TELEVISION VIEWING AND ABC PROGRAM POLICY:
AN ECONOMETRIC STUDY*

Glenn Withers
DISCUSSION PAPER NO. 126
August 1985

G.P.O. Box 4, Canberra 2601, Australia
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Research School of Social Sciences
Australian National University

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SUMMARY

There is a long-standing debate over how much the ABC should provide programming that is broadly complementary rather than directly competitive with commercial television stations. Neither the Dix Inquiry into the ABC nor the ABC's 1965 Statement of Corporate Philosophy resolved this issue.

This study reviews the economic basis for a complementarity rationale for public sector broadcasting and uses an econometric model of television viewing to empirically examine television habits including ABC viewing levels and program diversity over the past twenty years. It is established that complementary programming by the ABC actually increases ABC audience numbers more than does directly competitive programming, though production of such increased diversity of television programming is shown to require higher levels of ABC expenditure.

The notion of complementarity is affirmed as central to the ABC's present role. However the difficulties of ensuring statutory authority implementation of appropriate public interest goals, also points to the need for facilitating technical change and structural innovation in Australian broadcasting. This could change the future role of the ABC significantly.
The Competitive Issue in Program Policy

One of the major reasons offered by the economic analysis of broadcasting for collective intervention in this field, is the need for greater program diversity than would be obtained from sole reliance upon commercial television. Since Steiner (1952) it has been recognised that advertiser-funded over-the-air broadcasting within a limited frequency spectrum allocation is likely to substantially limit diversity of types of programs broadcast. ¹

The simple analytics of this proposition are that in such a broadcasting structure, duplication of program type will occur with commercial broadcasters so long as the audience share obtained by each duplication is greater than that obtained by providing other types of programs. This is because it is advertisers not viewers who pay directly for programs, so that audience numbers, not viewer willingness-to-pay, determine program provision. Limited frequency spectrum allocation means that further program types are not provided to meet the next-largest audience demands or the more intense demands of numerically smaller audiences.

In Australia the Australian Broadcasting Corporation (ABC) has been a major instrument of government direct involvement in broadcasting. Hence there would seem to be an economic case for its pursuit of a complementary rather than competitive programming policy. In this way, the ABC could cater to particular tastes and provide particular types of programs that are commercially unattractive. It may be that other avenues such as video-cassette recorders, community broadcasting or pay TV can also pursue

¹The subsequent analytic refinement of this proposition is well summarised in Noll, Peck and McGowan (1973) and Australian evidence on commercial program duplication is given in Cooney (1976) and Soutar and Clarke (1981).
this objective effectively but, given the existence of the ABC and restrictions on some of these other policy directions, there is still a priori ground for commending the goal of complementary programming for the ABC.

Such a complementary approach is also recommended by commercial lobby groups such as the Federation of Australian Commercial Television Stations (FACTS) e.g. Annual Report 1980. Clearly this may be preferred by them for reasons of business self-interest, quite apart from any professed concern for the public interest. Nevertheless it could well be that the two do coincide in this case. Indeed it might be suggested that in instances where the ABC succeeds in developing a large viewing audience for particular types of programs, it should then be happy to vacate those fields (e.g. cricket, classical music) and seize the opportunity thereby provided, to develop new and innovative broadcasting in other untried areas - always provided that commercial broadcasters can realistically produce such programs themselves once the market situation is evident. In this sense there is sound economic logic in the notion that commercial broadcasting can define the limits of ABC activity. So long as an advertiser-funded limited spectrum allocation structure dominates broadcasting services in Australia, there is likely to be a rich diet of eminently worthy omnet program demand outside the commercial sphere.

