TV regulation

Concentration and public policies in the broadcasting industry

SUMMARY

New technologies are deeply transforming the broadcasting industry. What we have seen so far is only the beginning of a long story. Inevitably, industry regulations must adapt, which means that a wide-ranging rethink of current practices is required. In order to assess the likely evolution of the industry, this article decomposes it into a number of components, from conception of programmes to their broadcasting, including distribution, storage and licensing. Contrary to popular expectations, the analysis suggests that the current high degree of concentration will, if anything, increase. The policy implication is that regulation, so far driven by now obsolete technological constraints, should increasingly emphasize promoting competition.

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Concentration and public policies in the broadcasting industry: the future of television

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1. INTRODUCTION

Broadcasting has been a very concentrated and closely regulated industry. The limited number of broadcasters operating in each country was traditionally explained by the 'spectrum constraint': that is, the scarce availability of frequencies on the radio spectrum for delivering the signal. This absolute barrier to entry has justified in turn the need for public regulation of conducts and industry structure, along with direct intervention through public television (TV) channels in most European countries. Cable and satellite technologies have enabled the spectrum constraint to be overcome. Public policies have followed up with a more favourable attitude towards private operators. With different ways of financing and delivering the signal, private groups now compete on equal terms with public TV channels. The public has access to a diversified supply of general-theme and single-theme programme schedules.

This rapidly changing environment raises new positive and normative questions. On the positive side, the recent developments that have contributed to decreasing

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barriers to entry will not lead to a fragmented structure. Rather, the industry will probably maintain a high level of concentration. Along with the likely persistence of 'bottlenecks' and dominant positions at crucial stages of the vertical chain of production, this implies that public policies are still needed in the broadcasting industry. On the normative side, to cope with a more dynamic and diversified industry, public policies must be redesigned, both in their overall framework and in the specific instruments used. In particular, and this is where our proposal differs from the prevailing policy approach in many European countries, we suggest that competition policy should be the leading public policy in the sector, with regulatory interventions being limited to the cases where pluralism of opinions is endangered. The current policy approach does not deal adequately with such important issues as vertical relations, market foreclosure and collusion. Many specific policies need to be redesigned. In particular, if public TV channels are still to exist, they should confine their activities to the promotion of public service programmes which would otherwise not be provided by private channels.

The presentation of the industry in section 2 distinguishes the production of programmes, the packaging of the programme schedules and the bundling of channels, and their delivery to the viewers. Section 3 analyses concentration and market structure in the main OECD countries – France, Germany, Italy, Spain, the UK, the USA, Canada and Japan. Concentration is still very high in these countries. The most likely scenario is that of a dual market structure, with a few large TV companies and a fringe of small ones. Section 4 shows that Europe and the USA apply different regulatory frameworks, the former focusing on restrictions of ownership, number of licences and advertising time, and the latter on constraints to vertical integration. In order to offer a prediction on the medium-term tendencies of market concentration, we present in section 5 the main findings of formal research. Competition among TV companies is based not only, as usually assumed, on the choice of the programme varieties broadcast, but also on the attractiveness (or quality) of programme schedules. More popular programmes allow firms to increase revenues from advertising sales and direct subscriptions, but they also imply higher fixed costs: the market is therefore dominated by a few TV companies that are able to finance very costly programme schedules through large revenues. Further entry might be possible only in small market niches through single-theme TV channels, leaving a concentrated top segment. In addition, given the industry's vertical structure – the stages of production, packaging and transmission – bottlenecks or dominant positions at any stage of the production process can profoundly influence the other stages and increase concentration in the whole sector.

Public policies, analysed in section 6, need to cope with two market failures. The first is concentration and market power. The second is a very peculiar type of externality related to the impact of the media industry on the formation of public opinion. Although persistent concentration calls for intervention, close regulation is

no longer suitable in the dynamic and diversified environment that currently characterizes the broadcasting industry. Competition policy is preferable. However, because the defence of pluralism cannot be encompassed entirely by antitrust interventions, competition policy should be complemented by some regulatory intervention.

2. TECHNOLOGY AND ORGANIZATION OF THE BROADCASTING INDUSTRY

The broadcasting industry involves a wide and diversified set of activities, which are horizontally and vertically related. It is useful to distinguish three main vertical phases, shown in Figure 1: the production and sale of programmes; the packaging of programmes into schedules and the bundling of channels into subscription packages; and the transmission of the signal. Each of these phases can be organized in different ways, through spot markets, long-term contracts or organizational relationships. Technological constraints are relatively mild, explaining the heterogeneous picture that emerges in international comparisons.

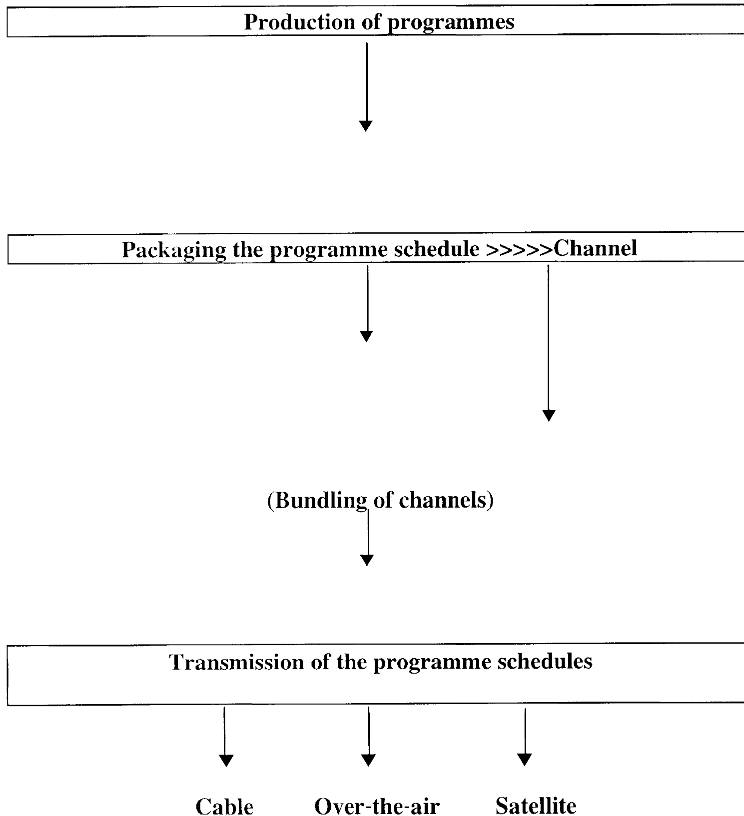

Figure 1. The vertical structure of the broadcasting industry

2.1. Programme production

The production of programmes involves several inputs, such as financial resources, studios, technical equipment and skilled labour. Creative talent is crucial to the initial design of programmes. Talent can be hired and controlled (screenwriters and actors) or can be the object of the programme (e.g., in sports). The scarcity of creative talent implies the emergence of quasi-rents, which must be paid as contractual compensations or transmission rights. This component of cost is influenced by the intensity of competition and by the potential revenues from a successful programme. Uncertainty about potential revenues, especially for new and innovative programmes, is huge. This makes producer size and public subsidies important parameters of competition.

Once produced, the programmes can be either sold (broadcasting rights) or directly used to assemble the programme schedule (in the case of internal production). In the former case, many multiple release schemes (called 'windows') are used, differing in time, location and number of releases. Some programmes, typically sport and news events, are produced instead for a single transmission. In the USA, a secondary market for transmission rights of programmes already broadcast plays an important role. Since most of the production costs have already been recovered at this stage, the programmes are relatively cheap. In Europe during the 1980s, this market was instrumental in the start-up of commercial channels which offered low-cost programmes that were innovative for European viewers, who were accustomed to a very different type of programming.

2.2. Packaging: the programme schedule and multichannel bundles

Programme acquisition and packaging can be done in strict coordination with producers or through the market. It requires marketing research to evaluate the potential audience of a programme. Costs are fixed: they do not depend directly on the number of viewers served. On the other hand, the quasi-rent of talent links programme prices and size of audience. Figure 2 compares the share of programming costs – including own production and purchase of transmission rights – for three typical US TV companies. A network (very high audience) spends 74% of its budget on programming costs; this share decreases to 33% for a (medium audience) cable system operator and to 23% for a local TV station (Veronis Suhler and Associates, 1995). Taking into account the fact that the turnover of a network is much higher than that of the other types of TV firm, the difference in programming costs is even more pronounced. Thus programming exhibits the features of a public good: most of the costs concern programme production with negligible marginal costs for additional customers. The public good can be produced at different levels of quality, a better good or service implying higher costs. This creates incentives to deliver the same programme schedule to more viewers and

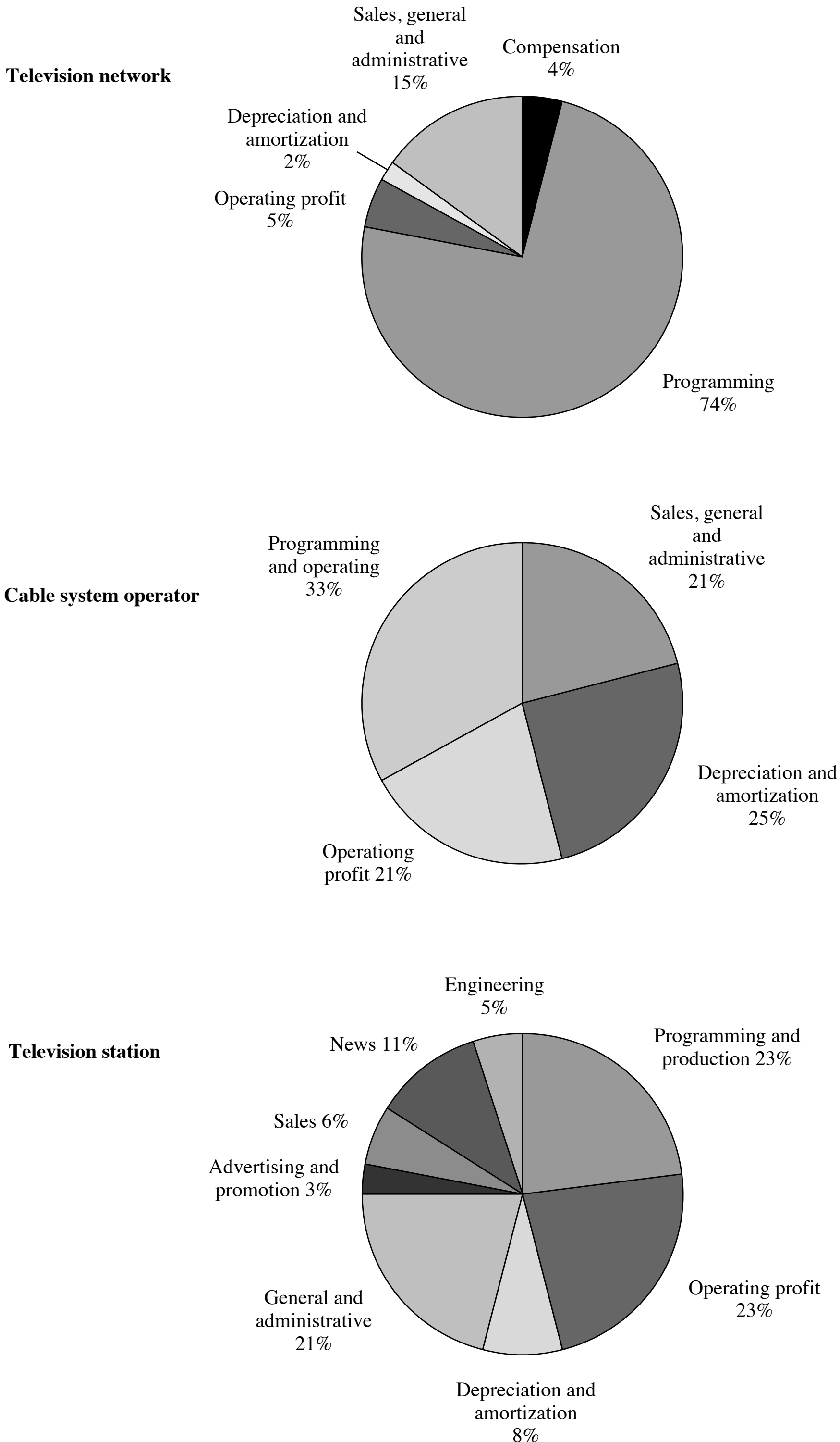

Figure 2. Operating profiles of US broadcasting operators: 1993

explains the emergence of networks that centralize the packaging activity and then supply local transmitters.

