 Unesco-financed study by Varis (1974) of the program menus of 50 nations documented the salient empirical fact of international trade in television programming: historical dominance of the United States as a program exporter. Varis found the United States to account for over 40% of all program hours exported worldwide, including 44% of hours imported by Western Europe. The United States had the further distinction of importing a smaller proportion of its television programming (1% to 2%) than any of the other sample countries (with exception of the People’s Republic of China). In general, Varis found that relatively large and wealthy countries, such as France, the U.K., Japan, and the U.S. tend to be the major world exporters. And although these countries (including the U.S.), have also imported relatively large *absolute* numbers of programs, the *proportions* of

imported program hours on their television system menus have generally been lower than those of smaller and less wealthy nations. A 1984 update by Varis showed little systematic change in world trade patterns, apart from some tendency for regional exchange of programs to replace importation from dominant exporters such as the United States. Antola and Rogers (1984) also documented an increase in regional exchanges in the case of Latin American nations.

Another consistent finding has been the prevalence of feature films, especially American films, among imported television fare (Varis, 1974; Pragnell, 1985). In this respect, television trade is closely intertwined with theatrical film industries worldwide. Notably, the export trade of movies for theatrical exhibition has also been dominated by the United States since the industry's beginnings around the turn of the century.

Previous authors have identified a number of specific cultural and institutional factors contributing to historical dominance of movie and television trade by the United States, including prevalence of the English language, ethnic diversity of the United States, postwar fascination with Hollywood, Madison Avenue exports of American products, and adoption of the U.S. model for a television system as an inducement to purchase U.S. programs (Katz & Wedell, 1977; Tunstall, 1977). Earlier authors have also recognized an economic factor: the large and wealthy domestic audience base available to U.S. producers. The simple model we set out below develops and extends this economic logic, in abstraction from other factors.¹

AN ECONOMIC FRAMEWORK

The model's foundation is a fundamental characteristic of information products, such as television programs or motion pictures: They typically have very low marginal costs of distribution relative to the "first copy" cost of creating the product itself. The result is extraordinary economies of scale which can be realized by distributing information products to ever larger audiences. In brief, we use the model to show that, under these cost conditions, the larger and wealthier is the potential audience base for a given program, the greater is the amount of economic resources that a producer can profitably invest in that program. The larger the investment, in turn, the greater the competitive advantage of a producer in selling its programs on

¹ The model is conceptually similar to that employed in independently developed work by Wildman and Siwek (1988). These authors also consider audience demand to depend on a film or video product's cost and its country of origin. For related general analysis of imperfect competition between nations due to economies of scale, see, for example, Kierzkowski (1984).

the world market. Given some assumptions about audience demand for foreign programs in a free trade environment, we then show that the economic development of any one country's domestic television industry (e.g., via advertising growth or installation of "pay" media systems) helps both domestic and foreign producers, but relatively more so the former.

A Two-Country Model

In each of two countries, A and B, a single producer maximizes profit in the production of a single program. There is free trade between the countries and an advertiser-supported (or government-imposed subscriber license fee) system in both.

We define the objective functions for producers A and B as follows:

$$\Pi_A = v_A \cdot N_A \cdot R_{AA} + v_B \cdot N_B \cdot R_{AB} - C_A \quad (1)$$

$$\Pi_B = v_A \cdot N_A \cdot R_{BA} + v_B \cdot N_B \cdot R_{BB} - C_B \quad (2)$$

where:

$\Pi_{A,B}$ = profit

$v_{A,B}$ = Revenue potential per viewer

$N_{A,B}$ = TV household base

R_{AA}, R_{AB} = rating (i.e., percent of total TV households viewing) of program A in country A; rating of program A in country B, etc.

$C_{A,B}$ = production investment

The terms $v_A N_A$ and $v_B N_B$ can be thought to represent the size and efficiency of each country's economic "infrastructure" for extracting revenues from viewers; "v" itself may be interpreted as a "cost per thousand" advertising rate, or assuming it were set in a range of negligible demand elasticity, as a subscriber license fee imposed by public authority. The marginal cost of distributing the programs in both countries is assumed to be zero.

Define the audience demand functions as:

$$R_{AA} = \alpha C_A^\gamma \text{ and } R_{AB} = \alpha \delta C_A^\gamma; \quad (3)$$

$$R_{BA} = \alpha \delta C_B^\gamma \text{ and } R_{BB} = \alpha C_B^\gamma$$

where:

$$0 < \gamma < 1, 0 < \delta < 1, \alpha > 0$$

The parameter γ represents the elasticity of audience demand with respect to production investment. The bounds on γ reflect the assumption that other things equal, audience attractiveness of either program increases in both countries, but at a decreasing rate, as production investment in it increases. The δ parameter is a "cultural discount" factor. Its bounds represent the assumption that other things equal, foreign producers face a comparative disadvantage in attracting viewers to their programs. This disadvantage may be due, for example, to language or to general cultural differences.²

Each producer maximizes profit with respect to its single decision variable, production investment, yielding:

$$C_A^* = |\alpha\gamma v_A N_A + \alpha\gamma v_B N_B \delta|^{-\frac{1}{1-\gamma}} \tag{4}$$

$$C_B^* = |\alpha\gamma v_A N_A \delta + \alpha\gamma v_B N_B|^{-\frac{1}{1-\gamma}} \tag{5}$$