The ABC has in the past acknowledged a responsibility for specialised programming divergent from commercial fare. Table 1 shows for the years 1967, 1972 and 1982 how national ABC programming differed from that for commercial metropolitan television stations. Programs are represented by the twenty-one program categories for which data are published in the Australian Broadcasting Tribunal Annual Report. It is evident that ABC television has provided divergent fare from commercial television, though equally there are considerable overlaps and the balance changes over time.
Table 1  
Television Programs by Category

<table>
<thead>
<tr>
<th>Category</th>
<th>ABC</th>
<th>Commercial Metro</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drama</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serious</td>
<td>1.44</td>
<td>0.20</td>
</tr>
<tr>
<td>Adventure</td>
<td>4.00</td>
<td>5.00</td>
</tr>
<tr>
<td>Crime-Susp.</td>
<td>9.80</td>
<td>4.30</td>
</tr>
<tr>
<td>Dom.-Comedy</td>
<td>12.00</td>
<td>6.50</td>
</tr>
<tr>
<td>Western</td>
<td>1.52</td>
<td>1.40</td>
</tr>
<tr>
<td>Misc.</td>
<td>6.95</td>
<td>4.80</td>
</tr>
<tr>
<td>Light Enter.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cartoons</td>
<td>0.95</td>
<td>3.00</td>
</tr>
<tr>
<td>Light Music</td>
<td>3.65</td>
<td>2.70</td>
</tr>
<tr>
<td>Personality</td>
<td>2.81</td>
<td>0.50</td>
</tr>
<tr>
<td>Talent</td>
<td>0.14</td>
<td>0.00</td>
</tr>
<tr>
<td>Variety</td>
<td>1.72</td>
<td>2.10</td>
</tr>
<tr>
<td>Sport</td>
<td>10.22</td>
<td>11.60</td>
</tr>
<tr>
<td>News</td>
<td>8.24</td>
<td>7.40</td>
</tr>
<tr>
<td>Children</td>
<td>9.10</td>
<td>19.30</td>
</tr>
<tr>
<td>Family Act.</td>
<td>2.05</td>
<td>9.90</td>
</tr>
<tr>
<td>Information</td>
<td>9.26</td>
<td>3.60</td>
</tr>
<tr>
<td>Current Aff's</td>
<td>6.71</td>
<td>0.70</td>
</tr>
<tr>
<td>Polit. Matter</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Relig. Matter</td>
<td>2.19</td>
<td>1.40</td>
</tr>
<tr>
<td>Arts</td>
<td>2.91</td>
<td>0.80</td>
</tr>
<tr>
<td>Educational</td>
<td>3.33</td>
<td>13.20</td>
</tr>
<tr>
<td>Ave. Annual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transmission</td>
<td>2840</td>
<td>4400</td>
</tr>
<tr>
<td>Hours Per 3th.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diversity Index</td>
<td>41.20</td>
<td>44.40</td>
</tr>
</tbody>
</table>

Source: ABC/ABT Annual Report. The definition of program categories and the classification of programs is by the ABC/ABT.
A diversity index, of which more will be said later, can be used to summarise the degree of complementarity between the national and commercial television services. The index is calculated on a 0 - 100 scale, with 0 representing complete overlap and 100 representing no overlap between national and commercial program types. An increase in program diversity has taken place over the twenty years represented in Table 1.

But a dilemma still remains. How far should the ABC go in distinguishing its programming from commercial programming? How much complementarity is enough? The 1981 Committee of Review of the Australian Broadcasting Commission ("Bix Committee") recommended the greater pursuit of innovative, informative and minority programming. The Committee was less clear, and therefore ultimately unhelpful, in specifying precisely how far to proceed in this direction. The ABC itself in the past has long held reservations about proceeding too far. It has argued explicitly that it should also be concerned for "less serious" (i.e. broadly popular) programming because "the ABC must have popular programs in order to obtain the largest possible audience for its serious ones" (Australian Broadcasting Commission, 1976, p.11) The post-Bix new management of the Australian Broadcasting Corporation, as it then became, has also indicated how important it believes that substantial popular competitive programming remains for the ABC. The July 1985 statement of philosophy of the ABC while arguing that the ABC should be usefully different from other broadcasting services, insists that the ABC should not let then define its activity limits. Clearly there is an inherent contradiction here, unless it can be resolved by the spillover effect.

How valid is this argument that 'balanced' or 'comprehensive' programming is needed to produce a spillover from popular to serious programs on the ABC? The concern is for what the ABC sometimes has termed "cumulative audience" or what commercial television interests refer to as a "halo effect". It is known from surveys that a substantial proportion of viewers label themselves as 'ABC
only' or 'commercial only' (McDonald, 1978). But there is an equally large group of viewers who indicate that they are potentially available to watch all channels in Australia's present over-the-air broadcasting. So the opportunity for significant "spillover" does exist. Viewing is not completely segmented.