Multichannel operators (either over-the-air multichannel broadcasters or cable systems) offer bundles of channels for subscription. They have to take into account not only their influence on rivals' programmes, but also the cross-effects among their own programmes offered at the same time. Over-the-air multiple channels allow broadcasters to cover better the different audience segments. The operators can also fine tune the programme schedule of one of their channels to compete with rival TV programmes (so-called counter-programming): for instance, by broadcasting a successful movie at the same time as a new programme launched by a competitor. Cable market operators usually tend to create a general-theme overall supply of programmes by assembling many single-theme channels in a package offered for subscription, providing viewers with a very high number of combinations. However, the audience per programme is less predictable and, in many cases, lower, reducing the expected value of advertising revenues.

2.3. Transmission of the programme schedules

Many technologies are available for signal transmission, with different associated entry barriers. Until the 1970s the broadcast signals were delivered only over-the-air by terrestrial transmitters for reception by individual homes. Entry barriers were considerable, due partly to the initial investment necessary to create the network of transmitters and partly to the scarcity of available frequencies, the spectrum constraint. The current situation is much more favourable to entry thanks to alternative transmission technologies. Among those that use the radio spectrum, the most important is the satellite, which transmits radio signals that are received directly by individual users equipped with a 'dish antenna' – direct broadcast satellite or DBS.[1] Recently, the size and the cost of the customer's equipment have been reduced, and the dish enables the customer to receive around 25 channels. A slightly different solution is the satellite master antenna TV or SMATV, which uses a single antenna serving many customers who are located close together: for instance, in a building.

Forthcoming development of the *digital signal* will enable the compression of a very high number of signals in the radio spectrum, by compacting the files of many transmissions together on the same frequency. In order to watch digital channels, viewers will need a set-top box decoder. Issues of standards, compatibility and access will arise, since it is likely that viewers will not buy several decoders. Market foreclosure might become an issue if a broadcasting company holds the proprietary

[1] Also to be mentioned is the Multichannel Microwave Distribution System (MMDS) which uses a different portion of the spectrum and is able to broadcast 15–20 channels. However, the MMDS suffers from important reception problems.

rights over a decoding technology, since it will be in a position to restrict the access of competitors. Finally, new-generation decoders will allow two-way transmission – a condition for video-on-demand and interactive services, and for the billing of telecommunication commercial services other than TV.

Cable is now the main alternative to radio spectrum technologies. The cable networks currently used – broadband cable systems – hold up to 100 channels and allow the cable operator to control the access of any single customer: two conditions favourable to introducing multichannel pay-TV services. Cable systems are usually local, covering a limited territory. Long-distance transmission of cabled programmes is routed via satellite towards distribution centres, which manage local delivery through cable. The overall cost of delivery is therefore low. Ownership or exclusive franchising of a local cable system gives an operator local monopoly power and makes entry quite expensive if a second cable network has to be constructed – with the risk of 'overbuilding'. The new generation of broadband cables is compatible with the transmission of signals other than the TV signals; the interactions between the broadcasting industry and other branches of the telecommunications industry are expected to be increasingly intense.

3. MARKET STRUCTURE IN THE MAIN OECD COUNTRIES

Until the end of the 1970s, the broadcasting industry was relatively similar in the main industrialized countries: a few national over-the-air operators offered programme schedules, including a mix of the more popular varieties, financed either through advertising or by a compulsory subscription for public TV channels. Ownership was the main difference between the USA, where private TV companies were (almost) the only players in the market, and Europe and Japan, where public broadcasters had a leading, and often a monopolistic, position. In the 1980s new technologies and a new attitude of governments in favour of private operators led to a dramatic change. Today the industry is much more diversified than a decade ago, with public and private operators offering general-theme or single-theme programme schedules, managing one or more channels, and being financed through advertising, or compulsory or voluntary subscription fees. However, the broadcasting industry remains very concentrated.

Table 1 describes the situation in the major OECD countries in 1994. Market size (row (1)) is measured by the number of households with a TV set. Spending on advertising (row (2)) reveals three groups of countries: the largest ones – the USA and Japan; the medium-size countries of Europe – Germany, the UK, France and Italy; and two smaller countries – Spain and Canada. Cable and satellite penetration varies across markets: cable now reaches a very high percentage of the population and is subscribed to by a large proportion of 'cabled' households in the USA, Canada, Germany and to a minor extent in Japan (row (4)); satellite pay-TV services are less popular, probably because of the expensive equipment needed for reception, with

Table 1. Concentration in the broadcasting industry: 1994

	France	Germany	Italy	Spain	UK	Japan	USA	Canada
(1)	20448	31860	20304	11350	22088	42500	93053	9993
(2)	2674	3127	3882	2127	4247	14300	29375	1459
(3)	46.3	38.6	67.2	54.4	73.2	115.6	114	52
(4)	6.4	43.9	0	6.6	3.8	21.9	65.2	80
(5)	1.6	10	0	1.3	13.6	16.3	4.8	5.1
(6)	91	73	69	89	94	77	70	n.a.
(7)	80	60	93	78	83	40	39	n.a.

Notes: (1): Households with a TV set (×1000); (2) TV advertising expenditures ($m); (3): Per capita TV advertising expenditures ($); (4): Cable TV subscribers/cabled households (%); (5): Satellite TV subscribers (%); (6): C_4: cumulated audience of the first four channels; (7): C_2: cumulated audience of the first two (private and/or public) TV groups.
Sources: TBI (1995); The Media Map (1995); La lettre des medias (1994).

sizeable customer levels in the UK, Germany and Japan (row (5)). Concentration is very high everywhere. This is measured as the concentration ratio of the cumulated audience shares of the first four channels and the first two TV groups (rows (6) and (7)).[2] A weak inverse relationship between market size and concentration ratio can be established. Concentration is even more pronounced in the European markets if we compute the aggregate audience of the first two groups (row (7)). Public TV stations always run at least two channels, and multichannel private broadcasters have reached very important positions in Germany and Italy; moreover, in France and the UK the leading commercial channels – TF1 and Channel 3 respectively – attract over 40% of the viewers. The USA and Japan present a more fragmented ownership, with all the main (private and public) broadcasters managing a single channel.

3.1. Europe

The evolution is relatively similar in all the main countries of continental Europe – France, Germany, Italy and Spain. Television services were initially introduced by public channels in the decade after the Second World War (see Table 2). Private broadcasters had no opportunity. The entry costs necessary to build the network of terrestrial transmitters were too high given the market size, which was in all cases too small, due to the limited number of TV sets owned by households and the still insufficient level of advertising expenditure.

[2] We compute market shares with respect to audience instead of turnover or advertising revenues for two reasons: (1) the latter are strongly influenced by the different sources of financing of the TV channels; (2) distribution of the audience among channels is the most relevant measure of market power for public policy. Finally, we consider national audience share; however, in some cases this measure might be misleading and underestimate concentration if at the local level very few operators deliver the signal. This is the case for local cable markets in the USA, as argued in section 3.2.

Table 2. The introduction of television services in Europe

	France	Germany	Italy	Spain	UK
First public channel	1948	1953	1957	1956	1936
First private channel	1984	1985	1980	1989	1955

Source: Carat (1992).

Public TV channels in continental Europe are financed through a mixture of compulsory subscription and advertising revenues. Commercial channels were started during the 1980s, financed through advertising revenues or direct subscriptions. The British industry evolved earlier. The public broadcaster, the BBC, was first introduced in 1936, when private broadcasters were starting to operate in the US market. Its main channels, BBC1 and BBC2, are publicly funded and cannot be financed through advertising, which is entirely sold by commercial networks. The first commercial channels – ITV, today Channel 3 – were created in the mid 1950s on a regional basis and for a long time maintained a monopoly on TV advertising. The introduction in 1982 of a second private operator, Channel 4, did not break ITV's monopoly in advertising. Channel 4 was financed through ITV, which was entitled to collect advertising on its behalf. Only in 1990 was Channel 4 authorized to sell advertising time independently. The regional TV channels progressively shared part of the programme schedule and were officially transformed in 1990 into a national network, Channel 3.

Despite the entry of private operators, concentration remains high in Europe. The strong correlation between concentration in audience and in advertising revenues means that the more popular channels collect most of the spending on advertising investments and charge higher prices. This is shown in Table 3, which gives cumulated audiences and cumulated advertising revenues of the first four channels.

Cable TV services are well developed in Germany, where the broadband cable networks are built by the public telecommunications operator DBP Telekom: around 60% of the households are reached by cables, and about half of them subscribe to pay-TV services. In the other countries, pay-TV services use either

Table 3. Concentration in the European TV industry: audience and advertising expenditures, 1991

	France	Germany	Italy	Spain	UK
C_4 audience (by channel)	88	74	69	90	97
C_4 advertising revenues (by channel)	89	95	65	80	96

Source: Carat (1992).

encrypted over-the-air signals (as in France, Italy and Spain) or satellite (as in the UK).

Multichannel operators are extremely important in Germany and Italy. In Germany two private groups, Kirch and Bertelsmann, control the two leading commercial channels, SAT1 and RTL, respectively. They also indirectly control the other smaller commercial channels and have important stakes in other segments of the media industries.[3] The two leading groups are fiercely competitive, constructing international alliances to define the technical standards and to occupy central positions in the new digital business. The Italian situation is even more intensive, with a three-channel private operator, Mediaset, competing with a strong three-channel public TV company, RAI. The present situation, which has been accepted by the 1990 broadcasting law, developed during the 1980s through an initial entry of many small private operators, followed by their consolidation under the leadership of the Mediaset group.