Graphically:

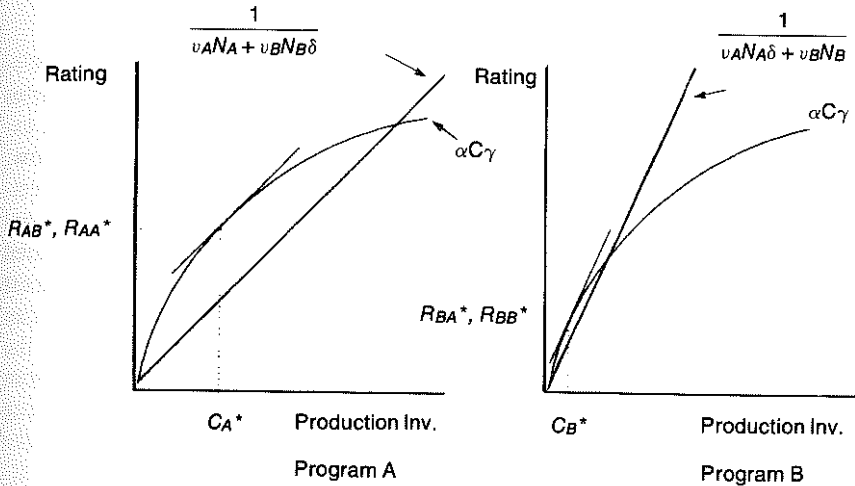


Figure 4.1.

By (3), (4), and (5), optimal investment levels C_A^* and C_B^* occur where the slopes of the respective demand functions equal those of the rays from the origin. Both C_A^* and C_B^* are increasing functions of v_A , N_A , v_B , and N_B . Because marginal costs of distribution are zero, the marginal productivity of a dollar invested increases in direct proportion to the programs

² Language differences may be partially compensated for by subtitling or dubbing, but at substantial expense. In general, domestic comparative advantage could persist if the pool of creative talent available to producers in one country cannot effectively appeal to local tastes in other countries.

total available market. Similarly from (3), R_{AA}^* , R_{BB}^* , R_{AB}^* , and R_{BA}^* are also increasing functions of v_A , N_A , v_B , and N_B . However, if $v_A N_A > v_B N_B$, then $C_A^* > C_B^*$, $R_{AA}^* > R_{BB}^*$, and $R_{AB}^* > R_{BA}^*$. That is, production investments, audience sizes, total revenues, and total profits of *both* programs A and B increase with an increase in the size of the television infrastructure of either country.³ Revenues and profits of the home country's program increase relatively more, however, as a result of its own infrastructure growth. The parameters δ and γ thus represent the "tradeoff" between the degree of audience preference for domestic programs versus the degree of audience preference for more expensive programs. A high δ and a high γ , for example, indicate a relatively stronger audience responsiveness to investment than to domestic origins. Conversely, a low δ and a low γ indicate a relative dominance of domestically-oriented content over production investment in the demand functions.

Empirical Justification

The domestic economic infrastructures which in fact support broadcast television in the United States and in five of its major trading partner countries are contrasted in Table 1 for 1984 in terms of U.S. dollars at prevailing exchange rates. While conditions are rapidly changing, as we discuss below, and cross-country comparisons are methodologically perilous, an overwhelming U.S. advantage in terms of its overall population and general economic resources is obvious from columns 1 and 2. Sizes of the combined commercial and public economic infrastructures which support broadcast television in each country are compared in columns 3-5. The American infrastructure, of course, consists almost entirely of advertiser support, the relatively small U.S. public television system receiving funds primarily from government, voluntary private contributions, and corporate underwriting of particular programs. Advertisers now support both public and private television in each of the five other countries, while "Fees, other" consists almost entirely of mandatory subscription fees levied on all owners of television sets. The ratios in columns 6, 7, and 8 of Table 1 also suggest a U.S. advantage in the relative size of its broadcasting infrastructure when adjusted for population size, or perhaps most relevant, when adjusted for the size of its general economy. In summary, Americans are not only more numerous, but spend more on a per capita basis to support broadcast television than do these comparative nations. Sketchier data for relatively small

³ The model does not consider the competitive effects of higher investment in program A attracting audience away from program B in the same country, and so on. Taking account of these effects in a Cournot duopoly framework results in much more complex first-order expressions, in which the results of investment level changes are dampened but always in the same direction as those of the simple model.

Table 1. Broadcast Television Economic Infrastructures: U.S. and Major Trading Partners (1984).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	G.D.P. (\$ billions)	Total Population (millions)	Advertising (\$ millions)	Fees, Other (\$ millions)	Total (\$ millions)	Total TV System Revenues/ Population (\$)	Total TV System Revenues as % of G.D.P.	TV Advertising as % of G.D.P.
U.S.	\$3,635	237.0	\$19,180	\$ 785	\$19,965	\$84	.55%	.53%
France	489	54.9	538	650	1,188	21	.24	.11
U.K.	425	56.4	1,287	707	1,994	35	.47	.30
West Germany	613	61.2	470	1,125	1,595	26	.26	.08
Italy	348	57.0	777	472	1,249	21	.36	.22
Japan	1,255	120.0	3,801	1,177	4,978	41	.40	.30

Source: GDP, Population: Statistical Abstract of the U.S.; Foreign Exchange Rates: Federal Reserve Bulletin, July, 1987, Table 3.28.