But why should the viewing of ABC popular programming lead to viewing of ABC serious programming, for this flexible margin of the viewing public? Economic theory offers essentially two reasons why this spillover might occur. The first is the provision of information. While watching a popular program on ABC, viewers are also exposed to information regarding other ABC programs. Just as advertising on commercial television is meant to induce changes in product market share or total commodity demand, so might ABC 'advertising' of its other programs during its popular programs do the same. The second reason is to be found in adjustment costs. ABC stations are located on channel 2. Commercial stations are grouped at channels 7, 9 and 10. Once an ABC program is chosen it may be that viewers will then remain with the following ABC program, rather than take the effort to switch back to the commercial grouping. Last this seems far-fetched it should be recalled how much cost and effort was undertaken to obtain a shift from channel 0 to channel 10 for third commercial stations in those major metropolitan areas in Australia where there was an initial allocation to 0.

Once either of these information or adjustment factors operates, further influences then come into play. The most important might be habit formation, sometimes known as endogeneity of preferences. This asserts that taste is a product of past consumption. Preferences are not simply given exogenously but are a product of experience. In particular in an area like serious programs the act of viewing can itself begin to build-up a stock of (human) capital in appreciation of a sort that may be irrelevant for less demanding programs. This is a common argument in matters of, say, arts or wine appreciation, which are seen as an acquired taste.
Reinforcing this individual habit formation might also be the role of television in social communication. The spread of habits or fashions between households leads to a representation of present consumption as a function of past consumption, and indeed, provides such a representation without the challenging assumption of myopic behaviour normally used in individualist habit formation models (Pollak 1978). Such a communication role seems plausible for television, despite its private household location, because of the direct and indirect social role of television programs in everyday discussion and conversation.

It is evident that good a priori theoretical reasons can be advanced for a possible spillover effect from ABC popular to serious programming. It is therefore worth examining empirically whether such spillover actually eventuates to any significant degree, and hence justifies in practice a policy of 'balanced programming'.

Empirically the various hypotheses are reflected in a lagged response test (Deaton and Muellbauer 1980, Pollak 1978). This means that viewing in an earlier period should lead to increased viewing in a later period, ceteris paribus. In dynamic demand analysis in economics there is broad agreement on this test as appropriate irrespective of which particular theory amongst those enunciated above might be favoured a priori. Indeed it might be added that there is no reason why each of the channels of influence outlined might not operate to some degree.

In pursuing such a test of lagged response it will be important to control for other influences on viewing habits. Accordingly a broader analysis of television viewing is proposed and pursued in the remainder of the paper. This broader analysis may often be of intrinsic interest quite apart from its assistance in pursuing more effectively the question of ABC complementary vs competitive programming.
A Television Viewing Model.

A simple model of choice is proposed whereby the following decision sequence is observed: ownership of a television set in the home, operation of the television set, choice between ABC and commercial programs.

The first focus in this sequence is on the number of television homes. For a given market, defined for this study as Australian metropolitan areas, the number of television homes will vary with the population base, income levels and television set prices, technological change in the nature of the product e.g. colour television, the numbers of stations which may be viewed and the types of programs available. This analysis of the number of television homes, as just outlined, is a relatively straightforward application of conventional consumer demand theory i.e. a focus on scale of market, prices and income levels to allow for product quality variation. Once television is acquired, however, over-the-air broadcasting is provided without direct user charge. Thus the next stage of the sequence, analysis of homes using television, depends largely upon the qualitative characteristics of the television market viz the number of stations available, hours of transmission provided, the nature of the programs available and the quality of transmission as determined, for example, by the availability of colour television.

As to ABC viewing itself, the number of ABC viewers is also a matter of qualitative choice, based on different program options. The absolute level of ABC viewing will depend upon the number of homes using television, the relative number of commercial and ABC stations, the differentiation of ABC from commercial programs and, it may be suggested, upon whether those programs

\[ A \text{ stock adjustment variation to standard specification was also reviewed, because television sets are consumer durables. However no stock adjustment effect was found empirically and so this extension is not reported further here for what is essentially a control equation.}\]
are locally or overseas produced. Finally the key issue of ABC spillover must be reviewed by including a lagged response specification.