European programme production competes with difficulty against the US majors. Until 1990 the UK was the only net exporter of fiction programmes, but the emergence of commercial TV channels has pushed up the diffusion of American programmes in all European countries. Public TV channels are still very active in the production of programmes, especially in Italy and the UK; independent producers, who receive a very favourable treatment in the regulatory regime prevailing in all countries, are usually very fragmented, managing a small number of projects. Although national European production is unable to compete on the international market on equal terms with the USA, the most successful programmes in each individual country are usually home-made.

3.2. North America

The first country to develop television services in the 1930s, the USA is still the most important and advanced market. Compared to Europe the US market is more vertically segmented in all its components. The major film studios play a central role in production, the over-the-air networks traditionally dominate the packaging segment, while the delivery of the signal is organized through local TV stations and cable system operators. This structure has been strongly influenced by a regulatory regime designed primarily to prevent vertical integration. This approach has recently been softened, giving rise to a process of concentration that is only just beginning. Until the 1970s the three over-the-air networks – ABC, CBS and NBC – reached an aggregate share of 90% of the audience; independent local TV stations delivered the signal of the affiliated network, broadcasting its schedule

[3] Until March 1996, a private investor could own up to 49% of general-theme TV and 24.9% of single-theme TV. Hence, the growth of the leading German groups has been realized through complex cross-ownership schemes. The new regulation allows a single operator to have an aggregate 30% share of the audience.

during part of the programming time. The networks were initially permitted to own at most seven local TV stations, but this number was raised to twelve in 1984; independent TV stations operated under affiliation contracts which guaranteed the right to broadcast the programmes of the network against a share of the advertising revenues. Each of the three major networks currently has around 200 affiliated TV stations. In 1970 the Financial Interest and Syndication Rule was introduced to protect independent programme producers, restricting the commercial use of programmes (e.g., multiple releases by the producer). By indirectly reducing the profitability of own production by the major networks, the rule prevented mergers between producers and networks. Only after its abolition in 1993 did Disney and Capital Cities/ABC announce a merger (in 1995).

The aggregate share of the three major networks has progressively decreased during the last fifteen years due to the entry of a fourth over-the-air network – Fox of the Murdoch group – and to the impressive growth of cable TV services. Two further over-the-air networks have been launched recently by Warner Bros and Time-Warner. In 1995, 96% of US households were reached by a broadband cable system, and about 65% of them subscribed to the basic package, while premium services were chosen by half of the subscribers. Programme production and packaging of a single cable channel are managed by cable networks, such as Time-Warner, Turner, Viacom, Liberty Media, International Family Entertainment, Gaylord Entertainment and BET, which often also package several channels jointly available for subscription. This second segment of the cable market is controlled by the cable system operators, often vertically integrated with the cable networks which own local cable systems or run them under franchise.[4] The basic package offers around 30 channels, including the programmes of the three major over-the-air networks. Two-thirds of the audience of the major over-the-air networks watch their programmes via the cable, which often allows for a better reception. The most successful cable channels are offered in the basic package by almost all the cable system operators.

Concentration remains high in many respects. Together the large over-the-air networks still have an audience of around 70%, and each of them has a share slightly below that of the cable channels taken all together. Advertising revenues of cable system operators amounted to around $2.5 billion in 1994, slightly more than half the revenues of a single major over-the-air network. In the pay-TV segment, the first three cable networks which own the channels sold for transmission to the system operators, collect two-thirds of the total revenues of the segment. The first four cable system operators collect 55% of all subscriptions. While a bit more fragmented than in the over-the-air segment, cable TV services are very concentrated at the local level, where there is usually only a single operator in the market. A potentially dramatic change might come from the new role of local telephone companies,

[4] For instance, TCI, the largest cable system operator, participates in 38 national cable channels, while Time-Warner, one of the world's largest media groups, has stakes in 18 national channels.

which are allowed to enter the cable TV segment following the passage of the 1996 Telecommunication Act.

In conclusion, a dual market structure has emerged in the USA after fifteen years of evolution. A leading sectoral journal (TBI, 1995) describes US television today as 'like a giant shopping mall anchored by four huge department stores all around which are scores of thriving small boutiques'.

Television in Canada started with the public broadcaster CBC, which provides programmes in English and French. In the 1960s the first private broadcasters started to operate. During the 1970s other commercial TV channels entered. Currently some 100 TV stations are shared among one public and four main private operators. Cable TV has been well developed since the 1970s, and actually serves 90% of Canadian households with a penetration ratio of over 7% and 24 channels. This very successful development of cable is due to the re-broadcasting of leading US programmes and to the delivery of the signals in areas where over-the-air reception was poor. Independent production and premium services are less important.

3.3. Japan

Public and private TV companies developed in Japan in the 1950s. As in the USA, commercial networks package the programme schedules and deliver the signal through affiliated local TV stations. Of the five national networks, four are linked to publishing and newspaper companies. Very high advertising expenditures, close to the US level in per capita terms, explain this relatively fragmented structure. The public television company NHK, which runs two over-the-air and two satellite channels, is mostly based on news and educational programmes, and is almost completely financed through compulsory subscriptions, in the tradition of the BBC. Most of the programmes of private broadcasters originate from independent Japanese producers.[5] However, NHK produces 80% of its programmes internally, another feature which makes it similar to the BBC. Cable and satellite today reach around 8 million Japanese households, but it is satellite that has developed independent programming and operators, while cable is still used primarily for over-the-air programmes where direct reception is poor.

4. BROADCASTING REGULATION IN THE MAIN OECD COUNTRIES

Regulation has profoundly influenced the evolution of market structure in the broadcasting industry. In the main countries of continental Europe, restrictions are common on ownership, broadcasting licence rights, advertising time and programme

[5] For instance, such programmes amount to 91% of total programming on Asahi TV and to 72% of TBS, two of the leading commercial networks.

content. The UK experience has offered an original mixture of these tools with licensing policy. Regulatory intervention in the USA has traditionally focused on preserving vertical fragmentation.

4.1. Europe

Table 4 summarizes the main regulatory instruments in the four major countries of continental Europe and the UK. First, the share of a single investor in a TV company, and in the licence portfolio that a TV company can hold, is subject to limits. The purpose is to limit market power and concentration. The traditional approach has relied on limits to ownership and licences, possibly distinguishing among different types of TV company. In France, for instance, a single investor cannot own more than 50% of a TV company, which in turn cannot have more than one national over-the-air licence and one cable or satellite licence. In Spain the individual share is limited to 25%. Italy has a much laxer regime, with a limit of three national licences for a single company and no ownership restriction for over-the-air TV companies, but an over-the-air company can hold a maximum 10% share in pay-TV companies with further restrictions applying to newspapers. In the UK a limit of one national or two regional licences is set for commercial TV stations.

Table 4. Regulation in the main European countries

Instruments	France (1996)	Germany (1996)	Italy (1990)	Spain (1989)	UK (1990)
Horizontal restrictions (licences and ownership)	50% share; 1 over-the-air + 1 cable or satellite	Average audience 30%	3 national licences	25% share; 1 national licence	2 regional licences, 1 national licence
Restrictions with other media	Radio	Newspapers	Newspapers and pay-TV		Newspapers
Advertising ceilings	10% average; 20% peak time	*Public TV*: 25 minutes per day *Private TV*: 15% average	*Public TV*: 4% average; 12% peak time *Private TV*: 15% average 18% peak time	15% average; 20% peak time	*Public TV*: No ads *Private TV*: 12% average
Programe restrictions	40% French 60% EU			55% Spanish 40% EU	
Regulatory institutions	Authority: licences, conduct	*Länder*: licences, conduct	Government: licences Authority: conduct	Government: licences, conduct	Authority: licences, conduct

The development of new media subjects and of hybrid types of broadcaster has called for changes in the regulatory approach: new legal proposals define limits to concentration in terms of an aggregate audience or financial threshold, adding together TV and other media operations. The draft directive proposed by the EU Commission seeks to regulate media concentration on the basis of audience share rather than ownership. Germany now limits the average audience share to 30%, above which no additional licence can be obtained. Further restrictions on cross-ownership with other media are set in some countries, such as France (radio), Germany, Italy and the UK (newspapers).

The European Commission has approved a directive which sets general criteria for advertising ceilings. It suggests an upper limit of 15% of the daily programming time and a maximum of 12 minutes per hour. Similar or tighter limits have been adopted in France and Spain with no distinction between private and public TV stations, while a more severe regime exists in Germany (the two public channels can insert 25 minutes of advertising in the 17.30–20.00 interval, but no advertisements are allowed on Sunday and during holidays) and Italy for public TV channels, as shown in Table 4. In the UK the limit for private channels is 12% and the BBC did not traditionally sell advertising time. France and Spain also impose quotas on programming time reserved for national and European productions. Similar suggestions can be found in the 1989 European directive and have recently been approved by the European Parliament.

4.2. The USA

While European regulation is focused primarily on horizontal ownership, multilicence restrictions and advertising limits, the US regime has traditionally considered it a fundamental goal to preserve vertical disintegration of the industry. We have already mentioned the restrictions on the number of local TV stations that the networks can directly control and the Financial Interest and Syndication Rule, which, by limiting the commercial use of the networks' own production, deterred mergers between networks and programme producers until its abolition in 1993. Single operators are restricted to a ceiling of 25% of the audience. The recent Telecommunication Act proposes to raise this limit to 33%. The Act also liberalizes most of the segments of the industry and allows vertical linkages much more than in the past. Commercial channels face no restriction on advertising time, which is therefore constrained only by viewers' saturation. (The situation is the same in Japan.)

The subscription fees for cable channels' basic packages were regulated until 1984. Then prices rose significantly. Rubinovitz (1993) shows that these increases could not be explained entirely in terms of cost and quality increases, and depended significantly on the market power of cable system operators. This is not surprising, since in most areas a single cable operator supplies these services, competing only

with over-the-air and satellite TV. Consequently, price regulation was reintroduced in 1992. The new Telecommunication Act also introduces many important changes to the cable segment. In particular, local telephone companies are now allowed to offer television services through their cable systems. Moreover, the local authorities are encouraged to choose multifranchise schemes when renewing licences for local cable systems in order to eliminate local monopolies.

5. THE BROADCASTING INDUSTRY: A THEORETICAL FRAMEWORK

Will the new technological possibilities lead to a more fragmented structure where TV channels hold limited market shares, or will the industry remain concentrated? To answer this question we first summarize in this section some of our earlier findings (Motta and Polo, 1996). These findings suggest that persistent concentration and the emergence of a dual market structure are the most likely scenarios, even in the distant future. The reason is that few large operators will emerge in the packaging segment of the programming chain.

5.1. Competition and industry structure in the broadcasting market

Two stylized facts are relevant for the analysis of the long-run equilibrium structure: the persistence of concentration in terms of channels and TV companies, even in very large markets; and the correlation between fixed programming costs and the market share of TV companies. The industrial organization literature (Steiner, 1954; Spence and Owen, 1977; Noam, 1985; Owen and Wildman, 1992; OECD, 1993) usually assumes monopolistic competition or horizontal differentiation. In this view, TV companies compete by positioning themselves in terms of programme variety. Unfortunately, this approach clashes with the two stylized facts mentioned above: it predicts that concentration in terms of channels should be strongly decreasing with market size, while the fixed costs associated with the variety of programmes broadcast are usually assumed to be constant and related to purely technical considerations.