Television data: U.S.: American Newspaper Publishers Association; Corporation for Public Broadcasting.

Italy, France: *Dossiers de l'Audiovisuel*, No. 13, May-June, 1987. Institut National de l'Audiovisuel, p. 19.

West Germany, U.K.: Committee on Financing the BBC (July, 1986), p. 9-19, 33.

Japan, NHK: Shinichi Shimizu, "Public Service Broadcasting in Japan: How NHK faces the future," Nippon HOSO Kyokai, Tokyo, n.d., p. 7ff.

**Table 2. Motion Picture Theater Infrastructures:
U.S. and Major Trading Partners (1984).**

	Box Office Revenues (mils)	Box Office Revenues as % of GDP	Total Annual Admissions (mil)	Annual Admissions per capita
U.S.	\$4,030	.11%	1,199	5.7
France	455	.09	191	3.5
U.K.	119	.03	58	1.0
West Germany	285	.05	112	1.8
Italy	268	.08	131	2.3
Japan	725	.06	151	1.3

Source: *Screen Digest*, 1986a, p. 207-208.

countries in Western Europe, and especially for most of the Third World, provide far greater contrasts with the United States than these (Varis, 1974; Katz & Wedell, 1977; Pragnell, 1985).

Because they are responsible for producing the most widely traded television products, another important element of comparison is the relative size of domestic theatrical motion picture industries. As Table 2 shows, the United States also dominates in both absolute and relative terms with respect to theater box office receipts. These contrasts reflect rather sharp declines in theatrical film receipts throughout Europe in the past decade, while U.S. receipts have remained relatively steady in real terms.

The model suggests that U.S. producers should have responded to their more lucrative domestic infrastructure by investing greater economic resources in programming. Average production costs of American movies and television programs do appear substantially higher than those of its major trading partners when evaluated in terms of U.S. dollars at prevailing exchange rates, as shown in Table 3. One peril in such comparisons is that production costs for entertainment products partly consist of rents earned by performers who appear to charge according to the revenue base to which their product has access.⁴ To a substantial degree, however, American movies and television programs unquestionably employ far more advanced production technologies and more skilled "below-the-line" labor, as well as more car crashes and spectacular special effects. Accentuating Hollywood's posi-

⁴ More generally, cross-country comparisons in terms of exchange rates are likely to overstate the contrast. To a degree, international migration probably serves to diminish the differential that equally talented performers can command in different countries. The decline of the Italian cinema in the 1970s, for example, has been partially blamed by some on the migration to Hollywood of two of its most talented producers, Carlo Ponti and Dino DeLaurentis.

**Table 3. Production Costs for TV Programming:
Available Data for Major Countries (1983-1986).**

	Year	Cost (\$)
U.S.		
Series Drama	1985-86	\$ 739,000/hr
Telefilms	1985-86	2,300,000
Theatrical Features	1985	16,800,000 ¹
France		
Telefilms	1986	343,000
Theatrical Features	1986	2,040,000 ²
U.K.		
BBC Drama	1984	397,000/hr
Light Entertainment (drama)	1984	135,700/hr
Theatrical Features	1986	4,800,000
West Germany		
ARD Television Drama	1984	216,000/hr
Italy		
Theatrical Features	1983	639,000
Japan		
Television Drama	1986	175,000/hr

¹ MPAA members only.

² Including co-productions.

Source: U.S.: Series drama, Telefilms: *Variety*, September 24, 1985, p. 45; Theatrical Features: MPAA, (1985).

France: *Variety*, February 18, 1987, p. 77.

UK: BBC Drama, light entertainment: "BBC TV Facts & Figures," 1985, pp. B.4-B.8; Theatrical Features: *Variety*, January 8, 1986.

W. Germany: ARD, *Finanzstatistik*, 1984, p. 377.

Italy: *Cinema d'OGGI*, 11 Janvier, 1984.

Japan: *Variety*, December 24, 1986, p. 60.

tion as an international center for entertainment production may be the great economies of scale it enjoys in drawing on thousands of different performers and craftsmen with esoteric specialties within a small geographic area. Where else could Gabby Hayes find almost continuous lifetime employment playing essentially the same minor character (a kindly, 19th century Western buffoon) in scores of different movies?

To be expected, the United States also leads most nations of the world in the volumes of television series and motion picture output, as shown in Table 3a and 3b. A larger number of programs to sell, of course, similarly enhances the American position vis-à-vis other nations in the television program trade process.

The assumption that producers have a comparative disadvantage in attracting foreign audiences to their programs is also consistent with available evidence. The evidence suggests that in spite of their higher investment levels, American programs, contrary to often held perceptions, do not overwhelm foreign audiences. Available aggregate ratings data indicate that

**Table 3a. Comparative Production Outputs:
Domestically Produced Drama for Television
Available Data: 1982-86.**

	Hours Produced
U.S. (NBC, CBS, ABC)	4613
Belgium (BRT)	168
Denmark (DR)	222
Finland (YLE)	107
France (TF1, FR3)	415
Norway (NRK)	18
Portugal (RTP)	112
Sweden (SVT)	129
U.K. (BBC, ITV)	1208

Source: U.S. 1986 data: Estimate of the author based on a 16-day probability sample for Jan-June, 1986.
All other: 1982 data: Pragnell (1985), p. 29.