The literature suggests two empirical forms to the lagged response specification. The standard approach is to use a lagged dependent variable i.e. past ABC viewing. This can be justified ad hoc or motivated formally by certain plausible choice models (Philps 1974). The alternative specification is a single period lag on the dependent variable and a lag on price and income terms (Houthakker and Taylor 1970). Since these latter variables are absent in this qualitative choice specification, a simple single-period lagged dependent variable emerges as the appropriate test specification for a lagged response arising from the influences discussed above.

One final relationship might also be specified. We are also interested in what determines programming diversity itself. In particular, ABC programming complementarity may well be influenced by ABC viewing or rating levels i.e. proportion of all viewers. This is likely to be a lagged rather than simultaneous relationship. Also of relevance here will be the prediction from Hotelling's (1929) model of spatial competition that differentiation will be a function of the number of competitors (television stations) and of their costs of production. Technological change such as colour television might also influence appropriate programming strategies between the two sectors.

Four relationships, in the process of choosing and providing ABC programs have now been outlined. They relate to the determination of the number of television homes, homes using television, ABC viewing levels and program diversity. The first three relationships are simultaneously related and so require appropriate system estimation methods. The fourth relationship is independent and hence permits ordinary least squares estimation.

The overall system requiring empirical analysis is specified in Table 2.
Table 2. A Television Viewing Model

(1) TVH = f(POP, STNS, COLOR, DIVERSITY, INC, PRICE)
(2) HUT = f(TVH, STNS, COLOR, DIVERSITY, HOURS)
(3) ABC = f(HUT, CONSTNS/ABCSTNS, DIVERSITY, ABCCONT/CMCONT, LABC)
(4) DIVERSITY = f(LABC, CONSTNS/ABCSTNS, ABCEXP/COMEXP, COLOR)

where
TVH is television homes
HUT is homes using television
ABC is number of ABC viewers
DIVERSITY is program type difference between ABC and commercial
POP is total population
STNS is total number of stations
COLOR is availability of color television broadcasting
INC is real income
PRICE is real television appliance price
HOURS is total hours of television transmission
ABCSTNS is number of ABC television stations
CONSTNS is number of commercial television stations
ABCCONT is proportion of ABC transmission hours comprising Australian programs
CMCONT is proportion of commercial transmission hours comprising Australian programs
ABC_EXP is real gross expenditure per ABC program hour
COMEXP is real gross expenditure per commercial station program hour
LABC is ABC share of total viewers (i.e. rating)
LABCR is ABC share of viewers in the previous period
Measurement and Statistics

Data for all of the variables indicated could be obtained for the period 1962 to 1982, thus giving a twenty year coverage of Australian television, which commenced operation in 1956. Data prior to 1962 could not be compiled for all variables for this study, since 1962 was the first year in which data of program type was published by the then Australian Broadcasting Control Board. To avoid the complication of extending television into rural areas where additional stations serve smaller markets, the market base of Australian metropolitan areas was used.

Annual data based on calendar year annual averages were employed. Figures for TVH, HUT, ABC and ASOR were from the annual industry publication by George Patterson Pty Ltd, Status of the Media. The HUT and ABC figures refer to average gross audience per quarter hour. The HUT figure linked an older series of 'sets-in-use' to the successor series of 'homes-using-television', which allows for multiple television ownership by households. The HUT measure compounds the length of viewing with the fact of viewing so that it indicates the percentage of broadcasting time all households in an area have television switched on.

Data for STNS, ABCSTNS, ONSSTNS, HOURS, and ONSHXP came from Australian Broadcasting Tribunal Annual Reports (and those of its predecessor, the Australian Broadcasting Control Board). All variables relating to station numbers were expressed in terms of station operating months to allow for the various introduction dates of new stations. Hours were total transmission hours. Commercial expenditure referred to commercial gross expenditure per transmission hour deflated by the GDP deflator from Australian Bureau of Statistics Australian National Accounts (5204.0). The content measures ABCONT and ONDCONT referred to Australian produced programs as a share of total program hours. As well as potentially affecting viewer preferences as another
dimension of program type, the foreign vs. domestic origin criterion is of
direct policy importance in the light of minimum local content regulations for
commercial stations and in the light of the ABC's oft-repeated policy of
employing Australian talent wherever possible (e.g. ABC, 1980b, p.4) The
content data came from Australian Broadcasting Tribunal (1980), and were
updated from the Tribunal's Annual Report.

