

## 5. The development of digital broadcasting in Italy

**Alfredo Del Monte**

---

### INTRODUCTION

Broadcasting regulation has been justified in many different ways: economically, culturally and politically. Spectrum scarcity, economies of scale and scope, or low elasticity of substitution with alternative services and products can lead to monopolisation. Other sources of market failures are asymmetric information and biases arising from advertiser finance, and the existence of externalities, both positive and negative. Without intervention the broadcasting market would fail to deliver the socially optimal mix of programmes.

While different countries have shared a common conviction of the need for broadcasting regulation, they have followed diverging policy approaches. Such approaches have been largely dictated by national and political administrative traditions and have resulted in different structures for the analogue TV sector. Some authors, including Galperin (2004), think that it is important to analyse the structural features of the TV analogue sector as they constrain the implementation of the transition strategy to digital:

Individuals and organizations make long term commitments (i.e. investment in particular broadcast technologies or services based on the existing rules of the game). Because these commitments often represent sunk costs, these market agents tend to resist policies that significantly alter these rules. This facilitates policy choice consistent with existing regime and inhibits those deflecting from it (Galperin, 2004:18).

A shift from one regime to another is possible, but it requires mobilization of large political resources and not many governments are able to resist the political pressure of interests linked to the current structure of the TV sector. Technology is only one of the factors that affects the structure of the TV industry and is not necessarily the most important. Therefore the transition to digital TV very often follows a pattern determined by the pre-existing structure of the terrestrial analogue sector. The transition to digital TV in Italy lends support to the above hypothesis.

This chapter has two aims. The first is to show how the current features of the Italian TV industry are the consequences of past regulatory intervention. The second purpose is to analyse how the current structure of Italian industry affects the policies to promote the switch from analogue to digital TV, and to consider whether these policies will be able to bring competition to the Italian TV market.

## DIGITAL TERRESTRIAL TV AND THE STRUCTURE OF THE TV MARKET

Digital technology has revolutionised the telecommunications and the information industries, but until recently its impact on the television industry has been much weaker. However, there is a widespread belief that the same forces that in recent years have radically changed the telecommunications and information technology will do the same for broadcasting, where the pace of technological change has been much slower.

The transition to digital TV is much more advanced in satellite and in the cable TV industry than in analogue terrestrial TV. Hence the structure of the terrestrial industry will be transformed by the introduction and the development of digital terrestrial television (DTT). The main characteristics of DTT technology are as follows:

1. a much better movie picture quality and CD sound quality;
2. rapid delivery of a large amount of information and the possibility of receiving personalised programmes and interactive services;
3. DTT allows better use of broadcast spectrum potentially, increasing its availability to new broadcasters and providers of other information and communication services;
4. DTT technology allows a single programme to be broadcast at a lower cost and easier separation between network providers and content providers; and
5. DTT allows the spread of conditional access systems, enabling broadcasters to offer a large package of digital products on a pay-TV or pay-per-view basis.

The relaxation of spectrum scarcity should decrease barriers to entry and therefore increase competition in the television market. The higher number of channels should increase programme differentiation. Some authors (for example Noam, 1998) think that commercial broadcasters would supply high quality programmes provided the numbers of channels is large enough. A market-based system cannot be expected to supply additional

public interest programmes, as they would not be profitable. There might be an incentive to supply some specialised categories with a high content of violence and pornography unlike conventional programming. For this reason regulation of digital TV still seems to be required.

Another important effect of DTT will be the reduced weight of the free-to-air model *vis-à-vis* pay-TV and pay-per-view models. The increase in the number of channels will reduce the average audience per channel and competition could reduce the price of TV advertising. Therefore we could expect profits of free-to-air broadcasters to decrease. Total expenditure by advertisers may well decrease as technology (for example personal video recorders) allows customers to record TV programmes and skip the advertising.

Another important factor that poses a threat to the free-to-air model built on the 30-second spot that fetches a premium at prime time is the changing policy of advertisers. Once an advertiser could reach most customers with an advertising spot aired simultaneously on the main free-on-air networks. Today this is much more difficult. In developed countries the mass market has atomised into market segments defined not only by demography, but by increasingly nuanced product preferences. The proliferation of digital and wireless communication channels allows advertising companies to reach specific market segments. It will be increasingly difficult for traditional networks to reach the same number of customers, when there is increasing audience segmentation among different platforms and channels.

The evolution from mass to micro-marketing will probably lead to a decline in the mass media's share of advertising. Online advertising could threaten the traditional advertising markets. The top portals could reach truly mass audiences; the Internet is expanding, and banner ads could reach a large number of specialised markets more easily than the old TV model. It is highly probable that the Internet will increase its share of media advertising expenditure, and commercial TV will decrease its share will decrease. Pay TV and pay-per-view are therefore possible alternative revenue streams for large TV networks. DTT with conditional access allows new methods of payment to see an event. Prepaid cards placed in the decoder could be used to see a single event (sport, films and so on) without the need to subscribe to specific channels.

In many markets the price mechanism plays the role of revealing information about consumer preferences. In the free to air model the absence of prices weakens the possibility to know precisely consumer preferences. Direct charging mechanisms (as in pay-TV and pay per view) allows more information about consumer valuations to be revealed and TV networks could broadcast programmes more tailored to consumer preferences.

DTT technology implementing pay-TV and pay per view decreases information asymmetry between broadcasters and customers.

DTT technology has features that could generate more efficient use of spectrum, decreases in concentration, increases in pluralism and the introduction of new innovative services. The question is whether market forces alone will bring such results.

To answer such questions we must examine two different aspects: concentration and programme differentiation, and pluralism and social objectives. Concentration and programme differentiation are economic problems. Pluralism and social objectives are political problems. Digital technology can increase competition without increasing pluralism or achieving more important social objectives. Because television is pervasive and powerful and has a large influence on economic and political preferences of its audience, public interest groups have argued that the television industry must remain regulated.

This chapter focuses on the economic aspects of TV regulation. It analyses whether digital TV will decrease concentration and increase programme differentiation with special reference to Italy. The transition strategy adopted to switch from analogue to digital TV is very important both for the success of the introduction of DTT, and for the strengthening of competition in the market. It will take a number of years to convert fully to DTT because today's television sets are not designed to receive digital signals. Therefore consumers must have an incentive to invest in new sets or decoders. In order to provide DTT service, while continuing to broadcast their analogue programmes, broadcasters may have to modify their transmission towers and construct new ones. Broadcasters must also invest to produce (or purchase) and distribute more digital programming. Such investments are necessary to encourage consumers to invest in upgrading their receivers or buy decoders. The diffusion of DTT can be seen as a chicken and egg problem. If the installed base of TV sets capable of receiving DTT signals is negligible, broadcasters have no incentives to invest to implement DTT. On the other hand, in the absence of content, consumers have no incentive to make investments to see DTT programmes. In this situation government intervention could be necessary to co-ordinate network operators, programmers, equipment manufacturers, and to give incentives to consumers to buy decoders or new receivers.