**Table 3b. Comparative Production Outputs:
Theatrical Features. Available Data: 1985.**

	Number of Theatrical Features Produced
U.S.	330
France	151
U.K.	31
West Germany	64
Italy	89
Japan	319
Denmark	8
Norway	10
Spain	77

Source: Screen Digest, 1987.

American programs command foreign audiences in roughly the same proportions as they occupy screen time in those countries (P. Mills, 1985). At least in the larger European countries, the most popular individual domestic programs consistently outperform the leading American programs.⁵ One of the most widely distributed U.S. television series export in history, *Dallas*, reportedly earns, in many cases, smaller audiences than remakes or similar soap operas which are produced domestically (Anatola & Rogers, 1984;

⁵ The December, 1986 ratings report in *Eurodience*, for example, reported four American entries among the 15 highest rated programs in Britain (ranked 11, 12, 13, and 15), one in France (ranked 14) and three in West Germany (ranked 6, 11, and 14) (*Eurodience*, January, 1987).

Tracey, 1985). By contrast, the broadcast audiences for foreign programs in the United States are entirely overwhelmed by American products. The three commercial broadcast networks, which import essentially none of their programming, average combined prime-time audience shares 10 to 20 times greater than the 3-5% average household viewing shares earned by the imports and coproductions offered on American public television. With rare exception, the dismal performance of imported products in the United States is characteristic of both the television and theatrical film industries.

In summary, a consistent economic interpretation of the above observation then is that television viewers in other nations watch U.S. programs not because they are dazzled by American culture, but because they are "bought away" from the domestic programming they would generally prefer by the enormous production investments made by American producers. Both effects on demand, by contrast, work against foreign programs in the United States. American audiences find them not only less compatible with their cultural tastes, but also lacking in the production values to which they have become accustomed.

PRIVATIZATION AND NEW VIDEO TECHNOLOGIES

Although the economic rationale we have outlined for historical U.S. dominance of international trade in television programming is obviously crude, it provides a framework for considering our key question: How can we expect program trade flows (and thus the balance of domestic and foreign programs on national television systems) to evolve as reliance on commercial incentives increase and multichannel video delivery systems such as cable television and videocassette recorders continue to diffuse?

The main initial effect has been more lucrative markets for American and other foreign programming. The model suggests, however, that the long-term effects of these changes will be greater opportunities for domestic programming, due to a strengthening of the commercial infrastructures which support production in these countries.

Commercial Infrastructure Expansion: Traditional Broadcasting

Expanded broadcast capacity in private hands has the obvious short-term effect of providing blank program schedules which American and other foreign producers are eager to fill from existing stocks. Audiences for domestic programs decline as a result. The eventual effect of the expansion on domestic program production, however, is likely to be positive. In Europe, television advertising has historically been suppressed by low-channel capacity and direct government restrictions. But as new opportunities to advertise on

television are created by new capacity and privatization, businesses can be expected to shift advertising away from other media and, to an extent, increase total advertising budgets. In this way, the domestic infrastructure for raising broadcast television revenues strengthens. If the assumption that other things being equal, audiences prefer domestic to foreign programs is correct, then domestic producers in those countries should, in the long-term, benefit from this change relatively more so than do foreign producers.⁶

These expectations must be qualified to the extent that most European television systems begin their infrastructure expansions from protectionist positions. The opening of television markets to international competition in itself induces an initial audience shift away from domestic programming, as the Italian experience emphatically demonstrates. Moreover, a shift of audiences away from a license fee-supported system to a commercially supported system may undermine political support for the former. The overall economic effect on domestic production of a transition from public to commercial support, therefore, is not necessarily positive. But once the initial transition is complete, domestic production activity should expand at a greater rate than does foreign production activity.

Recent events in Italy suggest the effects of commercial television infrastructure development on domestic production activity. In 1983 and 1984, Italian "in-house" production activity by both the RAI and private television companies reportedly accelerated (Werba, 1986a). Berlusconi's production company, *Retitalia*, was reported by 1986 to be at the forefront of a "baby boom" in Italian cinema and has apparently become a European leader in commercial television production for both the domestic and international markets (Retitalia, 1987; Werba, 1986b). Undoubtedly a factor in this process has been the growing domestic base of Italian television advertising. Between 1974 and 1984, total television advertising in Italy increased from 55.6 billion to 1,452 billion lire, the latter accounting for 46.6% of all Italian advertising in that year (Pasquarelli, 1985). Very rapid television advertising growth has apparently continued in Italy and is reported to be occurring throughout Europe through the mid-1980s (Tully, 1987). A suggestion of these trends is that the relative advantage of the U.S. over European countries in the size of its broadcast television economic infrastructure may be diminishing.