A more careful analysis must take into account the design of programme schedules, including their attractiveness or perceived quality.[6] Undoubtedly the choice of the variety of programmes broadcast (e.g., news, movies, sport and music) is important, but focusing on varieties does not take account of the fact that, once they have decided to broadcast a sport or a movie programme, TV companies have to choose a particular movie or sport event. The distribution of tastes is concentrated on certain programmes, in the sense that the final match at Wimbledon has a larger potential

[6] Quality is obviously neither easy to measure nor easy to define. It is often seen as related to a high research or cultural content. We use the term 'quality' in the sense of popular appeal (perceived quality), and therefore we tend to identify a quality programme with a successful programme, independently of the cultural content.

audience than one of the preliminary rounds, and an Academy Award-winning movie attracts more viewers than a B-movie with unknown actors. Companies have to choose both the variety and the quality of their programme schedules.

The quality of programmes has a direct influence on both revenues and costs. The higher the audience of the programmes, the higher the willingness to pay of advertisers.[7] The link between programme quality and revenues is even more straightforward in the case of pay-TV, since the demand for subscriptions will be pushed up by a more attractive programme schedule. On the cost side, a better programme tends to be more costly, due to technical and economic (quasi-rent) reasons. More precisely, improving the attractiveness of a programme rests on the fixed costs needed to produce it or to purchase its transmission rights, while the marginal costs of serving an additional viewer are negligible once the programme is set up. The transmission rights for the Wimbledon Championships are much higher than those for a minor tournament, and the same ranking can be observed for each of the varieties that form the schedule, comparing popular and less attractive programmes. The cost of delivering a very poor programme, on the other hand, is the same as that of delivering a very attractive one. This implies that the fixed costs are not given by exogenous technical considerations, but carefully chosen to determine the quality of the programme. On the other side, the variable costs are low and unrelated to the content of the programme.

The strategic role of programme quality points to the concept of *endogenous sunk cost*, which is often used to explain persistent concentration in industry. The fundamental reference is Sutton (1991). On vertical product differentiation see also Gabszewicz and Thisse (1979, 1980), and Shaked and Sutton (1982, 1983). The basic mechanism that explains concentration, and its invariance to market size, is as follows. Competition among firms tends to push up the quality of the goods or services, but it increases fixed costs as well, preventing fragmentation. A larger market size would create additional space for new entrants if quality were fixed, but it also gives existing firms the incentive to raise quality, which in turn increases the fixed costs and makes entry more difficult. This reasoning fits the broadcasting industry well, since costs related to technical and network equipment, being invariant to market size, are exogenous sunk costs. We find that the equilibrium number of firms might increase slightly as the market size increases, but with an upper limit. No tendency towards market fragmentation occurs as the market grows because quality and fixed costs increase as the market size increases. This is indeed quite consistent with the empirical evidence for the main OECD countries.

The crucial role of quality differentiation does not mean that variety plays no role. On the contrary, horizontal differentiation offers a very rich set of opportunities. A

[7] Advertisers are also interested in the viewers' composition. For instance, producers of music or sports equipment will assign a great value to the viewers of music or sporting events. For mass consumer goods, however, viewers and customers are almost equivalent.

first level at which variety is important is the choice of a general- or a single-theme schedule. Next, the detailed timing is designed to differentiate the broadcaster's programmes from those of its rivals at each point in time. This double decision on horizontal differentiation determines the mobility of the viewers: if TV companies are able to attract a large additional audience by improving their schedule, which occurs if the programme schedules are not very differentiated by varieties, then the incentive to increase the programme quality is very high and the equilibrium quality increases as well. As a consequence, *ceteris paribus*, the fixed costs will be higher and the number of firms sustainable in the market will be lower. If the degree of horizontal differentiation is low, the number of broadcasters will be low, no matter how large the market size, while a more fragmented industry will emerge if firms offer differentiated programming. Dual market structures, with few large audiences and many small TV channels, can emerge through the process of entry.

Quality also matters for single-theme programmes. The endogenous sunk cost principle implies that specialized channels will compete for talent and high-quality programmes of their elected variety, and only a few or a single channel would emerge in the end as leader. New specialized channels, which might be profitable beforehand, may be unable to attract a large proportion of the viewers. The vast majority seem still to be 'hooked' on sports, movies and light entertainment, which represent the larger viewerships in all countries. This 'dual market' property, with a few large firms co-existing with many tiny firms, is consistent with what has happened in the USA in recent years. However, if preferences become more dispersed across varieties, in the sense that 'more varieties' are demanded, the degree of concentration will decrease. With more potential market niches sufficiently large to represent a non-negligible share of the audience, the tendency of firms to differentiate their programme schedule will be reflected in a more even distribution of market shares.

Summing up, if in the medium term viewers continue to demand a narrow subset of programme types, such as movies, sport and light entertainment, concentration will persist despite the disappearance of technological and institutional barriers to entry. This is precisely what has occurred in the USA, where very few TV companies can afford the huge fixed costs necessary to offer the most successful programmes, while many other operators tend to fill market niches, obtaining negligible shares of the audience. Of course, it is impossible to predict what will happen in the long term in an industry which is currently undergoing dramatic technological changes.

5.2. Vertical relations and concentration in the broadcasting industry

The analysis proposed in the previous section is particularly relevant to the packaging phase, when programme schedules are constructed, but the tendency towards concentration could spread upstream to the production phase and

downstream to the signal delivery segment, if vertical integration prevails in the broadcasting industry as a whole. Market foreclosure is probably the most important issue at stake: a network which dominates the packaging phase could distort competition in the production segment, weakening independent producers, while a signal transmitter in a monopoly position could dominate network broadcasters.

5.2.1. Network domination of packaging. This is particularly delicate when agents of different dimensions are involved, although this is not always the case, as with the US networks versus the major studios, or the sports associations versus the large broadcasters. However, there may be benefits from vertical integration in the upstream phase of programme production. They derive basically from economies of scope and risk spreading. Fisher (1985) has observed that programme production is a very risky activity, because it is difficult to forecast viewers' reaction and the potential success of a programme, particularly if it is innovative. Producing several programmes with different characteristics might be a way of diversifying risk, but it requires larger resources. A small independent producer will therefore concentrate on rather standardized programmes with respect to a network managing a large portfolio of projects. Moreover, economies of scope arise due to the joint use of equipment and creative resources, a more accurate tailoring of the programmes to the general channel policy and a better management of multiple releases.

5.2.2. Signal distributors' domination of networks. This may arise because most of the transmission technologies require in the final stage infrastructures such as terrestrial transmitters, cable wires, satellites and decoders, which potentially determine natural monopoly at the local level. Those who own or manage these inputs under exclusive rights are in a strong position if they also participate in the packaging activity, since the rival broadcasters might have no possibility of entry into the local market, apart from building a second transmission system. On the other hand, a long-run relationship, if not complete integration, between programme packagers and local broadcasters makes it possible to replicate the distribution of the same programmes over a larger potential audience, and constitutes the economic reason for the emergence of networks and the increase in the quality of programmes. This is basically the story of ITV in the United Kingdom and its transformation into a national network.

A potentially serious problem might appear in the future because of the decoding technology of digital signals. Viewers will need a set-top box to decode the signal, as well as for the billing of pay-TV and pay-per-view services, which will be sold by the operators that deliver the signal. Since the decoder is based on a proprietary technology, the operator in the delivery segment might deny access to packagers: that is, might refuse the use of the set-top box for decoding particular signals. Hence, a case of market foreclosure may arise if the operator is also in the packaging

market.[8] Today the Murdoch group has developed and patented a technology for the set-top box for digital decoders, and is therefore in a situation of competitive advantage with respect to its rivals; moreover, the Murdoch group is heavily established in many segments of the packaging phase.

6. PUBLIC POLICIES FOR THE BROADCASTING INDUSTRY

We have identified two main sources of market failure. The first one is concentration and market power, which arises both from strategic behaviour – endogenous sunk costs – and from technological bottlenecks. The second source of market failure is externality in the formation of public opinion: in broadcasting, and in the media industry at large, there is a serious issue of pluralism because what is at stake is information and the evolution of culture and public opinion. For these two reasons, a 'hands-off' policy is not appropriate. However, a regulatory approach – either at a national or at a supranational level – may no longer be appropriate given the speed of technological changes and the complexity of the industry's horizontal and vertical relationships. It might be better to let market forces work and intervene only when reasonable doubts arise that firms are deviating from competitive practices. Moreover, concentration involves opposite effects on welfare: allocative distortions on one hand, but also incentives to invest in programme quality. Evaluating this trade-off requires a case-by-case analysis, which can hardly be performed in a predetermined regulatory scheme. Instead, we propose to replace regulation with a competition policy. The main authority should not be a sectoral one, but the national competition authority, with the European Commission dealing with the international aspects of competition whenever necessary.

The existence of endogenous sunk costs implies that concentration is not necessarily reducing welfare, since dominant positions result from efforts to enhance the (perceived) quality of the products. However, this does not mean that competition policy is undesirable. Since entry is deterred by the need for heavy investment, competition policy is needed to avoid abuses of dominant positions and to screen merger proposals. Although a firm cannot be penalized for internal growth (which is mainly due to the merit of having invested), external growth (through acquisition and mergers) should not be allowed except when benefits are obvious.

The competition policy approach that we suggest must consider four issues: identifying the agents and the geographical and product segments; identifying the areas of concern; consistency between the objectives of competition policy and the

[8] According to Rey and Tirole (1996), a crucial difference in the incentive to foreclose is whether the monopolist (bottleneck) is downstream (deals directly with final consumers) or upstream (supplies an input to producers that deal with final consumers). In the former case, which seems more appropriate to the case of the digital signal transmission, the incentive to foreclose is higher if there is vertical integration. Hence, a bottleneck downstream seems more dangerous for the allocative efficiency of the market.

objectives that national governments and sectoral authorities have followed so far; and what to do with existing regulations.

6.1. Competition policy in the TV industry: agents, objectives and the relevant market

The three different groups involved in the TV industry whose position should be assessed are: the consumers; broadcasting firms, advertisers and other firms operating in the media sector; and the government. While each group deserves attention, we feel that more importance should be attached to consumers than to firms, given that consumers have limited lobbying and bargaining power. In any case, the objectives of competition policy in the TV industry should be the same as in any other sector. They usually broadly emphasize economic efficiency, with exceptions in some circumstances.

Starting with consumers, their surplus is determined by the quality, variety and price of the programmes. Quality has already been identified as a key variable. Variety matters both because different people have different preferences and because consumers like variety *per se* and enjoy a wide range of programmes. The price paid for watching TV can be explicit or implicit: it can be an annual subscription fee, possibly on top of fixed costs (like the purchase of a satellite receiver or a decoder), but also watching advertising spots which disrupt the continuity of the programmes. In some countries, implicit costs are the only charges that commercial channels can impose to finance themselves, whereas public channels may be allowed to resort to the sale of advertising time (as in Italy and Spain) or may not (as in the UK and, in part, Germany).

The second group consist of the broadcasting firms, the advertisers and all the other firms operating in the media sector. Within this group, interests may be conflicting. For instance, the surplus of TV companies increases and that of advertisers decreases with the price of commercials, whereas a higher rate charged for cable or satellite access harms broadcasters while benefiting cable or satellite capacity owners.