But there are other important policies that could affect market concentration:

- (a) the allocation of licences between incumbents and new entrants;
- (b) the method used to allocate licences;
- (c) the obligations imposed on broadcasters that acquire or purchase the licences;

- (d) obligations to surrender analogue frequencies;
- (e) the conditions for access to distribution networks; and
- (f) the conditions for access to premium content.

Governments could choose strategies that have a different mix of the above policies. Such strategies will be the result of economic and political pressure. Incumbents in the analogue TV market can be expected to fight to delay the introduction of digital TV or to dominate the new digital market. In the transition period new DTT services and current analogue programmes will be available simultaneously. Therefore the spectrum used for analogue transmission will be unavailable, and additional broadcast spectrum will be needed to introduce the new DTT services. Only at the end of the transition period will incumbents be required to surrender frequencies used for analogue transmission and only then might spectrum be available for new entrants.

If the allocation of licences is not designed to tilt the market in favour of new entrants and restrain dominant operators, the incumbents will preserve and eventually strengthen their position in the new digital market compared with the analogue. The incumbent operators benefit from key assets such as distribution infrastructure (towers, frequencies, and so on), content (sport and film rights, and so on.); their image is based on an historical presence in the market which could strengthen their market position in the transition period (when there is still spectrum scarcity) and make entry more difficult when additional frequencies are available.

This is what probably will happen in the Italian case. Digitisation will not necessarily produce convergence between Italy and other nations as national industries adopt new technologies.<sup>1</sup> Such convergence cannot be taken for granted, and strong political and economic pressure is required for it to be achieved.

## THE EVOLUTION OF REGULATION IN ITALY UP TO 1990

Italy is a country that until 1974 had no private or commercial television. Commercial television started in 1974 when the Constitutional Court delivered a judgment that a public monopoly of TV was not constitutional. In 1976 the Court delivered another judgment: public monopoly of TV was constitutional at national level but local TV channels were free to enter the market.

The government was also invited to regulate the spectrum assignment and the number of licences, but it never intervened, and spectrum

allocation was determined by private broadcasters. As a result the number of local TV channels greatly increased, and in 1981 another judgment by the Constitutional Court opened the national market to private broadcasters. During the 1980s there was no regulatory intervention to allocate spectrum and licences. As a consequence, the structural evolution of the industry was left to the market. In the first half of the 1980s the private RTL SPA group (later called FININVEST) controlled three national television channels, and was the only private broadcaster able to compete with the RAI, the public broadcaster. In Italy in this period, the only interest of government in TV regulation was the political control of public broadcasting. Political pluralism in public broadcasting was regulated by a Parliamentary Commission which showed control with opposition political parties.

The results of this policy of the Italian Government were:

1. a very high concentration of the TV sector, with only one private broadcaster competing with the public broadcaster (Table 5.1);
2. a very high number of local TV channels;
3. inefficiency in spectrum allocation (for example interference problems); and
4. no pay-TV broadcaster.

The fairly large number of national and local channels,<sup>2</sup> the large number of free channels, the high costs of cable distribution, and the inefficiency of the local authorities in giving approval regarding digging, construction and so on made the development of pay-TV unviable (on both cable and satellite platforms). This constituted a great difference with other countries that by 1980 had already experienced rapid development of satellite and cable distribution.

## ITALIAN BROADCASTING POLICY SINCE 1990

Italian broadcasting regulation changed at least formally after 1990. Until that year the market had been regulated by judgments of the Constitutional Court, without any active regulation by the Italian government. The Constitutional Court describes the situation of the Italian television market in this period as like the 'Wild West'.

In 1990 Law 223/90 was approved. Its intent was to regulate the Italian broadcasting market. It established media ownership limits that did not differ from those exhibited by the market structure in 1990. The number of channels any company could own was three.

Table 5.1 Market shares in the terrestrial analogue broadcasting sector

Broadcasters	Towers and frequencies <sup>b</sup> (%)		Population coverage 2002		Audience (%)		Advertising revenues (%)	
	1990	2002	Potential	Actual	1990	2002	1990	2002
RAI	38.9	45.8	99.1	96.6	50.5	44.9	29.7	27.69
MEDIASET	41.3	35.5	97.7	71.6	35.9	42.6	60.9	63.01
Telecom Italia (Cecchi Gori)	7.25	8.3	90.8	47.8	1.1	2.2	3.1	3.03
Holland Coordinator - TF1 (Tele+)	6.75	5.1	66.6	33.9	{12.5	{10.3	{6.30	{6.27
Fondo Convergence	2.64	2.1	83.5	28				
Gruppo Peruzzo Editore	1.06	1.3	80.3	34.3				
Telemarket	1.00	1.4	63.8	22				
TBS	1.10	0.5	51.1	13.5				
Total national broadcasters	100	100			100	100	100	100
Herfindahl index <sup>a</sup>	0.333	0.346			0.384 <sup>c</sup>	0.386 <sup>c</sup>	0.46 <sup>a</sup>	0.475 <sup>c</sup>

Notes:

<sup>a</sup> A Herfindahl index measures concentration on a scale from 0 (very large number of firms, each with a very small share) to 1 (a single monopoly firm only).

<sup>b</sup> Audience and advertising Herfindahl indices are based on share of the first three networks as we have no specific data for others.

<sup>c</sup> The first two columns measure the share of frequencies and towers used by each broadcaster as a percentage of total available spectrum and towers.

Source: AGCM and author's calculation

The law also fixed the total number of licences at national level (12). These limits allowed the main private (MEDIASET) and the public (RAI) broadcaster, to keep the number of channels they already had. There was no audience share rule, frequency share rule or advertising share rule. Therefore in 1990, RAI and MEDIASET shared the Italian broadcasting market. RAI, the public service broadcaster, had 38.9 per cent of the frequencies, 50.5 per cent of the audience and 29.7 per cent of advertising revenues: MEDIASET had 45.8 per cent of the frequencies, 35.9 per cent of the audience, and 60.9 per cent of advertising resources. The Herfindhal index for the Italian market was 0.333 in the case of frequencies, 0.384 for audiences, and 0.46 for the advertising market. The most peculiar aspect of the Italian broadcasting market is the very high concentration in the frequencies market. In a market typified by a limited spectrum, such as analogue broadcasting, a high concentration of frequencies creates high barriers to entry and reduces competition. This high rate of concentration in the frequencies was the result of the 1975–1990 period when frequency assignments was not regulated.<sup>3</sup> Furthermore, as the *Autorità Garante per la Concorrenza ed il Mercato* (AGCM), the Italian Antitrust Commission, has found (2004: 21), RAI had an excess of frequencies relative to its needs and probably the same is true for MEDIASET. This suggests that RAI and MEDIASET strategically bought frequencies in order to reduce the number of future entrants at a national level. Table 5.1 shows that RAI and MEDIASET competitors had, in 1990, only 19.8 per cent of total frequencies and probably an effective coverage of the total population of less than 40.5 per cent.