ABCSEP came from the Australian Broadcasting Corporation's Annual Report,
and is defined as for commercial expenditure. The ABC has not in the past
fully separated expenditures between its radio and television operations, so
that common overheads were arbitrarily divided here in the same ratio as for
identifiable separate expenditures. The expenditure data were fiscal year and
a two-year moving average was used to generate calendar year equivalents.

POP, INC, PRICE came from Australian Bureau of Statistics publications.
The income variable was personal household disposable income
deflated by the consumer price index. The income source was ABS, Australian
National Accounts (5204.0) and the price index came from ABS, Consumer Price
Index (6401.0). PRICE was the electrical appliance group price index from the
consumer price index, deflated by the CPI. This is unsatisfactory since the
group is broadly defined and, of course, cannot adequately account for quality
change in terms of improved products. However a direct television set price
measure using hedonic pricing is a major research task beyond the resources
and ambition of this present study. The control nature of the relevant
equation is again stressed.

COLOR was used to reflect the introduction of color television in
Australia in 1975. It was incorporated in the analysis as a dummy variable
taking the value 0 for pre-color years and 1 thereafter.
Finally, DIVERSITY. The types of programs and the hours for which they were transmitted were summarised in a 'diversity index' defined as:

\[
\text{DIVERSITY} = \sum_{i=1}^{21} \left( \frac{H_i^{\text{ABC}} - H_i^{\text{COM}}}{H_i} \right) / 21
\]

where \(H_i\) = transmission hours of program type \(i\).

This formula measured the difference between the hours of broadcasting in each program category for the ABC vs. commercial stations. By examining absolute hours rather than percentages of broadcasting time, it took account of differing transmission hours. The program categories were the 21 consistent categories published by the Australian Broadcasting Tribunal and its predecessor the Control Board, and referred to all broadcasting hours. The index is expressed on a 0 - 100 scale so that 0 indicates complete program overlap and 100 indicates complete program diversity, i.e. in the latter case the ABC never broadcasts in the same program category as the commercial channels.

It must be stressed that this diversity or program policy measure summarises aggregate competitive policy in television and it is the result of decisions by both ABC and commercial broadcasters. Also, as an aggregate measure, it does not provide information on parallel scheduling, data for which are scarce in Australia on any continuing basis. (Parallel scheduling refers to the provision of programs of the same type at the same time.) Further, there are dimensions to choice other than type of program, e.g., viewers may desire diversity within type or quality differences within type. The available data did not permit us to capture this here, just as "free" broadcasting does not permit us to analyse intensity of preference as an aspect of choice. Nevertheless, the implications of this empirical restriction are reviewed in the policy conclusion below.
Econometric Estimation and Results

There is no prior specification given on the form of the equations in Table 1 and simple linear estimation results are presented here. As already indicated, equations (1) - (3) above are simultaneously determined. Since specification of variables and form of equations was not tightly constrained by prior theory, two-stage least squares estimation was employed, as this estimating procedure is less sensitive to specification error than other simultaneous estimation procedures. Equation (4) was estimated by ordinary least squares. The bounded nature of the dependent variable in (4) indicates that a logistic specification on the dependent variable should be used to avoid predictions outside the permitted range.

The estimation results obtained are given in Table 3. It will be seen that a high degree of explanatory power is apparent though much of this is due to the scale variables, which are highly significant. In explaining television ownership, metropolitan population and number of stations available are very significant explanators. Colour television availability and rising income levels are also important. But diversity and price are not significantly different from zero in their contribution. The price result might be discounted because of the broad electrical equipment price measure used. It is not known how adequately this represents television-set price movements. Improved results might be obtained here with a more specific price measurement, perhaps adjusted for quality change in a hedonic manner, and also by specifying substitute/complement relationships more precisely than through the consumer price index, as used here.

