

PATV STUDY PHASE TWO

A PAY PER PROGRAM SIMULATION MODEL:
SENSITIVITY OF NETWORK ECONOMICS TO
VARIATIONS IN PROGRAM CONTENT AND PRICE

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MARCH 31, 1980

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1. PATV STUDY PHASE TWO

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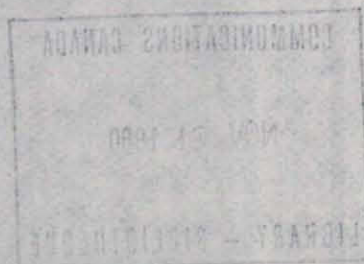
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I. MANAGEMENT SUMMARY

In the fall of 1979 the Department of Communications (DOC) requested a three part simulation study of the implementation of pay television (PATV) in Canada. The proposed study was divided into three phases: (I) the development of a pay per program simulation model, (II) a sensitivity analysis on the marketing parameters of the pay per program simulation model, and (III) the development of a pay per channel simulation model. The first phase was completed on February 1, 1980. This report summarizes the results of Phase II. To be most useful this report should be read in conjunction with the report on Phase I.

This report includes a discussion of some of the price/content scenarios that could be presented to viewers and settles on nine scenarios (combinations) based on three different prices (\$2, \$3, and \$4 per view) and three different program content offerings (low, base case and high profile). As content goes from low to high profile the number of new programs offered the viewer each quarter rises from 17 to 48. Each of these scenarios is simulated and the financial results are noted. The "best" scenario is shown to depend on whether the network wishes to maximize revenue, fees paid to Canadian producers, revenues to cable companies, revenues to the producer of the black box, profits or return on invested capital.

II. OVERVIEW

This price/content sensitivity analysis represents the second phase of analysis of the economics of the introduction of pay per program PATV service in Canada. The focus of this phase is on the sensitivity of financial outcomes to different price/content scenarios while holding cost behavior constant. It is based on the PATV market response module developed in the initial phase (1). The purposes of these price/content sensitivity analyses are to;

- a. Outline some alternative program content options that might be possible for a Canadian PATV offering.
- b. Outline some alternative consumer pricing options that might be possible.
- c. Estimate how consumer response to PATV will vary with different price/content scenarios; that is combinations of consumer price options and program content options.
- d. Evaluate the market and financial impact of the estimated differences in consumer response on the operation of a PATV network.

III. BASIC ASSUMPTIONS

The assumed most likely (or "base case") price/content scenario option used as a basis for this sensitivity analysis is the following (1);

- a. a \$10 initial installation charge.
- b. a \$3 per month or \$9 per quarter monthly fee for maintenance of the "black box" required to receive PATV through cable TV service.
- c. a \$3 charge per program viewed.
- d. program content as shown in Exhibit 1.
- e. programming scheduling based approximately on Home Box Office (HBO) as shown in Exhibit 2.

EXHIBIT 1

ASSUMED BASE CASE WEEKLY PROGRAM CONTENT

DAY TIME	MON.	TUES.	WED.	THURS.	FRI.	SAT.	SUN.
8-10							
10-12							
12- 2							
2- 4						CF	CF
4- 6	FF	CF	FF	CF	FF	SE	SE
6- 8	CF	FF	CF	FF	CF	FF	FF
8-10	FF	CF	FF	CF	FF	CF	CF
10-12	CF	FF	CF	FF	CF	FF	FF
12- 2	FF	CF	FF	CF	FF	CF	SE

NOTE:

1. FF - Foreign film (17 views)
2. CF - Canadian film (17 views)
3. SE - Special Event (3 views)
4. Based on 50 percent Canadian content, both in programs and shows across all time slots, and particularly in prime time.
5. Canadian content to be evaluated on quarterly aggregation.
6. Based on:
 - 12 new foreign films per quarter
 - 3 new Canadian films per quarter
 - 12 new special events per quarter
7. Based on the show times indicated above.
8. Based approximately on HBO time schedules (Exhibit 2).