The high concentration of frequencies has led to a high concentration of audiences and of advertising revenues. Broadcasters sell their audience and part of their broadcasting time to advertisers. The larger the audience of a particular TV channel, the more attractive the channel is for advertisers, and the greater their willingness to pay for having advertising spots inserted in the programme mix selected by that channel. Table 5.1 shows that this strong correlation is found in the Italian television market, but that there is no direct proportionality between the audience and the advertising share. The public service broadcaster, RAI, had a much lower share of advertising than its share of audience, since there are restrictions on advertising imposed on a public broadcaster than on private ones.<sup>4</sup> On the other hand the very small private companies, serving local markets, had lower advertising market shares than their audience shares, since they were not attractive to the large advertising companies. In contrast MEDIASET and the other, quite small, national broadcaster Cecchi Gori, had a higher share of the advertising market in 1990 than of the audience market.

A new law, 240/97, was approved in 1997, under the centre-left government. Its purpose was to increase competition in the Italian television



market. Law 240 reduced ownership limits imposed on a single company. The main effect of the law, given the availability of 12 channels, was to reduce from three to two the maximum number of channels that a single company could broadcast. The private broadcaster MEDIASET was affected since it owned three channels.

Law 240 fixed the ownership threshold at a share of 30 per cent of the advertising market for a given sector (television, radio, newspaper industry) or 20 per cent of total advertising revenues of television, radio and newspapers combined if there were media's cross-ownership.

Law 240 was the basis of regulation of the broadcasting industry made by the Italian Communications Regulatory Authority (AGCOM) until 2004 (including Resolution 78 of 1998 on terrestrial analogue licences, and Resolution 435 of 2001 on digital terrestrial broadcasting). However it was never really implemented for judicial and political reasons; Silvio Berlusconi, the head of the opposition till 2001, and subsequently head of the Italian government, was the owner of MEDIASET.

Thus if we compare the structure of analogue television industry in 1990 with that in 2002 we see no decrease in the rate of concentration. There was in fact an increase in the Herfindhal index for frequencies, audience and advertising. The largest increase (from 0.46 to 0.475) was in the advertising market whose index increased. The public broadcaster RAI, the second private broadcaster Telecom, and local broadcasters had falling shares of the advertising market; only the private broadcaster MEDIASET increased its share. Probably this was due to MEDIASET's good performance in gaining audiences: its share increased from 35.9 per cent in 1990 to 42.6 per cent in 2002. In Italy unlike other European countries, the weight in the terrestrial analogue market of the two main broadcasters, RAI and MEDIASET, is not challenged by other platforms. Cable TV is represented by a small company FASTWEB, with less than 200 000 subscribers. There is stiffer competition for audiences coming from the digital satellite platform. The significance of this platform (see the following section) has increased in recent years but it is still too small to challenge the oligopoly in the terrestrial analogue market.

## **PROBLEMS AND OBSTACLES TO THE DEVELOPMENT OF THE PAY-TV MARKET IN ITALY**

The pay-TV market in Italy started in 1994, when Telepiù, belonging to the French group Canal Plus, began to broadcast analogue satellite pay-TV. Development of pay-TV has been highly dependent on access to live rights to soccer and other sports. Initially subscribers could see a 'live' football

match on Sunday evening. In 1997 Telepiù went digital. Thus it had the ability to broadcast soccer matches simultaneously. Live sports rights became the key to the success of digital pay-TV, as only subscribers could see key sport events. Since Telepiù could pass its programming costs on to a self-selected audience, it was able to make a higher bid than free-to-air broadcasters for sports rights, thereby increasing the incentives for dedicated fans to subscribe to its services.<sup>5</sup> In 1998 Stream, a company created in 1993 by Stet SPA, a state-run company, to offer interactive media services (video on demand, pay per view, and so on), entered the digital pay-TV market. Until 1997 Stream had been controlled by Telecom Italia owned by Stet; and Laws 223/90 and 224/97 did not allow a public sector company, other than RAI, to broadcast its own programmes. Therefore Stream was a service provider that carried on cable the signal for channels and programmes produced by third parties. In 1998 Telecom was privatised and therefore Stream, initially a cable company, had the possibility to offer a pay-TV service, or both with satellite and cable platforms. In 1999 News Corporation became a minority shareholder (17 per cent) of Stream.

The entry of Stream on to the pay-TV market led to a bidding war with Telepiù for sports rights. In order to protect the weaker company (Stream) from being excluded from broadcasting the main soccer events, the regulator restricted to 60 per cent the share of exclusive live rights to Serie A (Premier League) soccer matches that a single company could acquire (Law 78/1999). Therefore Telepiù and Stream shared the sport-rights market, Telepiù having the exclusive live rights of northern Italian clubs (whose audience was distributed throughout Italy) – Juventus, Milan and Inter – and Stream having the rights on popular clubs, though with fewer fans, such as Parma, Fiorentina, Roma and Lazio. The competition for football rights increased their prices steadily. The estimated prices paid for football rights in Italy rose five fold between 1998/1999 and 1999/2000.<sup>6</sup> After that period the increase was much lower (8.5 per cent between 1999/2000 and 2000/2001). In this period we do not find a similar increase in the number of subscribers and revenues of pay-TV companies.

The growth of subscribers accelerated from 20 per cent in 1997 to 29 per cent in 1998, and to 52 per cent in 1999. In 1999 the number of subscribers was 1.7 million (Table 5.2). The reason that the number of subscribers was much lower than in other countries were competition in a free-to-air sector that offered a large choice of channels, even if the quality was not very high, and the widespread diffusion of pirated cards for decoders.

On the other hand, competition between Stream and Telepiù did not allow a substantial increase in the subscription price. Hence the increase in costs of sports rights had a negative impact on the profits of pay-TV companies. In 2000 Stream had an average revenue per subscriber of 158.3 euros; the cost

*Table 5.2 The number of subscribers to pay-TV in Italy*

Companies	1996	1997	1998	1999	2000
Tele + <sup>a</sup>	770 173	927 181	1 113 792	1 354 876	1 557 991
Stream	–	–	89 373	385 640	668 568
Total	770 173	927 181	1 203 142	1 740 516	2 226 559

*Note:* <sup>a</sup> The TELE+ subscribers for 1997, 1998 and 1999 include cable subscribers who numbered 2180 in 1997, 3141 in 1998 and at 30/9/99, 3508.