Finally, the government has an interest in the content of TV programmes, since they affect the evaluation of its own actions. A government which is 'selfish' and wants to increase its chances of being re-elected will probably try to affect the type and content of TV programmes. If a public broadcasting company exists, a government might attach more importance to receiving favourable treatment from friendly journalists than to making sure that the company is run in an efficient (and independent) way.

The definition of the relevant market is always a crucial step in competition policy. The set of programmes offered by broadcasters is generally very broad, especially for general-theme programmes. Different products might potentially belong to different markets. Examples abound. TV news might be considered as

belonging to a market of 'information services', since it has some degree of substitution with newspapers and magazines. Films broadcast on TV may be competing with films distributed via cinemas and video cassettes. Watching sport events on TV might also be seen as a good substitute for attending live sport events. The question is all the more complex if one considers that national habits or new technologies can substantially affect the degree of substitution between the products. For instance, twenty years ago the degree of substitution between films shown on TV and in cinemas was extremely low, since movies appeared on television much later than in cinemas. The existence of video cassettes and TV channels specializing in movies has reduced this delay, and the introduction of pay-per-view TV will further increase the substitutability between these products.

Another issue is whether cable, satellite and over-the-air TV are part of the same market. This question is not as straightforward as it may appear at first sight. For instance, in a recent joint-venture case (MSG Media Services) the Merger Task Force of the European Commission considered pay-TV channels and TV channels which do not broadcast encrypted signals as belonging to separate markets. The main rationale is that, while consumers should pay to watch programmes broadcast by pay-TV channels, no such payment is necessary to watch programmes transmitted by the other stations. In general, we do not agree with this market definition. First, consumers evaluate programmes by their contents and not by their means of broadcasting. Second, it is not appropriate to say that consumers face a cost in one case but not in the other. They have to pay the initial fixed cost to buy a satellite receiver in the case of satellite TV, but they also have to pay an implicit price given by the presence of commercials in the case of 'over-the-air' TV channels. The fact that different types of payment are involved is not a valid justification for identifying different markets. More generally, the definition of a market should be related to the degree of market power enjoyed by the firms.[9] From this perspective, to define an independent market as composed of pay-TV channels alone amounts to saying that they face very little competition from firms broadcasting over-the-air or by (non-encrypted) satellite. We would expect instead that a pay-TV channel which tried to raise its subscription price significantly would have to consider carefully the number of customers who could give up their subscriptions and watch over-the-air and satellite channels only. Indeed, the low penetration rate recorded by cable TV in the UK, where only a very small proportion of households connected to the cable network has also subscribed to cable TV (see Table 1), has been explained by the existence of strong commercial and public TV channels, as well as the large number of families with satellite receivers.

[9] The Merger Guidelines of the US Department of Justice define the relevant market as the narrowest geographical and product market in which a hypothetical monopolist could profitably raise prices in a significant and non-transitory way, usually thought to be of the order of 5%. Other possible indicators, such as the degree of price correlation in the industry and the degree of cross-price elasticity, are also indirect indicators of the ability of a firm to exert market power: that is, to raise prices above marginal costs without losing customers to other rival firms. For an application to the cable TV segment, see White (1985).

In the end, therefore, the TV industry is composed of all broadcasters independently of their method of transmitting the signals. Possible alternative definitions of the relevant market, comprising particular TV channels (and possibly non-TV products), should be evaluated empirically and cannot be excluded a priori. Relevant markets such as news, movies or sporting events might be identified in particular circumstances. Because TV offers its services not only to households watching the programmes but also to firms buying advertising time, one could adopt a narrower definition of the relevant market in cases where some broadcasters are not authorized to sell advertising time. A TV company which has no market power with respect to TV viewers might still have some market power with respect to advertising firms (we are implicitly assuming that firms regard advertising in the press as a very imperfect substitute for TV commercials, which seems to be true empirically). In a recent joint-venture case (RTL/Veronica/Endemol) the Commission rightly calculated market shares in the TV advertising market and in the TV viewers' market separately. Finally, should single-theme TV channels be considered as belonging to the same market as general-theme channels? The answer is far from straightforward.

The definition of the relevant market also concerns its geographical coverage. Several issues are involved: the technology of signal transmission, the validity of spectrum licences, and the social and linguistic characteristics that determine the specificity of consumers' tastes. In most cases the relevant market is national: for broadcasters access to some national markets is still limited by institutional constraints, while for consumers cultural and linguistic barriers are still a problem. However, this situation might change in the near future, both because of relaxation of institutional barriers – at least within Europe – and because a higher percentage of people are able to understand foreign languages.[10]

6.2. Competition policy in the media industry: joint ventures, mergers and vertical restraints

In this section we review specific competition policy issues as well as decisions taken by competition authorities with respect to cases dealing with the industry.

6.2.1. Horizontal agreements and co-operative joint ventures. Competition laws require firms operating within the same industry to avoid collusive behaviour and any agreement which might unduly restrict competition in the market. The TV industry is by nature less prone than others to reach collusive agreements. First, TV companies often have very different sources of revenue, which makes it less relevant for them to collude on prices. Market-sharing agreements have little scope in an

[10] Another possibility is the establishment of TV channels that broadcast the same programmes simultaneously in different languages, such as the French-German channel ARTE and the news channel Euronews.

industry where the vast majority of consumers could be easily reached by over-the-air broadcasting. However, it is possible that in the future the establishment of pay-TV and pay-per-view TV might reduce the importance of these factors that hinder collusive agreements. Second, in most European countries the state controls one of the most important television groups. Profits are not necessarily the main target for managers of public channels, and this has consequently diminished the risk of collusive agreements. However, the situation might change now that the reasons for having public TV stations have diminished and the role of public TV is likely to decrease over time (see below). Third, the success of a TV programme often depends on the appropriation of a scarce resource such as a successful anchorman or woman, or popular presenters. As a result, competition to secure them is bound to be very strong. The same applies when packages of movies are auctioned or when the exclusive rights for broadcasting exceptional sporting events are sold. Collusion is more likely in a market where transactions occur frequently and where each of them involves a relatively small pay-off, while TV companies compete for successful presenters or for the broadcasting rights of unique events. In these cases, the pay-off at stake is too large, and the temptation to deviate from a hypothetical agreement to secure a large prize is too strong. Unlike the first two, the third factor is probably not going to diminish in the future. Overall, it is not possible to predict whether (tacit or open) collusive practices in this sector will occur more or less often than in the past.

International collaborative agreements have recently been set up (for instance, co-productions of specific programmes), but they are not likely to reduce welfare. They might even allow relatively small TV channels to join forces to finance ventures that otherwise would not be feasible. However, co-operative agreements could evolve that will decrease competition. In particular, there is a risk that different national TV groups will establish a broad and complex network of co-operative agreements which could in the end eliminate international competition even before a true international market exists. The European Commission seems to be well aware of the trade-off between potential benefits and risks involved in agreements between firms in the media industry, both in the downstream and upstream stages (Schaub, 1996). Particular attention has been devoted to ensuring that alliances among owners of cable networks and of satellite capacity do not prevent future liberalization in telecommunications markets from leading to greater competition. For instance, the Commission has granted a favourable treatment to the alliance between British Telecommunications and MCI Corporation because it aims at providing global services of better quality and because it involves two firms which operate in domestic markets open to competition. However, the Atlas/Phoenix agreement involving the French and German public telecommunications operators was criticized since 'firstly, the domestic component of the services offered is much stronger than the global elements planned and, secondly, the home markets of the parties (France and Germany) are less liberalised than the home markets of BT and MCI' (Commission of the European Communities, 1995). As a consequence, the

agreement was accepted only after amendments and commitments aimed at guaranteeing non-discriminatory access to such networks. These cases obviously touch as many issues of collusive behaviour as of abuse of market dominance (especially market foreclosure).

Among the alliances that do not concern vertical relationships is the recent joint venture CLT-Bertelsmann (through its firm UFA), one of the few concentrations among leading media groups allowed by the European Commission. The parties have activities which are largely complementary in terms of affected geographical markets. Bertelsmann's operations are limited to Germany, where CLT also has a presence with important participation in many commercial channels. However, the two groups face strong competition in the German market from both the public TV channels and the ones controlled by other groups, especially the Kirch group.[11] The Commission rightly permitted the merger, since it gives rise to possible economies at the European level without diminishing competition in the German market.

6.2.2. Mergers and concentrative joint ventures. Scale economies at all levels are important in the broadcasting industry. The sector is also evolving rapidly, with new and expensive technologies and regulatory changes that open up new market opportunities. It is not surprising, therefore, that a number of projects for merger and joint venture have arisen in recent years. Some of the most recent joint ventures will introduce digital TV: for example, Canal Plus and Sogecable in Spain; Philips, Nederland KPN and Nethold in the Netherlands; and Veba and Metro in Germany. The benefits from concentration in terms of efficiency and product innovation should be balanced against the risk of greater market power in a sector where concentration is already very high. The Merger Regulation of 1989 gives the Commission the power to investigate projects: it has the right to suspend a merger that may lead to a dominant position, and to ask for amendments or particular clauses. The Commission has blocked two joint-venture proposals in the media industry and gave a negative opinion on a third which technically fell outside its jurisdiction.

In 1994, the European Commission blocked the joint venture MSG (Media Service GmbH), equally owned by Bertelsmann, Kirch and Deutsche Telekom, on the grounds that it would have created or strengthened a dominant position in three distinct markets: the market for technical and administrative services for pay-TV (MSG), the pay-TV market itself (Kirch and Bertelsmann would have had a dominant position) and the market of cable networks (Deutsche Telekom would have strengthened its dominant position).

[11] The channels linked to CLT and UFA reach 26% of the audience and 38% of the advertising market; the public broadcasters have 39% of audience share; SAT1 and DSF, in which the Kirch group holds a stake, have 16% of the audience share and 27% of the TV advertising share; PRO7 and Kable 1 achieve an audience share of 13% and an advertising share of 23%.

The Commission also prohibited the creation of NSD (Nordic Satellite Distribution) by three major players in the Scandinavian TV industry: Norsk Telecom (NT) controls the Norwegian programme distributor Telenor and also owns an important cable network in Norway; Kinnevik is a private Swedish firm operating in broadcasting, pay-TV and programme distribution via its subsidiary Viasat, the most important firm in this sector in Norway, Sweden and Denmark; and Telemarkt (TD) is the Danish state-controlled TV company, which owns the national broadband distribution network and operates in local distribution cable television. NSD would have provided transponder capacity, and transmitted and distributed satellite TV channels to the Nordic market. Again, competition concerns arose at more than one level. The Commission argued that: 'The vertically integrated nature of the operation would have meant that the parties would have been able to foreclose the Nordic satellite market to competitors and obtain a "gatekeeper" function for the Nordic market for satellite TV broadcasting. As the affected markets are currently in a transitional phase the Commission acted to ensure that these future markets would not be foreclosed' (Commission of the European Communities, 1995).