Explanation of numbers of homes using television is dominated by the television homes scale variable, with no significant contribution from station numbers. Colour television increases usage over the period of analysis, as does greater program diversity. In contrast increased transmission hours reduce homes using television, which possibly reflects the fact that the usage measure is an average across all broadcasting hours. Additional hours can
Table 3

Estimation Results for Television Viewing Model:

(1) \( TVH = -1.513 + 0.989 \text{ POP} + 0.400 \text{ SINS} + 0.094 \text{ COLOR} \)
\[ (-2.29) \quad (22.37) \quad (7.40) \quad (4.22) \]
\(-0.024 \text{ DIVERSITY} + 0.355 \text{ INC} + 0.194 \text{ PRICE} \)
\[ (-0.42) \quad (3.95) \quad (0.30) \]
\( R^2 = .99 ; \text{ D.W.} = 1.73 \)

(2) \( \text{HUT} = 1.050 + 0.913 \text{ TVH} + 0.028 \text{ SINS} + 0.049 \text{ COLOR} \)
\[ (3.56) \quad (46.85) \quad (0.41) \quad (4.30) \]
\(+ 0.067 \text{ DIVERSITY} - 0.140 \text{ HOURS} \)
\[ (1.80) \quad (-3.10) \]
\( R^2 = .99 ; \text{ D.W.} = 2.32 \)

(3) \( \text{ABC} = -0.219 + 1.116 \text{ HUT} - 0.324 \text{ CONSTNS/ABCSTNS} \)
\[ (0.19) \quad (10.67) \quad (-1.39) \]
\(+ 0.481 \text{ DIVERSITY} - 0.268 \text{ ABC/CONT/COMCONT} \)
\[ (2.62) \quad (-0.36) \]
\(- 0.0067 \text{ LABC} \)
\[ (-0.09) \]
\( R^2 = .99 ; \text{ D.W.} = 1.74 \)

(4) (Logit) \( \text{DIVERSITY} = -4.742 - 0.063 \text{ LABCR} - 0.321 \text{ CONSTNS/ABCSTNS} \)
\[ (-5.403) \quad (-0.165) \quad (-1.106) \]
\(+ 0.283 \text{ ABCEXP/COMEXP} + 0.305 \text{ COLOR} \)
\[ (2.531) \quad (3.889) \]
\( R^2 = .62 ; \text{ D.W.} = 2.13 \)
come from new stations (controlled for separately) or from longer transmission hours. The latter typically reach only small audiences and so they lower average use rates.

The number of ABC viewers is most strongly explained by households using television. It appears very clear that as more persons switch on their television they are more likely to watch ABC than are previous viewers. One way of expressing this is to say that habitual television use favours commercial viewing but selective television use is more favourable to ABC programs. This is an important observation since it means that increased ABC viewing numbers do not necessarily depend only upon competing viewers away from commercial channels, but also upon attracting households who might otherwise keep their television sets turned off. Program diversity itself also does seem to attract viewers to the ABC. This indicates that it is the ability of the ABC to produce complementary not competitive programs that best serves its overall viewing level.

The ratio of stations and the ratio of local content in programs seems to reduce ABC viewing, but the statistical significance of these effects is smaller, especially for local content. In the case of station numbers, more commercial stations relative to the ABC do work in the direction of reduced ABC viewing. In the case of local content, experimentation with shorter data periods shows that this effect has diminished over time, the only evident instability in the statistical analysis. The ABC has traditionally had higher local content than commercial stations. In the first ten to fifteen years this seems to have reduced ABC viewing discernibly, but this effect has dissipated more recently, leaving an average result of a small negative relation that is not statistically different from zero. The outcome of the underlying change in this parameter means that local content at least does not now discourage viewers, though not enough observations are available to determine if it has actually become a positive inducement. Of course for
Australian broadcasting stations, local programming is much more expensive than imported product.

Next, as regards the key test on spillover effects, it seems that competitive programming does not increase current overall audiences for the ABC, and that increased ABC viewing does not spillover to continued ABC viewing in the future. The evidence for the latter is that the lagged dependent variable in (3) is negative and statistically insignificant. It would seem that while the ABC may have its habitual viewers, those who come to the ABC on the margin remain selective viewers who must be won over again and again. At the same time attempting to attract such viewers by competitive programming may well lose some of the more regular ABC viewers who are alienated by such programming. The joint impact of the diversity effect and the homes-using-television effect on ABC viewing numbers, as indicated in the results for equation (3), is consistent with such behaviour.