*Source:* AGCM, case No. 8386, Stream-Telepiù, and case No. 10716 Group Canal-Stream.

*Table 5.3 Estimated value of sports rights (millions of euros) (soccer and other sports)*

	2000	2001	2002	2003	Value of rights purchased per subscriber
Germany	1105	1235	1470	1300	35.8
United Kingdom	1035	1145	1345	1180	48.16
Italy	670	720	830	725	33.72
France	535	580	655	570	23.17
Spain	325	350	390	340	25.35

*Source:* AGCOM Report 2003 p. 73. The value of rights per subscriber was computed by dividing the value of sports rights by the number of households with TV.

of sports rights per subscriber was 307 euros. Stream's losses were 359.9 million euros in 2000 and 484.6 in 2001. Telepiù had an average revenue per subscriber of 348.7 euros and an average cost of sport rights per subscriber equal to 198.4. Telepiù's losses were 429.9 million euros in 2000 and 344.5 million in 2001. As most pay-TV costs are fixed costs, a small number of subscribers does not allow companies to recover costs.

It is very likely that the cause of financial difficulties of pay-TV companies in Italy was the limited size of the market rather than the cost of sport rights. We do not have data on sports rights costs only for Pay TV but we know (Table 5.3) that the value of sports rights for the total TV sector in Italy, on a per subscriber basis, is about average of that of other European countries.

Telepiù's and Stream's financial difficulties pushed the former in 2002 to buy Stream. A reduction of competition and increase in the number of

subscribers were seen as a possible remedy to Telepiù's financial problems. This acquisition was allowed by the Italian antitrust authority (AGCM) in 2002. The AGCM placed some obligations on Telepiù to reduce the possibility that the broadcaster could exploit its monopoly position in the pay-TV market. In 2002 negotiations began, between Sky and Canal Plus, for the acquisition of Telepiù. The transaction was settled in April 2003. Sky was obliged by AGCM and by the EU Commission to give other operators access to its platform and to its content. The access price was based on retail minus principle.<sup>7</sup> Sky was also obliged to waive exclusive rights on football matches and films on platforms others than Direct to Home (DTH). The aim of this obligation was to ensure that sporting events, one of the key drivers of digital pay-TV television, would not be available exclusively.

The entry of Sky on the pay TV market affected the number of subscribers and the subscription price. Revenue per subscriber increased by 20 per cent in 2003 over 2002, and the number of subscribers increased by 11 per cent over 2001. Therefore Sky revenues increased by 33 per cent in 2003 over 2001. In 2004 the number of subscribers to Sky increased and by the end of November it reached 2.7 million. In the meantime in Italy, as in other European countries, there was a decrease in the price of sports TV rights that benefited Sky's balance sheet.

The entry of Sky led to a monopoly in the pay-TV market but strengthened competition across the whole Italian TV market as a whole. Negotiations for access to content began with the cable operator Fastweb and for access to the platform with the sports producer Gioco Calcio (an association of football teams). These two parties were quite weak<sup>8</sup> and therefore their impact on the structure of the pay-TV industry was negligible.

With the introduction of DTT in 2004, stronger competitors – MEDIASET and TV7 – entered the pay-per-view market. For 110 million euros MEDIASET bought exclusive DTT rights to cover the soccer matches of Juventus, AC Milan and Inter (the teams with the largest following in *Serie A*) for the next three years. For 32 million euros TV7 bought exclusive DTT rights to cover the soccer matches of central and southern Italian teams (Fiorentina, Roma, Bologna, and so on). These prices are much lower than those paid by Sky to football clubs for exclusive DTH rights – 400 million euros for one year. The lower prices allow MEDIASET and TV7 to sell prepaid cards at a very reasonable price (three euros per MEDIASET event and two euros for TV7).<sup>9</sup>

In the short run the impact of the entry of this new competitor in the pay-per-view market is surely positive, since it allows consumers who are not Sky subscribers to see events that they would not otherwise see. Total welfare increases because a larger market is served. In the long run, if the effect of MEDIASET's entry in the pay-per-view market is to decrease the growth

rate of subscribers to Sky, the effect on competition between platforms will not necessarily be positive. In Italy, competition between platforms is much weaker than in other industrialised countries and hence events that weaken such competition are not positive. This point will be analysed in the sections below in the context of the effect of digitalisation on competition in the Italian TV market.

## ITALY'S TRANSITION STRATEGY AND FREQUENCY ASSIGNMENT POLICY

Governments have adopted different transition strategies from analogue to digital terrestrial TV that vary considerably in their priorities, instruments and timing. Such policies create different rules of the game for the reorganisation of the sector. One of the most important aspects of these policies is the question of licensing. In the United States the US Congress authorised the distribution of additional broadcast spectrum to each TV broadcaster so that the new DTT service could be introduced while simultaneously continuing with current analogue broadcasts. In Britain only the BBC received sole control of a DTT multiplex. The other incumbents were instead forced to share capacity on two other multiplexes. Room was also made for licensing new operators. The US strategy made a clear choice to guarantee the survival of free local TV, privileging incumbent local stations in the allocation of DTT licences. The goal has been to extend the organisation of the industry around small local oligopolies in the digital era. In Britain the strategy was designed to change the structure of the industry in favour of new entrants and restrain dominant operators. In Italy the strategy has privileged continuity over reform. The transition strategy adopted is such that the industry's structure in analogue TV will not change in the digital world. Migration from analogue to digital will be led by the two main market incumbents despite the cost in terms of forgone spectrum efficiencies and media access.

Italian governments have often stated that the switch from analogue to digital TV will increase the number of channels at regional and national level. This is true if we consider the number of licences that will be allocated at the end of the transition period, which is scheduled for the year 2006.<sup>10</sup> The Italian frequencies Plan (statement of AGCOM no. 15/03/CONS) has resolved on 18 multiplexes for the digital TV services, twelve SFNs (single frequency networks) and six MFNs (multi-frequency networks) that allow regional variations. Each multiplex could carry at least three digital channels of the same quality and coverage as the current analogue channels. Thus, at the end of the transition period it will be possible to have at least

54 channels with a coverage of 80 per cent of the territory and 90 per cent of the population. These channels will use much less spectrum than used by analogue channels. At the end of the transition period competition in the TV digital sector will no longer be restrained by spectrum scarcity.