Finally, the Commission did not approve HMG (Holland Media Group), a joint venture between RTL, Veronica and Endemol, the first two being broadcasting firms and the third being the largest independent producer of TV programmes in the Netherlands. HMG would have acquired a very strong position in the Dutch broadcasting market, with a likely audience share of more than 40% and an advertising market share of more than 60%. This would have given HMG a dominant position at least in the TV advertising market, especially if one considers that 'a particular strength of HMG as compared with competitors is that it is able to cover the most important target group for advertisers by coordinating the programme scheduling of its three channels. By contrast, given the complex structure of the Dutch public broadcasting system, it is more difficult for the three public channels to act in the same way' (Denness and Gatti, 1995). The Commission also found that the joint venture would have reinforced the dominant position of Endemol as the major producer of TV programmes in the Netherlands. Indeed, HMG would have given it privileged access to the largest customer, and would therefore have raised issues of market foreclosure. The Commission approved a modified version of the HMG joint venture after Endemol withdrew from HMG, thus removing the vertical aspect of the concentration and eliminating fears that the joint venture could lead to market foreclosure because of the preferential access of HMG to Endemol's film library. HMG also committed itself to transforming the general-theme channel RTL5 into a news channel, so as to decrease both its share of the audience and its share of the TV advertising market. A positive by-product of the decision of the Commission has been a further entry into the industry, since Endemol plans to enter the TV market with a sports channel together with other parties.

6.2.3. Vertical restraints and market foreclosure. As we have seen, the European Commission has rightly attached great importance to market foreclosure, denying joint ventures where monopolists or firms enjoying very high market power in upstream sectors could create joint ventures with downstream firms. Cable networks, a key element for digital broadcasting, often belong to the national telecommunications companies, which used to be legal monopolists. As liberalization is introduced into this sector, national companies should not get involved in alliances or mergers with downstream firms, since this would eliminate competition in the broadcasting market (Rey and Tirole, 1996). Unfortunately, not all European countries share the view of the Commission. For instance, in March 1996 the Spanish government had authorized Cablevision, a joint venture between Sogecable, a subsidiary of Canal Plus (the only firm providing pay-TV services in Spain) and Telefonica (the public telecommunications operator, owner of most cable capacity in Spain), which certainly went in the direction of restraining competition in the television market. The project was withdrawn before the (likely prohibition) decision of the Commission.

The problem of market foreclosure may soon arise in the segment of digital over-the-air broadcasting, where access to the set-top box decoder could create a bottleneck for digital channels. The Murdoch group has developed and patented the relevant technology, and is also very active in the packaging segment. Denying access to rival channels might be interpreted as an abuse of its dominant position, and be prosecuted accordingly. However, even if access to the digital decoder is open, there remains the question of access price – more a regulatory than a competition policy issue.

Market foreclosure may also arise from vertical contracts. The exclusive agreement between the German public TV company ARD and the US firm MGM/UA, according to which the former would have bought the rights of past and future productions of the latter, raised competition policy concerns in 1989, when the commercial broadcasters in Germany were still in their infancy. The breadth and the long duration of such a contract would have put ARD in an advantageous situation *vis-à-vis* its rivals, raising fears of distortions in the market and the exclusion of rivals, which at that time were not as well established in the market as they are today. The Commission decided to oblige ARD to concede periods (windows) during which competitors would be able to broadcast the titles involved in the contract a certain number of times. This case emphasizes the danger that multiple exclusive agreements between established TV channels and several programme producers might seriously distort competition and make it difficult for new entrants to reach a stable position in the market.

6.3. The objectives of other public policies in the media sector

We have argued that competition policies should play a major role in the media sector. It is now time to investigate the relationships between competition policy

objectives and the objectives pursued by the other policies which have been adopted in the sector. Two main objectives have inspired sectoral policies in the OECD countries: variety and diversity; and the promotion of a pluralism of views to support the democratic formation of public opinion. Programme variety is desirable when consumers are heterogeneous, but it may run against pure economic efficiency. Competition policy helps in this respect. In particular, entry of TV channels is easier when there is reasonably priced access to cable networks, satellite capacity or film catalogues. The US experience suggests that single-theme channels addressed to minority groups will be available in the future provided that competition policies prevent foreclosure at the different stages of the TV market. As a result, the traditional justification of public TV as a way to ensure educational, cultural and religious programmes for minorities might be partially overcome.

The second objective of public policies, pluralism of opinions, is more difficult to reconcile with competition policy objectives. Safeguarding pluralism takes two main forms. The first one is that a single television channel (or group) does not gain excessive market power. This is compatible with competition. The second approach is to avoid concentration of power by a single investor within the same firm or group. In many European countries a limit is imposed on the proportion of shares which can be held by an investor (see Table 4). This restriction has little to do with competition policy.

These and other differences between policies that aim at economic efficiency (the optimal degree of concentration in the name of higher efficiency, market share increases through fair competition and internal growth) and those that promote pluralism call for a separation of powers. Overall competition policy intervention should be promoted by the antitrust authority, while the sectoral regulatory body should intervene in defence of pluralism. Licences and the control of the market power of licence-keepers should be the responsibility of the sectoral authority. Where the two policies overlap, a double-check scheme is called for: mergers and acquisitions of TV companies should be notified to both the regulatory and the antitrust authorities, and firms should need a double authorization.

6.4. Assessment of the main regulatory instruments

6.4.1. Selling broadcasting rights. In many European countries, TV licences have mostly been granted with little transparency and on the basis of highly discretionary criteria through complex administration procedures. Frequency waves are still a scarce resource which gives rise to economic rents. Very often governments have not been able, or willing, to appropriate such rents, while firms have been engaging in rent-seeking activities (lobbying, or even corruption of civil servants in some countries). Public auctions of spectrum rights licences have recently been introduced in the UK and the USA. Not only do auctions improve transparency, but they also contribute to economic efficiency on two grounds: they avoid

socially inefficient rent-seeking activities and they ensure that licences are obtained by those who are more likely to benefit from them, which makes for an efficient allocation of resources.

In the UK, quantitative (price and financial guarantees) and qualitative criteria have been used to discriminate among the bidders. A higher price bid can be outweighed by a more interesting broadcast programming plan, for instance. In the first auction in 1992, roughly half of the total number of (national and local) licences were granted to candidates that did not have the highest price bids. However, although this auction clearly implies a considerable step forward, its mechanism could be improved by making it more transparent. Financial criteria and the quality of programming should be prerequisites, and all the bids should be judged only according to the price offered by the different groups which have satisfied the minimum requirements. This would avoid the evaluating of trade-offs between quality and prices.[12]

In the USA, sales of electromagnetic spectrum licences used to be based on long and inefficient discretionary judgements ('comparative hearings') and lotteries. In 1993 the Federal Communications Commission held a quite sophisticated auction. All the licences with interdependent values (this is the case, for instance, when licences for two neighbouring regions are worth more than twice the value of one licence) were simultaneously on offer. As with the more traditional 'English' auctions, used in cases where licences had independent values, every participant was free to make simultaneous offers for all the licences, and all the bids remained open until all the licences had been granted. This system was designed to generate the highest possible amount of information for all the participants, and to make sure that all the licences were obtained by those who attached the highest value to them.[13]

6.4.2. The role of public television. Public television has had a fundamental role in Europe, at first for the promotion and later for the regulation of the broadcasting sector. In the 1950s, it was the main policy tool to cope with the public good nature of signal transmission. When television was first introduced in most European countries, a private television venture would have had little hope of success. On the one hand, with over-the-air broadcasting, households could receive TV signals but the TV company was unable to appropriate its investments (encrypting technologies were not available at the time). On the other hand, the low per capita income of the population and the relatively high price of TV sets implied a low potential audience, preventing financing through advertising. Commercial channels came to exist first when large audiences permitted advertising revenues. Then the introduction of

[12] In the 1992 UK auction, a reservation price for each licence was also announced to avoid some bidders obtaining the licence rights with almost symbolic price offers.

[13] For details on the licence auctions in the USA, see the FCC Internet site: www.fcc.gov.

technologies that screen the access of consumers to the TV signals, and make them pay for the television services they want to receive, brought in a second wave of private channels. On these grounds, public television is not as indispensable nowadays as it was half a century ago.

Public television is a provider of public services which otherwise would not be offered by private channels. Yet, even from this point of view, important changes have occurred. Many private channels today offer the kind of news, cultural and scientific programmes which would have been considered as minority programmes some years ago. The range of programmes now considered as not profitable has been considerably reduced, further narrowing the scope of public television. Many types of programme that serve the public interest (e.g., those with educational content, or those which defend the right of expression of certain minorities) would probably not exist without public intervention. The question is whether a public TV company should provide these programmes or whether instead private channels should be obliged to carry them.

Public television is likely to ensure better quality for such programmes than a commercial channel under obligation to produce and broadcast them. An alternative is to involve a public agency in the production of such 'public service' programmes, which could afterwards be (compulsorily) distributed via private channels. This would save the cost of having to run a public channel while controlling directly the production of such programmes and giving TV companies the right incentives to meet high quality standards. If one does not accept a quota of public service programmes in private television, and reckons instead that such programmes should be provided by a public channel, the next issue is to determine the features of public television. It should not have the right to finance itself through advertising: this avoids the incentive to increase its audience and instead encourages it to focus on public service objectives which do not necessarily require a large audience. In many European countries, public TV is now financed by a mixed system of taxes and advertising revenues. Beyond the incentives effect, this situation raises doubts about the distortion of competition. The European Commission is now investigating complaints made by private broadcasters that such aid to public TV stations in Spain, France, Italy and Portugal distorts competition in the broadcasting market.

Public broadcasters might help not only to maintain a wide variety of programmes, but also to ensure that a plurality of opinions are represented. However, the issue is again whether a public TV network or a regulatory approach is more appropriate to achieve this goal. A regulatory framework that requires equal treatment of the different political positions in the news and in policy debates might be difficult to implement, since objective criteria such as the time spent or other quantitative indices of representation might not be enough to avoid distortions. It might be argued that control of public TV by a Parliamentary Commission would correct such distortions. A public broadcaster might ensure pluralism. However,

such a solution depends crucially on the ability of a Parliamentary Commission to operate as a distortion-correcting body and not as another agent that uses discretionary power to enforce its private political agenda (of course, it also depends on the ability of public TV to attract viewers). This is an open question, which might have different answers in different countries.

6.4.3. Limitations on advertising time. European countries have instituted constraints on the frequency of advertising messages during programmes. The rationale is the establishment of a minimum quality standard, since viewers do not like it when programmes are interrupted by commercials. Such restrictions distort the TV advertising market by artificially constraining its supply. This has opposite effects on the utility of two other groups in the economy. On the one hand, advertisers are worse off since, *ceteris paribus*, the regulation increases prices. On the other hand, the constraints help other media like newspapers and magazines, which benefit from the rationing of the TV advertising market. These firms are therefore one of the most interested groups in lobbying for the regulation of TV advertising messages. The effect on the profits of TV companies is not straightforward. First of all, it is not clear that the constraints imposed by such regulation are binding. Second, if they are, higher prices might theoretically benefit the companies, rather than hurt them. In addition, the time devoted to programmes is higher. The ultimate effect is an empirical question that goes beyond the scope of the present work. Finally, if advertising quotas are binding and do affect the revenues of TV companies negatively, they might also have an indirect adverse effect on consumers, if lower profits imply lower investment in programmes (an effect that we consider of secondary importance).