⁶ Note that the *absolute* benefit to imported program sellers can still be greater depending on the initial situation. Say that in a certain small country the initial condition is that 20 hours of programming are domestically produced and 80 hours imported. An expansion in that country's domestic television infrastructure might result in only 10 additional hours of domestic production compared to 20 additional hours of imports. But the domestic increase is still relatively greater, from 20 percent of the 100-hour total to about 23 percent of the 130-hour total.

Not all of the growth of Italian production, at least, can be attributed to domestic commercial infrastructure growth. There is a secondary, related factor which has certainly played a role in Italy and which should aid production industries elsewhere; this is a breakdown of buying power within U.S. trading partner nations.

Program Buying Power

Executives of American distribution companies have long complained about what they regard as excessively low license fees paid to them by Western European public television systems. Available trade reports do indicate that prices paid in the larger European countries for American programs have historically been 10 or more times lower than domestic production costs for similar programs.⁷ These differences are in spite of the fact that American programs appear to attract audiences in the same ranges as those of domestically-produced programs.

These contrasts of acquisition vs. production costs serve to illustrate another potential consequence of the huge-scale economies in television program distribution. The rights to exhibit a two-hour movie produced in the United States, for example, might ordinarily sell to British television for \$60,000 or more. The incremental expense of such a sale, however, essentially consists of duplicating and shipping a single videocassette, plus the administrative and marketing expenses of persuading the British to accept the program and then collecting the license fee. Even accounting for a few four-star dinners in Cannes at the Film Festival, these expenses are clearly a fraction of the \$60,000 fee. A large proportion of the fee is the contribution it makes in offsetting the production cost, perhaps several million dollars, of the film itself.

Because marginal cost of distribution tends to be far below the product's value in individual countries, there tends to be a wide range of trading prices which both buyer and seller would *potentially* be willing to accept in a television program transaction. The two-country model above implicitly assumes that competition among potential buyers within both countries force the acquisition price for imported programs up to the winning bidder's reservation price—permitting the producer to reap all the excess of value over

⁷ *Variety* reported a 1984 average price range for American series programs of \$8,500 to \$18,000 per hour in West Germany, compared to the \$216,000 average cost per hour for domestically produced dramatic series reported in Table 4.3 for 1985. (*Variety*, 1985). The reported average cost of producing a telefilm in France in 1986 of \$343,000 compares to an average price of \$30,000 to \$40,000 for American telefilms reported for that year (*Variety*, 1986). These comparisons reflect substantial acquisition price inflations of the early 1980s.

marginal cost of distribution. A lack of buyer competition, however, can greatly alter this situation. Imagine, for example, that an independent firm with only one program to offer were to confront a single buyer who controls all film and video product distribution in that country. This seller might then be induced to accept far less than the buyer's true reservation price (say \$60,000), perhaps even only a small amount over the actual marketing and distribution expenses for that one country (perhaps a few thousand dollars). This agreement could result if the seller otherwise faces a dead loss in that market and the single buyer makes a persuasive case that this particular program can be done without. Moreover, this situation can persist if the seller has access to enough competitive markets (including its home country, for example) to still cover the production cost of a viable program.⁹

Such extreme cases are rarely encountered among buyer nations outside the Socialist Bloc.⁹ In most Western European countries, however, responsibility for most television program acquisition has historically been concentrated in the hands of one or a very few buyers. The major American distributors, on the other hand, confront program buyers through the Motion Picture Export Association, a legal cartel whose members earn around 90% of U.S. theater box office revenues. At least in the television market, however, bargaining power of buyers, reinforced not only by limited channel capacity, but by quotas and other policy directives limiting the demand for imports, seems to have constrained prices to far below their potential levels.¹⁰

Italy provides a classic example of how buyer competition can turn the bargaining tables. Before private television was permitted, the RAI organization was virtually the only potential customer in Italy for imported programming. Silvio Berlusconi, the founder of Italy's first private network, *Canale 5*, built his business by starting a bidding war with the RAI in the

⁹ For a formal exposition of this point, see David Waterman, "Structural Development of the Motion Picture Industry", *The American Economist*, Spring 1982. In effect, a monopsony buyer in an individual country which accounts for a small proportion of the total world market perceives a highly inelastic supply of film and video products due to their "public good" nature. The result of this monopsonist's behavior in forcing price toward marginal cost is a reduction in the supply of products available to it (in number and investment cost) from competitive sellers only in proportion to its share of the world market. Market power on the seller side may produce an intermediate result.

⁹ The most extreme effects of monopsony buying power probably prevail with Eastern Bloc in their negotiations for Western-made film and television products. Though little if any data appears to be available, these countries are notorious for paying minuscule sums, relative to their size and economic resources, for the relatively few American movies and television programs they import.

¹⁰ Often repeated arguments that U.S. distributors "dump" entertainment products in foreign markets at artificially low prices defy economic logic. U.S. distributors will seek the highest revenues they can possibly get. A not uncommon practice of the MPEA, in fact, is to restrain its members from making any sales until bids from buyers reach a certain minimum level. This was reportedly the case in Italy during the early period of private television's development (*Variety*, 1986).

late 1970s and early 1980s. Two competing private networks, *Italia 1* and *Rete 4*, fueled the fires. The trade press reported "skyrocketing" prices as a result (Michie, 1984; Werba, 1986a). Between 1979 and 1985, minimum to maximum price ranges for American series programming in Italy reported by *Variety* increased from \$1,800-\$2,000 per half-hour to \$6,000-\$48,000 per half hour (Global prices, 1985). Similar but less extreme price inflations for American television products have been reported in France and other countries where privatization is occurring (Tully, 1987). These inflations are undoubtedly stimulated as well by new competition from commercially operated alternatives to standard broadcasting such as pay television networks or videocassettes—media which use many of the same programs.