EXHIBIT 2

Programming Content Example (HBO)

HBO Home Box Office March 1979

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
2:00						24-CONSUMER RIP-OFF 31-ACES HIGH PG 1:44 repeat contemp.	
2:30						10-CLARENCE DARROW Broadway repeat 17-DOUBLE TALK-repeat	18-A PIECE OF THE ACTION - PG 2:15 contemp. repeat drams
3:00						3-OLLY OLLY OXEN FREE - G 1:28 contemp. 24-OTHER SIDE OF THE MOUNTAIN-PG 1:45 repeat contemp.	4-SWISS CONSPIR- ACY-PG 1:31 drama repeat
3:30							11-OLLY OLLY OXEN FREE G 1:28 repeat 25-OLLY OLLY OXEN FREE PG 1:28 rep
4:00						10-SALLY G 1:32 contemp. repeat 17-CATASTROPHE doc. 1:32 repeat 31-HARPER VALLEY PTA PG 1:42 repeat contemp.	
4:30						3-ESCAPE TO WITCH MOUNTAIN G 1:37	4-FUNNY LADY PG 2: repeat contemp. drama
5:00						24-EMBRYO PG 1:44 repeat	11-LEOPARD IN THE SNOW PG 1:29 rep contemp. drama 19-CLARENCE DARROW Broadway repeat 25-SALTY G 1:32 rep
5:30	12-FUNNY LADY PG 2:16 contemp. drama		7-THE GREAT CONSUMER RIP-OFF doc. repeat 28-HERE COME THE TIGERS PG 1:30 repeat	8-A PIECE OF THE ACTION PG 2:15 contemp. 22-GLEN CAMPBELL variety repeat	16-THE GREAT CONSUMER RIP-OFF repeat 23-A PIECE OF THE ACTION PG 2:15 repeat contemp. drama 30-GLEN CAMPBELL variety repeat	10-THE MOUSE AND HIS CHILD repeat G 1:23 17-HERE COME THE TIGERS PG 1:30 repeat	
6:00	26-HARPER VALLEY PTA PG 1:42 contemp. drama repeat	6-ESCAPE TO WITCH MOUNTAIN contemp. G 1:37	21-OTHER SIDE OF THE MOUNTAIN contemp. PG 1:45 repeat drama	29-EMBRYO drama PG 1:44	2-CAHILL-U.S MARSHAL PG 1:43	31-UPCLOSE special repeat	
6:30	5-OLLY OLLY OXEN FREE G 1:28 repeat 19-DOUBLE TALK repeat comedy	13-SALTY G 1:32 repeat 20-LEOPARD IN THE SNOW PG 1:29 repeat drama 27-CLARENCE DARROW Broadway repeat	7-CRAZY MAMA repeat PG 1:20 14-EAT MY DUST drama PG 1:30 contemp. repeat	1-THE MOUSE AND HIS CHILD animation G 1:23 15-CLARENCE DARROW Broadway repeat 22-HERE COME THE TIGERS PG 1:30 repeat	9-EAT MY DUST PG 1:30 contemp. 16-OLLY OLLY OXEN FREE G 1:28 repeat 30-OUR WINNING SEASON PG 1:32 repeat contemp.	3-BANANAS PG 1:22 contemp. 11-SWISS CONSPIRACY PG 1:31 repeat 18-EAT MY DUST PG 1:30 repeat 25-CATASTROPHE doc. PG 1:32 repeat	
7:00			28-HOLLYWOOD CLOWNS comedy-old-repeat			10-TRACK AND FIELD 17-COLLEGE GYMNASTICS 24-GYMNASTICS 31-ROLLER SKATING	4-THE GREAT CONSUM RIP-OFF doc.

EXHIBIT 2 (continued)