We remain largely agnostic as to whether or not advertising quotas should be retained. However, if one believes that public policies should give priority to the interests of the weakest group (i.e., the TV viewers), then the assessment of these constraints should be positive. In any case, the importance of these regulatory instruments is likely to vanish in the future. Until quite recently, the sale of advertising space was basically the only source of revenue for commercial TV channels. With the introduction of pay-TV and pay-per-view TV technologies, the importance of advertising revenues in the overall budgets of broadcasting groups will certainly decrease. Given that firms are now able to charge consumers for the specific programmes they want to receive, they will resort with less frequency to advertising messages which have adverse effects upon demand.

6.4.4. National content requirements. Some European countries have established minima for the national content of programmes (see Table 4). The European Parliament has also proposed to reserve a certain share of broadcasting time to programmes produced in Europe. The main justification is to promote national (or European) culture, of which TV programmes are a manifestation.

These arguments are not very convincing. They may conceal protectionist temptations which have very little to do with culture (despite the good faith of some of the proponents of the national quota requirements). Most of the quotas are defined over the whole set (or large subsets) of the possible types of TV programme, without any guarantee about the effective cultural contribution given by specific programmes. In other words, why should an Italian soap opera or a French movie a priori give a higher contribution to European culture than a Brazilian telenovela or an Australian movie? If we start to define cultural content by its origin of production, then we will end up with setting tariffs to protect Italian pasta-makers, German beer producers or French clothing firms from foreign imports. Indeed, the number of goods which can be associated with national culture is unlimited. At the very least, we should ask for more detail before protecting so-called cultural objectives, and a better definition of the particular programmes that should receive incentives, much beyond the vague requirement that they should be produced locally.

Moreover, quotas are a particularly inefficient instrument of protection, as they raise import prices, diminish variety, create an artificial scarcity of foreign products, increase the market power of domestic firms (Bhagwati, 1965), increase the opportunity for collusion among national producers (Krishna, 1989), and finally, by reducing competitive pressure on domestic firms, lower productive efficiency. Therefore, if incentives for certain national programmes were really desirable, it would be better to resort to other instruments. One possibility might be to grant some subsidies (co-participations) to local producers, leaving it up to the TV channels to decide whether or not to insert such productions in their programmes (this is done in Canada and New Zealand). This would have the effect of maintaining a higher degree of effective competition, which could improve the quality of national production.

6.4.5. Quotas for independent production. In many countries, such as the USA, France, Germany and the UK, quotas are reserved to programmes supplied by independent producers. Two main reasons have been advanced. First, independent producers tend to select projects that have a higher innovative content than those promoted by big networks. Second, such quotas reduce the danger of vertical integration and the risk of market foreclosure. The first reason does not appear to have solid grounds. Production of programmes is a very risky activity, and a TV group may be in a better position than small producers to promote innovative projects, since it may be able to spread its risk over many different projects. It may also have a clearer idea about what projects the market will accept. As for the second reason, we have seen above that it is a real concern that a powerful broadcasting group might abuse its power to foreclose access to smaller rivals. However, we believe that resorting to a competition policy approach is less distortionary than making use of quotas.

6.4.6. Limits to the shareholding of TV firms and multilicences. Restrictions on multilicences and ceilings on the shares of the same company which can be owned by a single investor are justified if they promote pluralism. They have little to do with economic efficiency. However, they are largely a substitute for measures aimed at limiting the power of a single firm in the TV market. We have already discussed the difficulties of implementing proposals to keep the market and ownership as fragmented as possible. In the absence of a system which prevents a single firm from accumulating market share and power, ceilings on the number of licences and on the shares controlled by a single individual attempt to limit the power of individuals, even if they can be circumvented. However, in the presence of competition laws or regulations which place strict limits on the market share of a firm, limits on shares owned by a single investor tend to be superfluous.

A further area where ownership is sometimes restricted concerns the cross-ownership of TV channels, radio and newspapers. Again, the restriction of cross-ownership can hardly be justified in terms of competition policies and is due largely to pluralism objectives. However, cross-ownership constraints might not be necessary if each of the media markets involved were subject to specific limitations with respect to the market share that a firm might attain, as in the broadcasting industry.

7. SUMMARY AND CONCLUSIONS

The broadcasting industry has been experiencing important changes in recent years. In particular, technological barriers to entry due to the limited spectrum frequencies available for transmission have been falling and institutional constraints have been relaxing. Some commentators and television groups have suggested that these developments imply that the industry is moving towards a more competitive situation. In turn, market fragmentation would mean that public policies were no longer necessary. However, there are many empirical and theoretical reasons to believe that the broadcasting industry will probably maintain a high level of market concentration. Two main reasons bear emphasis. First, success in the industry depends crucially on the attractiveness, or perceived quality, of the programmes. To have a large audience share, firms have to invest heavily in programme quality. Such an investment represents a fixed cost (i.e., it is independent of the number of viewers who receive the programme) that not all the firms can afford. Second, broadcasting involves different vertical stages of production. The existence of bottlenecks at any of these stages might have serious repercussions for the entire vertical chain. A dominant position in the cable network, for instance, might be used by a firm to give its channels a dominant position.

For these reasons, public policies still have a major role to play and competition policy should be the main instrument. Unlike regulation, competition policy can be adapted more smoothly to the complex strategic conditions of the industry. It does

not require continuous intervention and it reduces the risk of market distortions, which would be especially harmful in a period of technological change.

While competition policy promotes economic efficiency, it cannot safeguard the objective of pluralism of views, which is one of the main goals of public policy in the broadcasting sector. Hence, competition policies should be complemented by regulations which guarantee that no single firm has enough market power to jeopardize the pluralism of opinions in society. This calls for measures such as the imposition of a maximum permitted audience share, or limitations on the shareholding of a single investor in a broadcasting company, even if such measures are in contradiction to economic efficiency objectives. On the other hand, there is less need for traditional regulations, such as quotas for independent production, national content requirements, limitations on the time devoted to advertising and the existence of public television channels.

Discussion

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From a pure economic perspective, the broadcasting industry is fascinating for several reasons. First, this is an industry where typically public and private operators are competing with each other. Second, this industry is neither purely competitive nor entirely regulated, and Motta and Polo show moreover that the institutional environment differs substantially from one country to another, which may or may not reflect different regulatory objectives. Third, competitors rely on very different sources of financing – public funding, advertising, pay-TV (on a monthly or pay-per-view basis) – which call for different competitive strategies. Fourth, at least four segments are vertically related in this industry: programme production (movie and TV studios, sports federations, etc.), packaging (TV channels), bundling (multichannel bundles) and transmission. Lastly, the technology, already quite diversified, is still fast changing: the generalization of the numeric technology and of the Internet, and the sharp decrease in the costs of 'intelligent' terminals, to mention only a few factors, all tend to multiply the possibilities in this domain. At the same time, the number of actors keeps expanding. For example, a recent FCC report on the market for the delivery of video programming distinguishes cable systems, direct broadcast satellite service, home satellite dishes, wireless cable systems, local exchange carriers, satellite master antenna television systems and broadcast television service. It also mentions that electricity and gas utilities are starting to get involved locally. All these elements raise interesting positive and normative issues, particularly when combined

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with various possible objectives particular to the broadcasting industry, such as preserving the diversity of voices and protecting or encouraging cultural specificities. Motta and Polo offer a very good overview of most of the relevant facts and a useful scrutiny of past and recent policies, together with interesting suggestions for the future, with a call for relying more on competition than on regulation.

Regarding the facts, I would however like to stress the importance of the four segments mentioned above. While most of the paper focuses on the middle segments (packaging and bundling, which are considered as a single segment), the analysis should take into account the other two segments (programme production and transmission). In particular: (1) it is not clear that the middle segments are those that generate the main concerns for competition; and (2) most of the dominant actors in this industry are vertically integrated and present in at least three of the four levels, so that by studying one segment at a time one may miss important issues. Concerning point (1), an important potential bottleneck seems indeed to lie in the programme segment, where in Europe only a few actors (BSkyB in the UK, Canal Plus in France, Kirsch in Germany)[14] share the rights over important sporting events and over the production of major studios. But the transmission segment should not be forgotten either. In particular, the control of encryption technologies and the battle for access to set-tops demonstrate that, at least for pay-TVs, there are again substantial bottleneck issues. The history of the creation of BSkyB illustrates this point dramatically. Initially, with two competitors, two set-tops were required to watch both. Potential subscribers did not want to pile up multiple set-tops, so neither of the two competitors was able to reach an adequate level of development, until they decided to merge (and use a unique encryption technology and set-top) to become BSkyB, which then expanded quite rapidly. The fact that dominant operators of analogue pay-TV systems have already patented encryption technologies for digital TV may constitute a serious concern for future competition. Likewise, although it is possible to launch additional satellites, the fact that those in operation have no capacity left for newcomers, together with the fact that receiving signals from two different satellites requires a more expensive antenna (which must be able to rotate from one satellite to another), suggests a substantial advantage for first entrants. Another aspect of the transmission segment may become central in the not too distant future: new technologies not only allow for new broadcasting options, they also enable very precise monitoring of which programme is being watched at any particular time; this in turn provides very detailed and personalized information on viewers' preferences, which has an enormous marketing value – and may raise some concerns about the revival of Big Brother.

Regarding point (2), it should be stressed that most dominant operators in this

[14] Exclusive rights to major movies and sporting events constitute key assets for the development of TV channels. In the UK, for example, the subscription to BSkyB increased substantially when it announced that it had bought the exclusive rights to Premier League football and the cricket world series. BSkyB also has rights over tennis and boxing events, and its owner (Rupert Murdoch's group) also owns 20th Century Fox.

industry are present, either directly or through partnerships or subsidiaries, in three or all of the four segments. A good example can be found in the UK, where the only pay-TV operator, BSkyB, is actually present in all four segments: its controlling group owns one of the major studios (20th Century Fox) and has bought exclusive rights to important sporting events; it produces several channels (Sky News, Sky Movies, The Movie Channel, etc.) as well as the only bundle offered in the UK; it owns (through News Datacom) the encryption technology Videocrypt; and it has bought long-term rights over many slots in the ASTRA satellites (although it does not use all of them at the moment), besides having entered into long-term agreements with the two most important cable operators (TeleWest and Nynex). A new pay-TV operator would certainly face non-negligible obstacles, and foreclosure issues are substantial. This is exemplified by the failure of SportWire, a sports channel jointly created by the British cable operators: BSkyB threatened to implement non-competition covenants (a provision according to which a cable operator could not offer non-BSkyB channels if it also offered BSkyB ones) in its contracts with TeleWest and Nynex, which as a result decided not to broadcast SportWire. In Germany, the Kirch group has exclusive rights over sporting events such as the football league and F1 championship but, more importantly, owns an impressive catalogue of rights over more than 15 000 cine movies and 50 000 TV movies, which is certainly by far the biggest concentration of rights in Germany. The same group also produces several channels (three general-theme ones – SAT1, Pro7 and Kabd – and a sporting channel: DSF) financed through advertising, as well as DF1, the only bundle presently offered in Germany (it is offered on a pay-TV basis, and Kirch uses its own set-tops, d-Box);[15] Kirch also has a 25% stake in the only other pay-TV channel, Premiere. The other dominant private operator in Germany, Bertelsmann, is also present in three segments: it has agreements with several American movie studios for the exclusive rights to their productions (with Time-Warner but also, through the CLT, with Columbia, MCA/Universal and Disney); it produces several TV channels (financed through advertising, and again in collaboration with the CLT); and it has developed, with the French operator Canal Plus, the set-tops (Mediaset) and encryption technology (Mediaguard) used by the pay-TV channel Premiere (Bertelsmann and Canal Plus each own 37.5% of Premiere). Again, the fact that the two existing private German TV operators are vertically integrated suggests that it will be difficult for a new operator to enter the market; in particular, it may be difficult for such an operator to enter into only one segment (such as the packaging or the bundling segment). These potential market foreclosure issues are exacerbated by the development of strategic alliances between dominant European operators (for example, the British BSkyB has a 49% stake in the German digital bundle DF1). This

[15] DF1, which has quite a low start, is broadcast through satellites (ASTRA) and by cable operators (Deutsche Telecom and Vebacom) which are independent from Kirch (almost all German homes are covered by cable operators); Kirch has recently blamed those operators for the low start of DF1, arguing that they did not invest enough in the digital technology.

is not to say that vertical integration and international strategic alliances are economically inefficient or socially undesirable. Both vertical and horizontal links may be needed to generate efficiency gains, and/or to ensure that these operators compete more effectively with other (e.g., American) giant operators. The point made here is simply that vertical links, as well as strategic alliances, raise anti-competitive concerns that might be missed when analysing each vertical segment separately.