There are two large obstacles that must be overcome to attain true competition for TV digital services. The first is that, as shown, in Table 5.1, the two main incumbents (RAI and MEDIASET) have 80 per cent of the towers and frequencies in the Italian analogue market. These two companies, when the switch to digital is complete, will need between 10 and 20 per cent of such frequencies to provide the same number and quality of programmes with DTT as they broadcast today. Therefore MEDIASET and RAI should surrender frequencies, although past experience shows that Italian governments have been ineffective at obtaining the surrender of frequencies when the law required it (that is Law 249/97). The second obstacle is the strategy adopted by Italy to implement digital TV. The 1998 frequencies plan approved by AGCOM freed up four frequencies to launch four digital terrestrial channels that would allow nationwide coverage. However, a different strategy was chosen with the creation of *network* providers that are in charge of the multiplexes.

Multiplexes were offered to applicants who could obtain the licence to be a network provider, but no broadcast spectrum was allocated to them. Therefore the network provider could use frequencies already owned, if it were an existing terrestrial broadcaster, or it could buy frequencies on the market. Most of the frequencies available on the market were those owned by the hundreds of local TV channels, many of which had financial difficulties. They found it more profitable to sell towers and frequencies than to make investments to implement digital TV on the local market. Existing terrestrial broadcasting also needed to buy frequencies to introduce the new DTT service while simultaneously continuing with their current analogue broadcasts. The lack of a plan in 1975–1990 to assign frequencies to users has resulted in a highly inefficient allocation of the spectrum (with interference problems) that continues today. In some sites existing terrestrial broadcasters have excess capacity and have no need to buy frequencies to offer both the new DTT service and analogue programmes. Act no. 13137 of the Italian antitrust (AGCM) hypothesised that RAI, with 90 plants and frequencies in excess of the needs<sup>11</sup> could offer a potential coverage of digital services to 74 per cent of the population. RAI with another 459 plants in excess could offer effective coverage of 70 per cent of the population. However, the same Act responded favourably to the purchase of extra plant and frequencies by the RAI. A similar hypothesis of excess capacity was made in respect of MEDIASET, but in this case too AGCM authorised the acquisition of new frequencies and towers. The problem is that in some

*Table 5.4 Degree of coverage and market structure of TV platforms in 2004 in Italy*

Platform	Coverage	Market structure
Terrestrial analogue	>99% of the population	Collective dominance by two oligopolists
Satellite analogue	100% of the population (theoretical)	Monopoly
Satellite digital	Large metropolitan areas	Monopoly
Cable	In theory, 80% of telephone lines	Monopoly
ADSL		Dominant oligopoly with a market share higher than 80%
DTT	>50% of the population	Four groups own five multiplexes

places there is no excess capacity and even large broadcasters must buy frequencies to cover them.

To date, five DTT multiplexes have been licensed, all to existing terrestrial broadcasters: the RAI has two multiplexes, MEDIASET has one, Telecom Italia has one, and Holland Co-ordinator, which has financial links with MEDIASET, also obtained one. The government hypothesis is that by 2006 there will be four or five multiplexes that will cover 70 or 80 per cent of households. The first goal of Law 112/04 has already been reached: by the end of 2004 the DTT RAI trials had covered 50 per cent of the population. One of the RAI multiplexes will allow national coverage without regional variation (SFN). Obviously, the Italian government strategy does not encourage the entry of new competitors on the network providers market, as Table 5.4 shows.

## ITALY'S REGULATORY RESPONSE TO VERTICAL INTEGRATION IN THE DTT MARKET

Law 66/2001 and the subsequent media laws tried to shape the market structure of the DTT television industry (see Art. 5 of Law 112/2004). The laws identify three kinds of TV operators: the network provider, the content provider and the operator that provides administrative and technical services for digital TV including conditional access and a subscription

management system. There is a need of different licences to operate in cable, satellite, DTT platforms. Furthermore in DTT platform there is a need of a licence for each stage of the TV vertical chain. In the two other platforms, cable and satellite is enough for only one licence. The network provider owns the network infrastructure and supplies broadcast transmission capacity. The content provider ensures the provision of programmes.

Granting a licence does not imply an assignment of frequencies, which AGCOM will do by a different administrative act. The previous section explained how frequencies are actually assigned. At least in the transition period, the chances of a newcomer operating as a network provider are very low due to spectrum scarcity. Hence the market for the DTT platform downstream of network providers will be dominated by few firms: the incumbents in the TV analogue market. Two of these companies, RAI and MEDIASET, already dominate this market. Theory suggests that vertical integration may be used to facilitate the strategic practice of exclusionary behaviour. An integrated firm could deny a rival access to necessary inputs for the purpose of gaining or maintaining monopoly power. Vertical integration can raise prices of intermediate and final goods and harm consumer welfare. In programming and distribution in the TV industry, vertical integration could have these effects. Law 112/2004 implicitly recognises the possibility of the practice of market foreclosure and obliges network providers to fulfil the following requirements:

- (a) network providers must provide open access to their platform on fair, reasonable and non-discriminatory terms;
- (b) network providers using a digital terrestrial platform are required to offer 40 per cent of their capacity to companies not owned by the owner of the network provider;
- (c) network providers integrated upstream in the production and programming of contents (where the network provider and content provider are vertically integrated) must establish separate companies, even if they could continue to have the same ownership. This requirement does not hold for cable and satellite TV companies.

Furthermore, Law 112/2004 requires that all companies in the digital communication TV services industry have separate accounting for the different services they produce.

Requirements for companies that are only in the upstream market (the provision and production of content) are weaker than those for companies in the downstream market. Content providers are required to offer access to content at market prices and non-discriminatory terms (art. 5f). This requirement does not apply if the rights are exclusive.



The above requirements increase transparency and could allow the regulator and the antitrust authority to improve their ability to verify the existence of anticompetitive practices (exorbitant final and access prices, discrimination against an upstream company, and so on). On the other hand, Law 112 allows vertical integration between programming and distribution. We could expect vertically integrated firms to follow the strategic practice of market foreclosure. Chipty (2001) examines the vertical relationship between programming and distribution in the US cable TV industry.<sup>12</sup> The paper provides systematic evidence that integration does result in some degree of market foreclosure.

Hence the above obligations do not seem adequate to ensure development, in Italy, of a competitive DTT market. They are weaker than those imposed on incumbents in the telecommunications sector. Only the obligation on vertically integrated firms to establish two different companies for upstream and downstream markets is not applied to dominant telecommunications operators.

In Italy there are two vertically integrated companies RAI and MEDIASET that are dominant in the analogue TV market. In the transition period, extra spectrum is not available for new competitors, and infrastructures used in the analogue market could be used to become a network provider, with a modest amount of investment. The two companies also have enough money to develop new content for the digital market. We could expect these two companies to use their dominant position in the analogue TV service market, and in the network provider digital market, to seek to exclude new content providers.