8:00	1-LEOPARD IN THE SNOW PG 1:29 contemp. drama	2-CLARENCE DARROW variety	7-TRACK AND FIELD adult comedy	1-PRATT MANIA PG 1:20 contemp. drama	2-FUNNY LADY PG 2:18 contemp. occult drama	3-ONLY HOLY BYEN contemp. drama	4-THE FURY R 1:57 drama
	12-COLLEGE GYMNAS- TICS	13-HERE COMES THE TIGERS PG 1:30 contemp. drama	14-THE EVIL-occult drama R 1:30	15-CATASTROPHE doc. PG 1:32	9-HARPER VALLEY PTA PG 1:42 contemp. drama	10-MADAME ROSA R 1:45 contemp. drama	11-DOUBLE TALK com- edy
	19-COLLEGE GYMNAS- TICS	20-UPCLOSE special	21-AMU BOXING	22-OUR WINNING SEASON PG 1:32	16-OTHER SIDE OF THE MOUNTAIN PG 1:45 contemp. drama	17-GLEN CAMPBELL variety	PINK PANTHER PG 1:33 cont. comedy
	26-ACES HIGH-PG 1:44 contemp. drama	27-HOCHS POCUS IT'S MAGIC! variety		29-ROLLER SKATING	23-ROLLERSKOP CLOWNS old	24-COIN COCONUTS TV film first PG 1:33	25-THE WILD GEESE R 2:15 cont. drama
					30-DOUBLE TALK com- edy repeat	21-PRATT MANIA R 1:48	
9:00	12-FUNNY LADY-PG 2:18 repeat contemp. drama	20-GLEN CAMPBELL variety repeat	7-THE GREAT CONSUM- ER RIP-OFF-repeat	29-COIN COCONUTS new PG 1:33	23-UPCLOSE-special repeat	17-THE EVIL R 1:30 repeat	
	19-OTHER SIDE OF THE MOUNTAIN PG 1:45 repeat contemp. drama						
9:30	5-LOOKING FOR MR. GOODBAR R 1:15 repeat contemp.	6-CAHILL: U.S. MARSHAL PG 1:43 contemp. drama	14-COLLEGE GYMNAS- TICS	1-LOOKING FOR MR. GOODBAR contemp. R 2:15	30-THE CHOIRBOYS R 1:59 contemp. drama	3-EL GRANDE DE COCA COLA Broadway	11-CRAZY MAMA PG 1:20 rep.
		13-HARPER VALLEY PTA contemp. drama PG 1:42 repeat	21-REVENGE OF THE PINK PANTHER PG 1:39 repeat contemp. drama	8-THE FURY (occult) R 1:57		24-CLARENCE DARROW repeat	
		27-OUR WINNING SEASON-contemp. drama PG 1:42 repeat	28-THE WILD GEESE R 2:15 contemp.	15-DOUBLE TALK comedy G			
				22-COLLEGE GYMNAS- TICS			
10:00	26-REVENGE OF THE PINK PANTHER PG 1:39 repeat	20-THE EVIL R 1:30 repeat	7-DISCO BEAVER adult comedy		9-THE GREAT CONSUM- ER RIP-OFF doc. repeat	10-EMBRYO PG 1:44 contemp. drama	4-DISCO BEAVER adult comedy
					16-LEOPARD IN THE SNOW PG 1:29 repeat drama	31-ACES HIGH PG 1:44 repeat	18-CLARENCE DARROW repeat
					23-AMU BOXING		
10:30			14-DOMINO PRINCIPLE R 1:30 contemp. drama	22-CATASTROPHE doc. PG 1:32	2-HOUSECALLS PG PG 1:33 drama contemp.	3-MR. GOODBAR R 2:15 drama repeat contemp.	25-GLEN CAMPBELL variety repeat
				29-EAT MY DUST PG 1:30 comedy repeat		17-THE FURY R 1:57 repeat	
11:00	19-DOUBLE TALK comedy	27-MADAME ROSA R 1:45 repeat	7-SWISS CONSPIRACY PG 1:31 repeat contemp. drama	15-LOOKING FOR MR. GOODBAR R 2:15 contemp. drama repeat	9-PRETTY MAIDS ALL IN A ROW R 1:32	24-DOUBLE TALK repeat	4-CAHILL: US MARS PG 1:43 repeat
							11-SWISS CONSPIRACY PG 1:31 repeat
11:30	12-THE FURY R 1:57 drama repeat	6-THE BIG SLEEP R 1:40 repeat drama	21-OTHER SIDE OF THE MOUNTAIN PG 1:45 repeat drama contemp.	8-LEOPARD IN THE SNOW PG 1:29 contemp. drama repeat	16-FUNNY LADY PG 2:18 repeat		18-HARPER VALLEY P PG 1:42 repeat
		13-CONSUMER RIP- OFF repeat doc.			23-THE FURY R 1:57 repeat		25-UPCLOSE special repeat
		20-THE FURY R 1:57 repeat			30-AMU BOXING		
12:00	5-CRAZY MAMA PG 1:20 repeat		28-HERE COMES THE TIGERS PG 1:30 repeat	1-PRETTY MAIDS ALL IN A ROW R 1:32		10-LOOKING FOR MR. GOODBAR R 2:15 repeat	
	26-THE FURY R 1:57 repeat			22-DOMINO PRINCIPLE R 1:40 contemp. drama		31-WILD GEESE R 2:15 repeat	
				29-THE EVIL R 1:30 repeat			
12:30	19-EMBRYO PG 1:44 repeat contemp. drama	13-DISCO BEAVER repeat adult comedy	14-THE EVIL R 1:30 contemp. occult drama repeat		7-THE SWISS CON- SPIRACY PG 1:31 contemp. drama	17-MADAME ROSA R 1:45 repeat	11-EL GRANDE DE CO COLA repeat
					9-TRACK AND FIELD	24-DOMINO PRINCIPLE R 1:40 repeat	25-CATASTROPHE repeat doc
1:00					30-REVENGE OF THE PINK PANTHER PG 1:31 contemp. drama	3-THE BIG SLEEP R 1:40 drama contemp.	4-THE GREAT CON- SUMER RIP-OFF