Acquisition price inflation obviously benefits foreign program sellers, especially those in the United States. But another result we would expect is the creation of price umbrellas to support domestic production. As prices that foreign producers are able to charge increase, that is, the alternative of original production of domestic programs becomes relatively more attractive to television systems. *Variety* (1986a, p. 168) reported, in fact, that the acceleration in Italian domestic production activity in 1984 was undertaken "as a pressing alternative to skyward acquisition prices."

Commercial Infrastructure Expansion: The Pay Media

The economic effects of broadcast privatization and resulting competition among program buyers appear to be well underway in Italy and several other European nations. A more important element of commercial infrastructure growth to come, however, may not be that of traditional broadcasting, but of the "pay" media—cable television, premium subscription channels, and prerecorded videocassettes.¹¹ Conditions under which this may occur can be demonstrated by modifying the basic model so that a profit-making, "pay-per-view" pricing system replaces advertiser (or public license fee) support in country A. The system in country B remains unchanged.

We redefine the demand functions for programs A and B in country A to be:

$$R_{AA} = C_A^{\gamma} (\alpha - \beta P_{AA}) \qquad R_{BA} = \delta C_B^{\gamma} (\alpha - \beta P_{BA}) \qquad (6)$$

where P_{AA} and P_{BA} are the prices of programs A and B in country A, respectively, and $\alpha, \beta > 0$.

¹¹ The per-set annual subscriber license fee systems which prevail in most European countries are already, of course, "pay" media of a sort. The very high penetrations of television among European households, however, suggest that these fee levels are set by government authorities in highly inelastic price ranges to promote universal service.

Each producer maximizes (1) and (2) above with respect to two decision variables, "pay-per-view" price in country A and total production investment. This yields:

$$C_A^* = \left| \gamma \frac{\alpha^2 N_A}{4\beta} + \gamma v_B N_B \delta \alpha \right|^{\frac{1}{1-\gamma}} \quad (7)$$

$$C_B^* = \left| \gamma \frac{\alpha^2 N_A}{4\beta} + \gamma v_B N_B \delta \alpha \right|^{\frac{1}{1-\gamma}} \quad (8)$$

$$P_{AA}^* = \frac{\alpha}{2\beta}, \quad P_{BA}^* = \frac{\alpha}{2\beta} \quad (9)$$

The necessary condition for both C_A^* and C_B^* to increase above their advertiser-support levels ((4) and (5) above) is $\alpha/4\beta > v_A$. The same condition insures that profits will be higher under direct pricing than advertiser support. That is, viewer demand for a program must be sufficiently strong to outweigh the amount of advertisers are willing to pay for the attention of viewers at $P_{AA}, P_{BA} = 0$. If this is the case, the result of a switch to pay support in country A is again that total revenues of both producers rise, but relatively more so for the producer of A.

The American experience suggests that direct pricing is, in fact, generally more effective than advertiser support as a way to extract money from television viewers.¹² If this experience holds true elsewhere, the model again suggests that the growth of those nations' commercial pay media infrastructures will further expand markets for both domestic and U.S. producers, but to relatively greater benefit of the former.¹³ The process of pay media growth should be especially important because of the major role which pay media play in the financial support of theatrical features, the major imported ingredient of television menus throughout the world.

¹² Liberally assuming 15 commercial minutes per hour, the average 1987 "cost per thousand" network advertising rate of \$8.10 (per 60 second spot) translates into a willingness of advertisers to pay approximately 12¢ per viewing household per hour (Mandese, 1987). Based on actual viewing time, the average pay cable network subscribing household paid (based on only the extra charge to cable subscribers of about \$12 per household per month) approximately 28¢ per hour for that programming in 1987 (A.C. Nielsen, *Television 1987 Nielsen Report*, 1987, p. 14). A two-hour feature film generally costs \$2 to \$3 to rent on videocassette and \$3 to \$4 to view via "pay-per-view" cable networks. Significant numbers show willingness to buy videocassettes outright, generally for \$20 to \$90 each. While these comparisons do not consider relative transmission or delivery costs, they suggest the validity of predictions by R. Noll, M. Peck, and J. MacGowan and others that huge amounts of consumer surplus were being enjoyed by viewers of advertiser supported U.S. television (Noll, Peck, & MacGowan, 1973).

¹³ This conclusion rests on the model's assumption that the price elasticity of demand in country A for both programs A and B is the same. If demand were much more price-inelastic for imported than domestic products, commercial price support in one country could help foreign producers enough for them to overcome the comparative disadvantage effect, and thus reap greater net benefit than domestic producers.

Table 4. Pay media infrastructures: U.S., Europe, and Japan (1985-1986).