However, Laws 66 and 112 state that each network provider must assign 40 per cent of its capacity for DTT trial to other broadcasters. This rule, according to the Italian government, will allow an increase in competition in the content providers' market. This rule cannot be substantially enforced when a company has strong commercial links with other companies in the national and international TV market. Two MEDIASET channels are broadcast in the digital trial by the network provider Holland Co-ordinator. The antitrust authority (AGCM) in a recent act (No. 13770, 16 November 2004) observed that a large obstacle to competition in the TV advertising market is the great influence of Fininvest on the other private incumbents Telecom Italia and Holland Co-ordinator.

Our conclusion is that the Italian media laws are inadequate to increase competition in the digital service markets. The goal of achieving a genuinely competitive market can be achieved only with ownership separation between network and content providers at least for digital terrestrial television. Theory suggests that vertical integration may have a number of efficiency-improving effects that ultimately lower prices, improve product quality and

increase consumer welfare (vertical integration increases information and reduces transaction costs, eliminates double marginalisation, internalises service and quality externalities),<sup>13</sup> but in the Italian case the negative exclusionary effect will outweigh the efficiency effects.

The recent acquisition by MEDIASET of the exclusive rights on DTT to cover the soccer matches of Juventus, Milan and Inter (the teams with the largest following in *Serie A*) for the next three years will further decrease the opportunity to have a genuine competition in terrestrial TV in the future. Only ownership separation between network provider and content provider can reduce incentives for exclusionary behaviour and allow genuine competition in the content market.

## THE REFORM OF MEDIA OWNERSHIP RULES

The new media law 112/2004 changed the media ownership rules of Law 249/77 in a direction much more favourable direction to the main private incumbent MEDIASET. The key political significance of the change in rules established by law 112 is that regulations have been calibrated to prevent both RAI and MEDIASET being charged with passing the 30 per cent limit of Law 249/97. The Italian antitrust has already started investigations against RAI and MEDIASET for passing the limit.

The old limit prohibiting any company from owning more than 20 per cent of total national networks, with a maximum of two, is replaced with the rule prohibiting a company from owning more than 20 per cent of total programmes broadcast by the digital terrestrial platform.<sup>14</sup> This limit will come into effect when the frequency assignment plan is accomplished. The number of broadcast programmes when the plan is achieved will be higher than 36. Thus the limit of channels that a company will be able to broadcast will be at least seven. Today Rai and MEDIASET each own three channels.

However, until the plan is implemented, there is another ownership limit that replaces the Law 249 threshold of 30 per cent of market share of total revenues of the sector to which the broadcaster (terrestrial, cable, satellite) belongs. The new ownership limit is 20 per cent of total value of SIC (integrated communication system) sector. This sector is the sum of the following subsectors: press, trade directories, radio-television, movies, other advertising, sponsorship, and so on.

The total value of the SIC sector was about 26 billion euros in 2003. Twenty per cent of this value is 5200 million euros; the total TV advertising market was about 4123 million euros, and the total TV market was about 6165 million euros. A TV operator could be a monopolist in the TV advertising

monopoly and still not exceed the 20 per cent limit of SIC value. It could also have more than 85 per cent of the total private TV market and not exceed the limit of 20 per cent of total SIC revenues. Such possibilities are made difficult by a more flexible rule, that does not allow the establishment of dominance in any of the submarkets that are part of the SIC.<sup>15</sup>

Law 112/2004 repeals the parts of Law 249/97 that establish antitrust boundaries but states that the establishment of dominance is not allowed in SIC and in any of the submarkets that are part of the SIC. It defers the implementation of the rule to European competition law. Competition law does not prohibit dominance in itself, but prevents abuse of dominance; Law 112 prohibits dominance in itself in SIC markets. The criteria to assess dominance are those set by European Competition law.

The European Commission's definition of dominance (EC, 2002) denies (section 3.1/75) that a share of 25 per cent must result in dominance; a share higher than 50 per cent yields a rebuttable presumption dominance and a share around 40 per cent makes dominance quite likely.<sup>16</sup> In this last case, proof of a dominant position must be supplemented by other structural factors. Law 112/04 specifies such factors: level of barriers to entry, degree of competition in the television market, degree of efficiency of the firm, and other indices concerning the diffusion of TV programmes, of media products, movies, and so on. Table 5.5 shows that RAI and MEDIASET had a market share in the total TV sector, in the last three years, higher than 30 per cent and lower than 40 per cent. Thus, if one considers the total television market (one of the SIC subsectors) market share, in the Commission's decision making practice, gives no evidence of a single dominant position must be proved. Therefore the proof of a dominant position

*Table 5.5 Broadcasters' market shares of the total Italian television market (%)*

	2001	2002	2003
RAI	42.2	41.8	39.5
RTI(MEDIASET)	34.9	34.0	34.3
Telepiù	11.8	12.8	6.8 <sup>a</sup>
Stream/Sky Italia	3.8	4.4	12.2
Network 7 (Telecom)	1.4	1.3	1.6
Others	5.9	5.8	5.5

*Note:* <sup>a</sup> The Telepiù data refer only to the first half of 2003.

*Source:* AGCOM, Act No. 326/04/CONS.

by Mediaset and RAI must be supplemented by other structural factors. On the other hand a possible and, I think, correct interpretation of Law 112 is that dominance must be computed with reference to relevant markets as defined by antitrust commissions. Traditionally the national antitrust authority and the EU Commission have segmented the TV sector into different relevant markets. In case No. COMP/JV.37-21/03/2000 – BSKYB/Kirch Pay TV, the Commission states (paragraph 25), ‘The fact that subscribers are prepared to pay considerable sums for pay-TV indicates that the latter is a distinguishable product with specific utility’. If we exclude pay TV revenues from total revenues of the TV sector the market share of the RAI is 47.6 per cent and that of MEDIASET 41.3 per cent. On the other hand if we consider only the TV advertising market the share of MEDIASET in 2003 was 64.4 per cent. Furthermore such share has increased over time. Therefore MEDIASET share give evidence of a dominant position. The share of RAI is 28.5 per cent and therefore there is also a clear evidence of collective dominance<sup>17</sup> by RAI and MEDIASET.

Law 112, from one angle, goes back to the concept of dominance in European competition law, but is ambiguous in following the approach of the European Commission in defining the relevant market on which dominance is computed. On the other hand, Law 112 does not take account that the concept of dominance could include collective dominance. A recent lawsuit clarified that the expression ‘one or more undertakings’ in Article 82 of the EC Treaty means that a dominant position may be held by two or more economic entities which are legally and economic independent of each other (Papadias, 2004). In theory, this interpretation could allow the actual structure of Italian TV sector to change. In practice a finding of collective dominance is quite difficult to prove.<sup>18</sup> The conclusion of this section is that, with Law 112, the Italian government has given up any attempt to regulate media ownership.