Emphasis on vertical issues does not mean that horizontal aspects should be forgotten. The interaction between vertical and horizontal issues is illustrated by the following merger case. In 1983 three studios, Paramount, Universal and Warner, made a joint bid for two TV operators, Showtime and The Movie Channel (TMC). The project thus involved both an horizontal agreement between the three studios and vertical integration between two related segments. After long debates, only a 'purely vertical' merger was allowed: Warner was allowed to acquire Showtime-TMC. However, a few months later Paramount entered into a five-year (vertical) contract with Showtime-TMC, which in effect was close to replicating the initial project (at least part of it, since Universal was left out of the arrangement). As Motta and Polo emphasize, the fact that the quality of TV packages and bundles is endogenous does indeed suggest that, even in a free-entry equilibrium, only a limited number of operators will appear or survive. Hence, even in the absence of any entry barrier, it may be the case that not many TV operators can co-exist, even if demand increases and/or the evolution of technology drastically reduces the operating costs: such eventualities may lead existing operators to increase the quality of their packages, instead of favouring the emergence of new operators and a decrease in concentration.

This in turn suggests that relying mainly on competition policy to regulate the industry may not be the best approach, not only because, as the authors acknowledge, competition policy does not safeguard specific objectives attached to the broadcasting industry (e.g., maintaining a pluralism of views), but also precisely because of the particular nature of the competition in this industry. Both aspects call for new forms of public policy, relying both on standard competition policy (as illustrated by the existing practices of competition authorities and courts) and on more specific tools. Designing such new forms of public policy constitutes an important agenda, and should in particular encourage economists and researchers to contribute further to the theory of competition policy, which in many respects is still in the very early stages of its development. Besides the particular issues generated by the co-existence of public and private operators, many other unresolved questions should be addressed. For example, should the industry be supervised by a specific agency (as is usually the case for regulatory agencies), or should it be supervised by multisector authorities (as is the case for competition authorities)? Should public policy take place *ex ante*, as is often the case in regulated industries, or *ex post*, as with standard competition policy? What should be the extent of supervisory power of the agency in charge of this industry (price/advertising control, market power/concentration control, etc.)?

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The paper is a nice contribution dealing with an industry which so far has received relatively little attention. The European broadcasting industry is already an important sector and will undoubtedly be significant in the future as part of the information/entertainment/education industry. Why has there been so little solid economic analysis of this industry? Probably because of a number of idiosyncrasies: (1) there are important market failures in broadcasting, such as economies of scale and scope in production and operations (networks), public good aspects in broadcasting, bottleneck technologies, and quasi-rents stemming from scarce talent (for example, in sports); (2) broadcasting, and more generally the media industry, can be used as an instrument to influence the information of the public as well as culture; and (3) the industry is increasingly hard to define as deregulation and technological developments lead towards convergence of a variety of traditionally segmented activities. The authors propose a theoretical framework which focuses on the 'endogenous sunk cost' idea and which predicts stable high concentrations in equilibrium. The main conclusion is that properly designed competition policy would promote most objectives, except the objective of pluralism of opinion. As a consequence, regulation should be reduced.

While I agree that the industry exhibits some features characteristic of the sunk cost model, I also wonder how important they are relative to other factors. Let me mention four counter-arguments to the prediction that concentration will remain high due to endogenous sunk costs. First, the endogenous sunk cost argument applies best to the packaging segment. However, as technology advances, it might be that this segment will become less important. In particular, the multiplicity of channels may lead to viewers choosing their own programme. If packaging became less important (this would also imply the decline of the traditional networks), so would the endogenous sunk costs argument. Second, as technology allows more channels, horizontal differentiation might increase, with fewer general-theme TV channels. This will increase the sustainable number of firms in equilibrium. As both horizontal and vertical differentiation are endogenous, it is not clear what will happen to concentration. Third, it may be that the industry is still 'very far up the Sutton lower bound curve'. Recall that Sutton's prediction about market size and industry concentration in the endogenous sunk cost models follows a lower bound that declines as the market size increases, at least initially. If the broadcasting industry is still far to the left on the lower bound, concentration will fall as the market grows. This is essentially an empirical question which will depend on the precise cost and demand conditions, but it may be that the industry still has room for more firms. Finally, the endogenous sunk cost model is a static two-stage set-up. However, it appears that some of the sunk cost aspects of TV programming (e.g., the Olympics) are awarded on a repeated basis. In a repeated set-up the sunk cost

argument is irrelevant. Consequently, entry of efficient firms is not to be discounted. In the end, since the prediction of high concentration is perhaps not especially straightforward, strong empirical support would be needed for the authors' conclusion to be fully convincing.

Turning to the competition policy prescriptions, it is worth emphasizing that the welfare aspects of the endogenous sunk cost model are ambiguous – in particular, with vertical and horizontal differentiation – since more concentration implies more quality. So even if concentration is high, welfare can be high too, and competition policy authorities should not necessarily be alarmed. Given that competition bodies hardly ever look at such arguments, a softer approach might be warranted. A further complication with competition policy lies in the difficulty of defining the product and geographical markets. The relevant product market appears to include other forms of entertainment such as sports, movies and the print media, leading to a relatively larger market definition than the concentration data imply. In terms of geographical market, a national market definition seems to be the most appropriate one for many TV programmes (such as the news). However, several pan-European channels are now emerging, where the language can be selected by the viewer. In sum, it is far from obvious that concentration should be the primary concern for public policy.

Let me now turn briefly to some other public policy issues that to my mind are at least as important as market concentration. The first is the role of public television, or more generally the efficiency of public TV companies. The higher quality of public programmes is often used as an argument to keep funding public channels (through non-avoidable and involuntary taxing schemes!). However, it is not clear that this is the case today, and even if it is, it may not hold once the industry is in equilibrium. For example, in a two-stage set-up, given that the public channels had precommitted to high-quality programming (a first-mover advantage), it is optimal for private firms to locate at the other end of the spectrum. This would imply that privately owned firms could very well produce high-quality programmes, but that they will choose not to. In other words, there is no reason to believe that public firms are intrinsically better or more efficient than private firms at producing high-quality products. In fact the efficiency of private firms appears to be much higher than that of public firms (efficiency here is based on simple ratios of the number of employees relative to the size of the firm). In sum, it is not clear how far the quality argument can be pushed to justify publicly subsidized TV channels. A political-economy interpretation of the incentives might suggest that a 'quality argument' for public channels is overplayed in order for politicians to keep some form of control of the media. Given the intrinsic inefficiencies in such a situation, public policy might be directed at removing this waste.

On a more theoretical level, markets where private and public firms compete are not well understood. How exactly is competition supposed to work in this mixed case? What does this imply for the Sutton model, for foreclosure, etc? As is argued

in the paper, the objectives should be made clear as well as the possible market failures and implications for regulation. The previous discussion suggests that public policy should focus on privatization and the scope and explicit objectives for public intervention rather than on market concentration. In addition, issues such as market access, avoiding foreclosure whenever bottlenecks exist, and perhaps the deregulation of complementary services also appear to be of larger significance.

General discussion

How do we know what will be the future of the broadcasting industry in Europe? Klaus Zimmermann asked for more data to back up the conjectures presented by the authors. He also took the view that, even if the market structure does not need regulation, the content of programmes requires some regulation. He argued that packaging or bundling of programmes by the network channels may be less important in the future, as digital technology enables viewers to customize their own package. But this alone may not be sufficient to protect the viewing interests of minority groups. Richard Baldwin too felt the need for more empirical substantiation. Frederick van der Ploeg pointed out that in Holland one company, namely Philips, manufactures televisions and decoding equipment, runs a sports channel, owns a football club, etc. Cross-ownership of this sort really hurts competition in the broadcasting industry. Given that commercial television is driven by technical scarcity and advertising revenue, it was not easy to conjecture what future levels of concentration might be. Advertising revenue for newspapers, for instance, had fallen in the past but was now rising again. The issue of public service broadcasting raised some important concerns. Clearly, if public television is treated as a pure merit good, hardly anyone will watch it. He enquired if the authors were in favour of a public channel, and if not, whether they were in favour of publicly subsidized programmes. Hans-Werner Sinn thought that subscribing to a television channel was akin to joining a club – you pay for access to a range of benefits or services. As the theory of clubs suggests, a club equilibrium needs congestion in order to be financially viable, because only then can congestion charges be used to finance the goods in question. Given the very strong increasing returns to scale in broadcasting, it was unlikely that charges would lead to the optimal outcome. Besides, the standard theory of choice did not quite work in the context of television. For instance, preferences are not fixed, but strongly affected by television advertising. He lamented the decline in quality of broadcasting, and its growing ill effects on children, who spend more time than adults watching television. The violent content of programmes called for at least some public control; while in general we should let markets work, some paternalistic intervention was necessary here.

Richard Portes thought that the endogenous sunk cost story did not seem relevant to the cross-ownership of the Rupert Murdoch variety, and enquired if there was

any theoretical justification for breaking up the Murdoch empire. He also raised the issue of subsidiarity: what is the optimal mix between national and Europe-wide policies in the area of broadcasting? Vidar Christiansen suggested that competition in a deregulated environment would reduce diversity below what might be socially optimal. While public service broadcasting is a good idea, realistically a public channel has strong incentives to mimic commercial channels and compete with them directly. Like previous speakers before him, Bruno Frey felt that the content of television programmes was an important issue, as violence often spills over from television to real life. He suggested taxing the number of murders on television. Giorgio Basevi commented on the possibility that a non-optimal technical standard may come to dominate European broadcasting. And before any standard has become dominant, there is the transitional problem: which one of a competing set of standards should consumers opt for?

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