	Basic Cable (1985)			Pay Cable (1986)			Videocassettes (1986)
	# TV HH (mil)	% TV HH	Revenue (\$Billions)	% TV HH	Revenue (\$Billions)	% TV HH	Wholesale Software Revenue (\$Billions)
U.S.	83	45% ^a	\$4.5 ^a	27% ^a	\$4.0 ^a	45% ^b	\$2.2 ^b
Western Europe	115	10-12% ^c	.4-.9 ^d	2-3% ^e	.3 ^e	30% ^f	.7 ^f
Japan	35	11% ^c	n.a.	—	—	62% ^f	.4 ^f

Source: a: Paul Kagan Associates, *Pay TV Newsletter*, June 26, 1987, p. 4.

b: Paul Kagan Associates, *VCR Newsletter*, February, 27, 1987, p. 1.

c: Wedell & Luyken, *Media in Competition*.

d: *Screen Digest*, June 87, p. 126; Patrick Whitten, "The potential for new media technology in Western Europe—some key commercial aspects," in *Medi-trends, Kongress dokumente*, Inter Media Centrum Hamburg, Hamburg, West Germany, 1985, p. 86.

e: Estimate of author based on data reported in *Screen Digest*, May 1987, p. 106.

f: *Screen Digest*, June, 1987, pp. 129-133; Revenue for Europe based on projections by the author from reported data covering 6 European countries.

As Table 4 suggests, the United States has achieved a great lead in developing its pay media infrastructure. While several smaller nations in Western Europe have very high cable penetration, it is almost negligible in most of the larger nations (Müller, 1987). This difference is closely related to the far greater penetration of premium television channels in the United States, most of which offer recent theatrical movies and are distributed via cable technology.¹⁴ VCR penetration in Western Europe and Japan has advanced much more in step with that in the United States. The still relatively great U.S. advantage in wholesale software revenues, however, reflects substantially greater expenditures on prerecorded tapes made by the average American VCR owner.¹⁵

By far the dominant programming on both premium television channels and prerecorded videocassettes worldwide is theatrical features. In the United States, the prevalence of American-produced films on these media is obvious.¹⁶ By all appearances, the proportion of videocassette sales and

¹⁴ By far the largest pay television service outside the United States, *Canal Plus* of France, relies on broadcast distribution.

¹⁵ *Screen Digest* reports average expenditure by U.S. VCR owners on prerecorded videocassette software in 1986 to be \$57, compared to weighted average of \$24 for five European countries and \$20 for Japan (converted from £) (*Screen Digest*, 1987).

¹⁶ The major pay-cable services, HBO, Showtime and the Movie Channel, only occasionally offer foreign-made features. Numerous foreign movies appear on BRAVO, a "cultural" pay-cable network, but this service reaches only about one-half of one percent of all U.S. households.

rentals attributable to foreign-made films is probably in the same range as that of box office revenues from U.S. theaters, less than 2 or 3 percent.

The U.S. video market is so large that the contribution of even these meager market slices to foreign producers would appear to be, while no doubt disappointing, at least an improvement. The contribution of U.S. pay media to American movie distributors has, on the other hand, been obviously dramatic. In 1977, before significant penetration of any pay media in the United States, about 80% of domestic distributor revenues for theatrical films came from theaters and 20% from broadcast television. An available estimate for 1986 attributes 43% of revenues to theaters and 12% from broadcast television, with 45% coming from pay television and videocassettes (*Video Marketing Newsletter*, 1986). In spite of this expansion, revenues from U.S. theaters have fallen by only 7% from 1977 to 1986 in CPI-deflated terms, resulting in nearly a doubling of the real domestic revenue base for U.S. theatrical features over this time period (Motion Picture Association of America, unpublished data deflated by the *General Consumer Price Index*, 1986). One apparent result of this market expansion has been an increase in the total number of U.S.-produced features from 226 in 1977 to 330 in 1985, with a jump to 515 reported in 1986 (*Screen Digest*, 1987). Average production costs of MPAA member-produced theatrical features have reportedly risen by 104% in CPI-deflated terms from 1978 to 1985 (MPAA, 1986).

Results of the model suggest this U.S. budget and production volume expansion would tend to increase the American competitive advantage in international motion picture and video markets. While the declining dollar has clearly been a recent factor, steadily increasing market shares of theatrical box office receipts earned by American films in the last several years (reaching all time high levels in Germany and even Italy in 1986) are consistent with this hypothesis.

The model further suggests that we should observe a substantial presence of domestic programming on the commercial pay media that have developed in foreign countries. On the major pay network in Europe, *Canal Plus*, 60% or more of the movies shown are reportedly French-language productions, but this is determined by government quota, not the free market. The proportions of EEC-produced program hours on British-originated cable TV networks, on which content is not restricted, are relatively high for advertiser-supported services, as shown in Table 5. The dominant fractions of non-EEC programs on U.K.-originated premium networks are undoubtedly accounted for by U.S.-produced theatrical features. Prevalence of American films might be expected on English-language pay networks, however, especially given the meager pickings available from the British film industry. Videocassette content data could be located only for Japan, where in the first half of 1986, Japanese-produced movies reportedly earned 22.8% and

Table 5. Programming Content of U.K. Originated Cable Television Channels (1986).