IV. PRICE/CONTENT SCENARIOS

The nine price/content scenarios used as a basis for the sensitivity analyses are shown in Exhibit 3. Each of the different pricing alternatives and content alternatives will now be outlined.

Alternative Pricing

The following are the three consumer pricing alternatives for PATV used in the analysis;

- Low Price
- \$10 initial installation charge
 - \$3 monthly charge
 - \$2 per program viewed

- Base Case Price
- \$10 initial installation charge
 - \$3 monthly charge
 - \$3 per program viewed

This pricing alternative was that used as the basis for Phase I (1).

- High Price
- \$10 initial installation charge
 - \$3 monthly charge
 - \$4 per program viewed

EXHIBIT 3

Price/Content Scenarios For Use In
Sensitivity Analyses

<div>CONTENT PRICE</div>	LOW PROFILE	BASE CASE	HIGH PROFILE
Low	Scenario A	Scenario B	Scenario C
Base Case	Scenario D	Scenario E	Scenario F
High	Scenario G	Scenario H	Scenario I

Alternative Content

The following are the three program content alternatives used in the analyses;

Low Profile Content (per quarter)

- replicated channel operation (four channels)
- 8 new foreign films
- 3 new Canadian films
- 6 new live events
- a total of 37 possible views per week or 481 views per quarter, as follows;
 - Foreign films - 221 views
 - Canadian films -221 views
 - Special events - 39 views

Base Case Content

- replicated channel operation (four channels)
- 12 new foreign films
- 3 new Canadian films
- 12 new live events
- a total of 37 possible views per week or 481 views per quarter, as follows;
 - Foreign films - 221 views
 - Canadian films - 221 views
 - Special events - 39 views

High Profile Content

- replicated channel operation (four channels)
- 24 new foreign films
- 6 new Canadian films
- 18 new live events
- a total of 37 possible views per week or 481 views per quarter as follows;
 - Foreign films - 221 views
 - Canadian films - 221 views
 - Special events - 39 views

Each of the three program content options outlined above would be shown in the approximate schedule illustrated in Exhibit 1.

Price Sensitivity

The bases for testing consumer sensitivity to price pose problems for two reasons;

- a) Consumers may respond to several different components of price for the PATV offering;

- the one-time charge to connect to PATV, assumed to be \$10

- the fixed monthly fee for PATV which includes the lease or amortization charge for the black box.

This fee was assumed to be \$3 per month or \$9 per quarter.

the variable view fee, the charge per view to the consuming household. This fee was assumed to average \$3 per program across all programs.

- b) Different segments of consumers will react differently in their sensitivity to different prices. An example of a set of consumer segments is shown in Exhibit 4. As shown, there are four potential consumer segments, each likely to exhibit different response to different price/content scenarios.