## THE ROLE OF THE PUBLIC BROADCASTER IN THE DIGITAL ERA

The relaxation of spectrum scarcity does not necessarily ensure that programmes that are beneficial for society as whole will be offered, if they are undervalued by individuals or generate external benefit. A public broadcaster could provide them. The question is whether the public broadcaster should also offer commercial programmes funded with advertising, rather than solely education and information programmes funded by licence fees. In Italy this latter model has been followed with results that were not considered satisfactory by the Antitrust commission.<sup>19</sup> Programme diversity

was too low, with the public broadcaster duplicating commercial programmes rather than serving special interest groups. The quality of programming was low.

The excess of capacity in frequencies and plants has been one of the causes that has blocked entry and has allowed the formation of a duopoly in Italy.

AGCM also found collusive behaviour between the public broadcaster RAI and MEDIASET. A different model with the RAI financed only by licence fees, broadcasting only two channels and freeing up parts of the broadcast spectrum to increase the number of competitors might have been a much more efficient choice from a welfare point of view.

Law 112 does not change the organisational model of public broadcasters and introduces a further complication: partial privatisation of the RAI. There is a contradiction between the claim of the Italian government that digital TV is a great opportunity for Italy which facilitates convergence of the existing communications infrastructures (broadcasting, telecommunications and computer technology) and enhances competition across services and platforms, and its defence of the role of the public broadcaster. Government regulation of terrestrial television was generally premised on the notion that the natural limitation of the electromagnetic spectrum required careful government scrutiny of broadcasting in order to ensure that this public resource was used to the benefit of all. By using the spectrum more efficiently, digitalisation relaxes spectrum constraints on the number of channels. Thus digital technology has revived questions about the legitimate role of the state in regulating terrestrial broadcasting.<sup>20</sup> Many social scientists think a market-based system will not work fully to supply public interest programmes, and therefore there is ample room for public TV. Such programmes must continue to be financed by licence fees, but there is no need for public TV to finance commercial programmes with advertising resources. Digitalisation reduces, rather than increases, the need for the public operator to broadcast commercial programmes. This is not the approach of Law 112, which divides the public operator into two divisions, one that will supply commercial programmes and will be financed by advertising and subscription, and one that will offer public interest programmes and will be financed by licence fees. The divisions will have separate budgets as Law 112 forbids use of resources from licence fees to fund commercial programmes. AGCOM will monitor the public broadcaster's actions.<sup>21</sup> This solution is not very efficient. We have shown elsewhere (Del Monte, 2004), analysing configurations of viewer preferences, that a DTT is not necessarily a solution to market failure in the TV market and that a public broadcaster could be required to satisfy specific programme types. On the other hand we have shown that it is not efficient for a public broadcaster to produce commercial TV. The only effect of the entry of a public

broadcaster into commercial TV is to duplicate programme types and therefore decrease total welfare.

A further important aspect of the Italian broadcast reform is the partial privatisation of RAI. Partial privatisation will allow a reduction in the public deficit without central government losing control of the RAI. The most probable scenario is the issue on the market of 30 per cent of the shares of the RAI, but Law 112 places a limit on the maximum number of shares that any private shareholder can own at no more than 1 per cent. Agreements between private shareholders on the election of the members of the boards of directors are also forbidden. The total number of seats is nine: three are elected by private shareholders, four by the Italian parliament, and two by central government (through the Treasury). This distribution of seats allows the parliamentary majority easily to retain control of the RAI.

The effects of the new public governance arrangements of the RAI on total welfare could also be studied starting from the results of the literature on mixed markets. One of the results of this literature is that the effect of such a market structure on total welfare will depend very much on the objective function and on the behaviour of the public firm. The literature assumes that public firms maximise social welfare (the sum of consumer surplus and profits made by the firm) while private firms maximise their own profits. De Fraja and De Bono (1989) show that, in the context of a quantity – setting oligopoly, welfare may be higher when a public firm is a profit maximiser rather than a welfare maximiser. Thus privatisation of a public firm may improve welfare even without improving the efficiency of the public firm. If on the other hand public firms maximise social welfare the best result is reached, in terms of total welfare, when there is Stackelberg competition and the public firm maximise the welfare as a Stackelberg leader. The behaviour of the RAI and MEDIASET on the Italian TV market have been more that of tacit collusion than Cournot competition.<sup>22</sup> Only in this last case is it possible to show (Baraldi, 2003) that partial privatisation increases total welfare. In this case the public company will maximise a weighted average of welfare and profits. The only possibility that the new corporate governance of the RAI will lead to an increase in public welfare, following the mixed markets literature, is that unlike in the past the RAI and MEDIASET will compete and not collude.

Thus, on the basis of the theoretical literature on mixed markets and an analysis of meeting consumer preference, and in light of the past behaviour of the RAI and MEDIASET, the choice of the Italian government on the strategic role and corporate governance of the RAI will not improve welfare.

## CONCLUSIONS

Our conclusion is that the future of digital television in Italy will be decided by politics rather than technology. The Italian media laws are not capable of increasing competition in the digital service markets. The goal of a genuinely competitive market can be achieved only with structural regulation. The main focuses of structural regulation policy have to be:

- (a) ownership separation between network and content providers, at least for digital terrestrial television;
- (b) reassignment of frequencies to network providers in such a way as to increase entry;
- (c) complete privatisation of the commercial part of the RAI.

Without such interventions the classic rules of conduct regulation (mandatory access to networks and content, and so on) will be unable to foster competition at least in the DTT market. Rules of conduct may be adequate in a country where there is competition between platforms. Unfortunately the limited diffusion in Italy of platforms competitive with DTT makes such rules inadequate.

In other countries the existence of established cable and satellite networks facilitate the transition to DTT, since it becomes necessary for only a minority of the population to migrate to DTT. In Italy where analogue terrestrial broadcasting is still predominant, the switchover process is very complex, involving the replacement or upgrading of millions of TV receivers and the replanning of thousands of transmitters. Without structural regulation the transition to digital, if the switch date of 2006 is to be respected, will greatly penalise consumers in terms of investment and subscription costs without substantial advantages for new and better services. The alternative, more in the tradition of Italian TV policy, will be to postpone the switch date without substantial change in the structure of the TV industry.

## NOTES

1. Pressure from the European Commission is not likely to have a great effect on the structure of the Italian TV industry. Thus Levy (1999) shows that the analogue model of regulation adopted in France, Germany and England has not been very greatly affected by EU level broadcasting regulations.
2. The Final Report of the Working Group on and Digital Territorial Television in EPRA countries shows that in 2003 Italy had, 520 local terrestrial channels, Germany 50, the UK 19, Sweden 0, Holland 115 and Finland 3.
3. Another major problem of the Italian television market was that while theoretically 12 licences were granted at national level, but some companies could not broadcast, because

they did not have the frequencies required. Europa 7 is one of the companies that had the licence but was unable to obtain frequencies at national level since they were occupied by MEDIASET's Channel 4.