Finally, the diversity index measuring program type differences between ABC and commercial viewing, seems itself to be largely unresponsive to past ABC ratings. At the same time bigger ABC budgets relative to commercial outlays do favour increased diversity, which is an important finding. More financial support of the ABC by government does seem to result in more diverse programming and hence, on the estimation results discussed above, more ABC viewers. The advent of color television has also led to greater program diversity presumably reflecting the greater technical possibilities for program producers using the higher quality medium.

A rise in the ratio of commercial stations to the ABC is actually associated in sign with a reduction in diversity in equation (4), but the statistical significance of the association is not high. The important point in this context is the result that adding additional commercial stations, which has meant up to three commercial stations in any one metropolitan market
in Australia, has not significantly increased program diversity vis a vis the
ABC. There is a body of U.S. research which indicates that substantial
increases in diversity by program type only occur in U.S. markets after more
than four commercial stations compete in the market, or by the addition of a
public broadcasting station (Perry 1974).

Conclusion.

Over the past twenty years television has progressed from one-third of
Australian homes to almost universal possession. Over that time the ABC has
been providing an alternative to commercial television for Australian viewers.

ABC cost per station and per transmission hour compare very favourably
with the much higher costs of commercial stations. No doubt this is
particularly a result of ABC management having had to operate for the last
decade under tight budgetary restrictions imposed by government. At the same
time ABC audience share has been less than proportionate to the number of ABC
stations and to ABC broadcasting hours, resulting in a higher cost per viewer
than for commercial stations (Withers 1982).

What this paper finds is that attempts to increase ABC audience levels by
duplication of the types of programs offered by commercial stations have not
worked in the past. ABC audiences were increased more by presenting programs
that were different.

It is possible that some persons who were attracted to ABC viewing by
competitive programming did spill over into viewing other ABC programs. But,
if so, the evidence is that the competitive process cost even more in other
viewers who no longer watched as much of the ABC i.e. there was overall loss
to the ABC. The evidence also is that however new audiences are attracted to
ABC viewing, whether by complementary or competitive programming, those
audiences remain discerning and do not guarantee future cumulative audience
What should the program policy of the ABC be as regards diversity? It was indicated earlier that there is a rationale in economic analysis for collective intervention in broadcasting, as presently structured, in order to enhance diversity. The ABC itself has recently proposed "audience reach", rather than "audience share", as a more relevant criterion for the ABC's activities (ABC 1985). Reach refers to the percentage of viewers watching ABC at least some of the time, eg. per week, rather than the proportion watching at a given time eg. per hour. The 1985 statement "The Role of a National Broadcaster" argued that "taken in total, the ABC's services must have the potential to interest and attract virtually all listeners and viewers at least some of the time". (pp.9-10)

The rejection of maximum ratings as a goal is quite consistent with the diversity rationale for ABC broadcasting. However the alternative "reach" criterion is also inadequate, though both provide some useful information. In common with ratings "reach" does not measure satisfaction, only viewing numbers. Moreover it provides no concrete guidance as to what programs should be presented. After all, if reach is taken literally as a guide, its measure is already much better met by commercial stations, so there is no need for an ABC. Clearly the hard questions are still left unanswered by this new criterion. Decisions must still be made as to what program emphasis is to be pursued by the ABC within the many program options that are consistent with a high level of reach.

This is the dilemma of the national broadcasting service. If denied the goal of direct competitive broadcasting, which complementary programs should be provided? In the past the ABC has chosen to provide programs catering predominantly to the otherwise unmet tastes of the more affluent and highly educated British-oriented elites of Australian society. Even then there might
have been something for almost everyone, but there was much more for some. The ABC has in the past, basically rejected or neglected some complementary needs in favour of others. The fact that it was felt necessary by government to establish a separate Special Broadcasting Service is ample testimony to this. (Nykyta 1980)

What is required is not pursuit of maximum audience share, but maximum feasible audience for programs of a kind not already provided by other stations. Choice within the wide range of options that this leaves open, should then be determined by the other stated goals of the ABC. These goals should themselves derive explicitly from the other elements of the rationale for the existence and purpose of ABC public sector broadcasting. 3

Complementary broadcasting should not preclude programs of the same program type, provided that programs of a common type remain distinctively different in quality and kind in a way conducive to those other defined purposes of a national public broadcaster. The focus on program type differences in the empirical work of this paper was a matter of statistical necessity which should not be allowed to dominate the policy logic that follows.