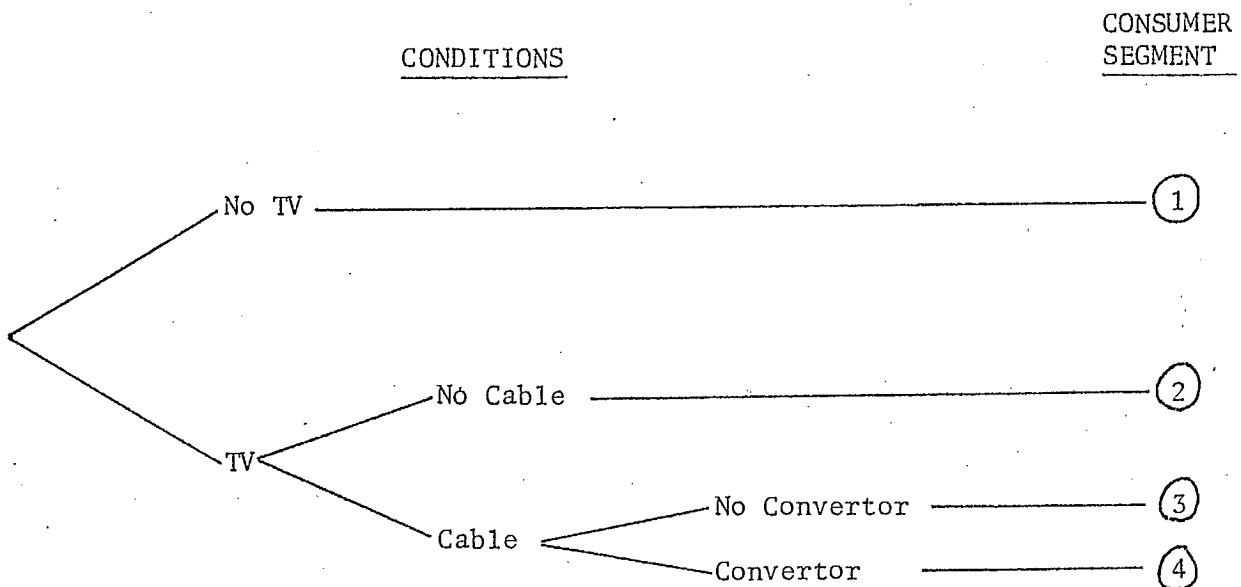
The Basis for PATV Price Sensitivity

The price/content consumer sensitivity has been based upon sensitivity to price per view only. The rationale for this is as follows;

- a) The connect charge (currently assumed to be \$10) is likely to be more related to cable company hardware and labor costs than to supply/demand or profit-enhancing motives on the part of the cable companies. As a result, it doesn't make sense to test its price sensitivity since it is unlikely to be manipulated as a market response management tool.
- b) In terms of the four consumer segments outlined in Exhibit 4, it is easy to demonstrate the likely consumer sensitivity to

EXHIBIT 4

Outline of Consumer Household Segments for PATV



changes in the connect change. Exhibit 5 shows the incremental household costs for the first year of subscribing to PATV for the four consumer segments shown in Exhibit 4 based on the base case price/content scenario (Scenario E, Exhibit 3).

It is evident from these data that;

- The incremental cost of PATV for segment 1 (non-TV owners) is prohibitively high, particularly since this segment tends to be relatively lower income and/or rural. It is felt that PATV is unlikely to be a powerful incentive for this segment to acquire a TV set plus cable, converter, and PATV service.
- The incremental cost of PATV for segment 2, TV owners without cable is fairly high relative to segments 3 and 4. It is useful to note here that current cable TV is simply pay per channel PATV (PPC) so that people without cable either don't have access (are not cable-passed) or haven't taken already available PPC PATV. In either case, it is felt that PATV is unlikely to be a powerful incentive for this segment to gain cable service, then PATV, perhaps except for a small percentage.

EXHIBIT 5

INCREMENTAL COSTS FOR HOUSEHOLD SEGMENTS
SUBSCRIBING TO PATV

	<u>Segment</u>			
<u>YEARLY COST</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Buy TV	\$800	0	0	0
Connect Cable	20	20	0	0
Cable Rate	60	60	0	0
Converter Rent	48	48	48	0
PATV Connect	10	10	10	10
PATV Monthly	36	36	36	36
PATV Views	72	72	72	72
Total Yearly Incremental Cost	\$1,046	246	166	118
Monthly Incremental Cost	\$87.16	20.50	13.83	9.83
•Yearly no. of movie theatre views @ \$3.50 each	298.9	70.3	47.4	33.7
•Monthly no. of movie theatre views @ \$3.50 each	24.9	5.9	3.9	2.8

•The incremental cost of PATV for segment 3 (cable TV subscribers without converters) begins to look much more reasonable for an average household, and particularly for middle and upper income households. This (and segment 4) is the major segment which Phase I of the PATV study was based upon (1). This segment (segment 3) is expected to be the largest of the four segments.