4. Law 223, as all subsequent laws regulating the broadcasting industry in Italy, followed the policy of imposing much tighter limits on advertising on the public than on private broadcasters.
5. Surveys show that in Italy the audience of pay TV is different from that of free-to-air audience. The high income class represents 56.3 per cent of the total pay-TV audience, and 37.7 per cent of the total TV audience.
6. Phillips Global Media.
7. Case N. Comp/ M. 2876- Newscorp-Telepiù 2/04/2003. The main obligations imposed by the EU Commission were:
  - Sky platform must grant all interested third party operators access under fair, transparent, non-discriminatory and cost-oriented conditions.
  - Sky will keep separate financial accounts regarding its activities as a provider of technical services for each technical service separately.
  - Access to Sky content to all interested third parties, at a fair reasonable and non-discriminating basis, with a price based on retail minus-principle.
  - Sky could bid for exclusive film and sports rights only on DTH platforms.
  - Sky must waive exclusive rights on films and football matches on platforms other than DTH.
  - Sky must offer Premium channels on a non-exclusive, non-discriminatory and unbundled basis, based on retail minus principle to third parties that could distribute such programmes on platforms other than DTH.
  - Sky must forgo entry in the DTT market.
8. The cable TV sector is not well developed in Italy. Fastweb has an optical-fibre network in Milan and Rome and it is expanding its infrastructure to other cities, but its coverage is still limited. In June 2004 it had 151 000 TV subscribers. Fastweb is also a Telecom operator and is able to offer TV, broadband services and telephone services.
9. With one million DTT decoders sold, and about 700 000 prepaid cards sold by MEDIASET and TV7, the pay-per-view market is still small.
10. Italy and Finland are the EU countries that have the earliest analogue switching date: 2006. But there is some doubt that Italy will be able to fulfil this timetable.
11. RAI could cover the same share of population and could offer the same quality of analogue services with less spectrum relative to the total it uses now.
12. The Cable industry is divided into a large number of distinct local markets, and cable operators sell to consumers normally in an exclusive franchise area.
13. For a discussion of these effects see Perry (1989).
14. The 20 per cent limit is lowered to 10 per cent for firms belonging to the telecommunication sector that command more than 40 per cent of telecommunication revenues. Only one firm in the telecommunications market has such share, Telecom.
15. Law 112 proscribes until the year 2010 the acquisition or the start-up of newspapers by TV broadcasters that own more than one channel at a national level.
16. The monitoring of the existence of dominance in SIC and in the single submarkets is entrusted by Law 112 to the AGCOM.
17. 'Indagine conoscitiva sul settore televisivo: la raccolta pubblicitaria', p. 50, AGCM, November 2003.
18. In the Italian case such proof is not so hard to seek: the head of the government which controls the public broadcaster is also the owner of MEDIASET.
19. *Indagine conoscitiva sulla raccolta pubblicitaria*, AGCM, November 2004.
20. Armstrong and Weeds (2004) provides an exhaustive analysis of the role of public service broadcasting in the digital world.
21. Armstrong and Weeds (2004) provide an exhaustive analysis of the role of public service broadcasting in the digital world.
22. See op. cit. in Note 17.



## REFERENCES

- Armstrong M. and H. Weeds (2004) 'Public service broadcasting in the digital world', mimeo, University of Essex.
- Baraldi L. (2003) 'Privatization and mixed oligopoly: the case of telecommunications', *Studi Economici*, **80**, 123–149.
- Barnett H. J. and E. Greenberg (1971) 'TV-programme diversity-new evidence and old theories', *American Economic Review*, **61**, 89–93.
- Cave M. (1997) 'Regulating digital television in a convergent world', *Telecommunication Policy*, **21**(7), 575–596.
- Cave M. and C. Cowie (1998) 'Not only conditional access: towards a better regulatory approach to digital TV', *Communications & Strategies*, **30**(2nd quarter), 77–101.
- Chipty T. (2001) 'Vertical integration, market foreclosure, and consumer welfare in the cable television industry', *American Economic Review*, **91**(3), 428–454.
- De Fraja G. and F. Del Bono (1989) 'Alternative strategies of a public enterprise in oligopoly', *Oxford Economic Papers*, **41**, 302–331.
- Del Monte, A. (2004) 'Switching from analogue to digital television in a circular city model', mimeo, University of Naples.
- Doyle C. (1998) 'Programming in a competitive broadcasting market: entry welfare and regulation', *Information Economic and Policy*, **10**(1), 23–40.
- EC (2002) 'Commission guidelines on market analysis and the assessment of significant market power under the community regulatory framework for electronic communications network and services', Document 2002/c165/03.
- Gabszewicz J., D. Laussel and N. Sonnac (2001) 'TV-broadcasting competition and advertising', Working Paper from Catholique de Louvain-Center for Operations Research and Economics, May.
- Galperin H. (2004) *New Television, Old Politics*, Cambridge: Cambridge University Press.
- Levy D. A. (1999) *Europe's Digital revolution: Broadcasting regulation, the EU and the Nation State*, London & New York: Routledge.
- Noam E. M. (1998) 'Public-interest programming by American commercial television', in E. M. Noam and J. Waltermann (eds) *Public Television in America*, Gütersloh: Bertelsmann Foundation Publishers.
- Noam E. M. (2003) 'Corporate and regulatory strategy for the network century', in G. Madden (ed.) *Handbook of Telecommunications Economics*, Volume II, Cheltenham: Edward Elgar.
- Owen B. and S. S. Wildman (1992) *Video Economics*, Cambridge, MA: Harvard University Press.
- Papadias L. (2004) 'Some thoughts on collective dominance from a lawyer's perspectives', in P. Buigues and P. Rey (eds) *The Economics of Antitrust and Regulation in Telecommunications*, Cheltenham: Edward Elgar.
- Perry M. K. (1989) 'Vertical integration: determinants and effects' in Schmalensee R. and R. Willig (eds) *Handbook of Industrial Organization*, vol.1, Amsterdam: North Holland.
- Spence M. and B. Owen (1977) 'Television programming, monopolistic competition and welfare', *Quarterly Journal of Economics*, **91**(1), 103–126.
- Steiner P. O. (1952) 'Programme patterns and preferences, and the workability of competition in broadcasting', *Quarterly Journal of Economics*, **66**(2), 194–223.
- Vaglio A. (1995) 'A model of the audience for TV broadcasting implications for

advertising competition and regulation', *International Review of Economics and Business*, **42**, 33–56.

Working Group on Digital Terrestrial Television in EPRA Countries co-ordinated by AGCOM 2004 – *Final Report*.