Channel	Means of Support	% EEC Content
Arts Channel	Advertising	84%
Bravo	Advertising	8
Children's Channel	Advertising	62
Home Video Channel	Subscription	11
Lifestyle	Advertising	55
Mirrorvision	Subscription	10
Music Box	Advertising	77
Premiere	Subscription	13
Screen Sport	Advertising	35
Sky Channel	Advertising	51

Source: *Screen Digest*, 1986b, p. 247, based on a 13-week sample apparently collected in 1985 or 1986 (UK Cable Authority data).

27.2% of all retail sales and rentals, respectively. By contrast, all foreign-produced features accounted for 27.8% of sales revenues and 51.0% of rentals (*Screen Digest*, 1986b). If the domestic vs. foreign content proportions in Europe for prerecorded videocassettes are similar to those for movie theaters there, something less than half of all gross revenues from video software would be accounted for by non-American features.

These sparse data fail to confirm or deny that the European production is benefitting relatively more greatly from pay media development than is U.S. production, as the model predicts. It is early in the transition process, however, and it is evident that these new media are already providing at least significant sustenance to domestic producers.

CONCLUSION AND POLICY IMPLICATIONS

This analysis suggests an optimistic long-range future for the domestic motion picture and television production industries of America's trading partners. If commercial video media infrastructures in those countries do eventually prove to benefit domestic producers relatively more than they benefit importing producers, this will be reflected by comparably increasing proportions of domestically produced programs available to their television viewers.

Economic analysis offers an admittedly narrow perspective on the complex social and political issues surrounding privatization and new media development. Apart from whether domestic production industries prosper or not, for example, reliance on commercial incentives change the television

product—for the worse, many would argue.¹⁷ In such an environment, achieving the social objectives historically pursued by media policy in European and other countries becomes much more difficult. Our analysis nevertheless puts into relief the economic constraints which sovereign nations face in pursuing those objectives.

What are these constraints in practical terms? Import quotas are obvious methods to ensure that the proportions of domestic programming on broadcast and pay television media such as premium cable channels remain high. In the short term, such policies undoubtedly succeed in stimulating both the quantity of domestic programs and the viewing of them. In a competitive media environment, however, quotas tend to undermine these very objectives over the long term. In order for import quotas governing one medium to be effective, alternative delivery systems for the products which are restricted, notably American movies, must also be controlled. A profound blow to this possibility has been forever dealt by the videocassette recorder, a technology whose diffusion and usage is defiant of public control. A second undermining effect of quotas is that they constrain the development of strong commercial media infrastructures by restricting the main available supply of programming needed to support expanded system capacity in the near term. In the long term, however, these commercial infrastructures must be relied upon to support domestic production activity.

Another category of government controls common in Europe is regulations which limit the profitability of licensing theatrical feature films to video media. France, in particular, has maintained a myriad of regulations on pay media, including control of the time windows when films may be exhibited on pay TV and videocassettes, and heavy taxes on both videocassette hardware and software. Like quotas, such policies constrain the development of infrastructures capable of supporting domestic film production—and with that, the competitive positions of those countries in both their domestic and international markets.

A public policy which clearly benefits both domestic motion picture and television production industries is the subsidy or promotion of coproductions, both among American trading partner countries and with American producers. History has demonstrated that without the additional economic resources these arrangements mobilize, the potential to maintain either domestic market shares or to increase export potential will remain very limited. It is noteworthy that the reported resurgence of Italian production is heavily weighted toward co-productions with other countries (Reteitalia, 1986; Werba, 1986b). Without the benefit of its newly created commercial broadcasting infrastructure, it seems unlikely that the leadership role Italian producers have taken in European co-production activity could have been achieved.

¹⁷ For an extended analysis of this point, see the Peacock Commission Report (1986).

Finally, the economic growth of production industries, and even of a shifting balance toward domestically produced programming on television screens, may seem small consolation to those committed to the historical objectives of public service broadcasting. Can public television systems survive and prosper in an open-trade, competitive media environment? In the past, government-imposed insulation of public television systems from competition with commercial television has provided them not only with largely captive audiences but with cheap production resources. Notorious increases in the prices recently commanded by top performers in the United States and Europe, however, suggest that the supply of human resources for the entertainment industries is relatively inelastic and potentially consists largely of economic rents.¹⁸ No longer can public television systems avoid paying these higher competitive prices for program production resources and expect to attract large audiences. A very tempting alternative of course, is collusion among public and private program buyers, a subject of frequent discussion, for example, in Italy. As alternative media proliferate, the difficulties of maintaining collusion will increase.

Such financial prospects only sharpen, of course, the dilemma of how public television systems can continue to be supported. Some assistance might come from adopting the recommendation of the 1986 Peacock Commission Report that, in the future, commercial independent television licenses in Britain be auctioned off, and the proceeds be used to fund public television (Peacock, 1986). Other methods of taxation might be applied to commercial pay media enterprises. As long as these taxes are relatively painless—designed for effective revenue production rather than set at punitive levels to protect politically powerful interest groups—they might permit public broadcasting to benefit rather than only suffer, from the prosperity of the commercial media sector.

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¹⁸ For a related analysis, see Rosen (1981).

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