It should also be stressed that the complementary role defined would not be derivative in the negative sense. Rather it would imply a considerable creative freedom to define appropriate standards and orientation for programs different from those dictated by the requirements of advertisers under limited spectrum commercial broadcasting.

The ABC in its statement of corporate philosophy (ABC, 1985) says that

3 For a discussion of other rationale and functions for public enterprise national broadcasting see Withers (1982) and Australian Broadcasting Corporation (1965).
the complementarity notion is "largely meaningless and can only provoke sterile argument" (p.9). The reasons given for this view are that the ABC "cannot help but compete for audiences", the ABC Act "states that the organisation exists to serve all Australians" and that it is "often a moot point whether a particular program is, or is not, complementary to others." (pp.9-10)

These are quite inadequate arguments and seem to reflect an ultimate inability of the ABC, as with the Dix Inquiry into the ABC, to confront the core question of the key diversity justification for the Corporation's existence. Of course, there are other consistent justifications for public national broadcasting too, but they largely indicate the type of complementarity required. Unfortunately the ABC still seems to want to have it both ways, to be both commercial in some instances and distinct in others. But this leaves the ABC rudderless and the public interest unprotected.

Of course the ABC should compete for audience, but by distinctly different programming. Of course the ABC should serve all Australians, but by its complementary role in the broadcasting system and via the externalities of its pursuit of its other goals e.g. balanced and independent news and information. It cannot and should not be all things to all persons. Of course complementarity encompasses not just program type or content differences but differences in quality and style and orientation, provided these are useful differences of a kind not provided by commercial stations and which serve the other justifications for public sector broadcasting. The basic point remains: the need for different programs from commercial television.

Since even the most conscious endeavour by the ABC to date to properly and openly define its role (ABC 1985), remains deficient on this fundamental issue of diversity and difference, policy must also look to longer-term structural remedies. Above all this involves giving equal or greater emphasis
to facilitating the process of technical change and innovation in broadcasting, such that individuals can freely choose, and pay directly for, the programs they want, just as they have long been able to do with the print media. Television in Australia at present provides commercial viewing that reflects the needs of advertising executives and public sector viewing that reflects the tastes of the bureaucracy in the ABC and SBS. The viewing public does not directly determine its own television fare, so that sub-optimal provision is inevitable in terms of the preferences of the viewing public.

In the absence of this longer-term change toward a television system that is more directly responsive to viewers' preferences, or during the transition to such a new position, it would seem reasonable to again urge the ABC to adopt the policy of complementary programming as a major element in its corporate goals. The precise nature of the complementarity required is then given by the other explicit corporate goals of the ABC, which should directly derive from the other purposes behind public enterprise broadcasting.

The analysis of this study also showed that complementarity has depended in the past upon higher relative ABC expenditures. This means that some reversal of past downward trends in ABC financing is called for, or some major reallocation of internal ABC priorities is required, if the optimal short-term policy is to be pursued, e.g. should the ABC continue to spend more on symphony orchestras than on news and information? But the possibility of higher necessary expenditures adds further incentive to the need for expeditious enhancement of greater viewing diversity under the new technology.

As enhanced diversity becomes available under greater deregulation and with new technology, as it is already with video cassette recorders, the diversity rationale for the ABC is increasingly diminished. There may then still be a role for an ABC, but it will be one based on the other criteria, and hence one probably requiring a quite different organisation than an ABC which is significantly justified by the need to enhance program diversity.
REFERENCES

Australian Broadcasting Commission, (1980b) Submission to the Committee of Review of the Australian Broadcasting Commission, Sydney: ABC.


Committee of Review of the Australian Broadcasting Commission (1981), Report, Canberra: AGPS.


Steiner, P.O. (1952), 'Program Patterns and Preferences and the Workability of Competition in Radio Broadcasting', Quarterly Journal of
Economics, 66.


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