•The incremental cost of PATV for segment 4, cable TV subscribers with converters is quite attractive. It is somewhat difficult to get hard data on converter ownership because of both lack of vendor information and a large number of converter sales of many brands through many consumer distribution outlets. However, some data indicate that ownership of cable converters is not yet widespread. As converter ownership spreads, PATV response will tend to improve.

The above analysis shows likely relatively low consumer price sensitivity to the connect charge in the largest segments to the connect charge in the context of all the incremental costs to subscribe to PATV service.

- c) The monthly PATV service charge of \$3 per month is primarily for "rent" or "lease" or "amortization" of the PATV "black box" required in each consumer household. Like the \$10 connect charge, this consumer price is closely connected to the direct costs of the black box and to cable company fixed costs in delivering PATV programs. As such, it is unlikely to be manipulated as a consumer response price variable, and so has been treated as a constant in the price sensitivity analysis.

Program Content Sensitivity

The bases for testing consumer program content sensitivity pose a parallel set of problems to those for price sensitivity for several reasons;

- a) There are several dimensions of program content that PATV consumers are likely to have differential response to in the context of a particular set of content.
- i) the "mix" and total amount of content between
- first run movies
 - exclusive movies
 - second-run movies
 - foreign movies
 - Canadian movies
 - Sports events (foreign and Canadian)
 - other special events (foreign and Canadian)

- ii) The particular show times for different programs
- iii) The number of repeat showings for particular programs

The above are "internal" factors; they pertain to the PATV program content; there are also a large number of "external" factors that are likely to influence consumer response to PATV, likely having different response for different price/content scenarios, such as;

- iv) regular TV programming content
- v) regular TV programming timing
- vi) local area movies and prices
- vii) other local entertainment options and prices

Needless to say, it is impossible to account for all of these internal and external factors and their impact on consumer response to PATV in any deterministic analysis.

Three program content scenarios were selected for the consumer price/content sensitivity analysis as already outlined. These three program content alternatives were selected to reflect program content that is realistic, and likely to result in differential response from households in the Census Market Areas (CMA's) across Canada.

Low Profile Content

The low profile program content reflects a minimal program content for single replicated-channel PATV operation. It has been assumed that the Canadian content guidelines (2) do not necessarily apply to this content alternative as they do to the base case content alternative (ref. Exhibit 1). As shown, the low profile content presents consumers with a maximum of 17 new programs to view each quarter, substantially fewer than the 27 offered in the base case. The percentage of Canadian movie content (based on numbers of programs) is 17.6 percent as compared to 11 percent for the base case which is likely to result in substantially lower consumer response at an equivalent price per program.

Base Case Content

The base case program content reflects the assumptions made in Phase One of the PATV analysis (1) modified by the Canadian content guidelines (2). These guidelines call for 50 percent Canadian content in both number of programs and number of possible views aggregated over each quarter, and apply particularly to prime viewing hours. This 50 percent Canadian content can include Canadian special events as well as Canadian movies.

High Profile Content

The high profile program content approaches the Home Box Office program content more closely, and is unconstrained by Canadian content rulings (2). The percentage of Canadian movie content is 20 percent, but in the context of 24 new foreign movies available per quarter and 18 new live events. It is a program content that is likely to produce dramatically higher consumer response at an equivalent price per program.

V. MARKET RESPONSE TO DIFFERENT PRICE/CONTENT SCENARIOS

The basic matrix of price/content scenarios was shown in Exhibit 3. The program content for the "low profile", "base case", and "high profile" program content options was outlined earlier. Also outlined was the price per program basis for estimating price sensitivity.

The values of the market response parameters for each of the nine (9) price/content scenarios are shown in Exhibits 6, 7 and 8. These parameter values reflect the expected differences in consumer response to the nine different price/content scenarios, and are the basis for the aggregate market and financial sensitivity for a PATV network. The values of these parameters can be varied across a wide range to test any set of assumptions about market response to a particular set of price/content scenarios. The approach to varying these parameters is outlined in Appendix A.

PRICE/CONTENT SENSITIVITY: LOW PROFILE CONTENT

The consumer price sensitivity for the low profile program content is shown graphically in Exhibit 9. As seen, changes in the per program price from 2 dollars (scenario A) to 3 dollars (scenario D) to 4 dollars (scenario G) produce relatively low sensitivity in the rate of cabled household formation, suggesting that with this relatively unattractive program content, the increase in the cabling rate from PATV introduction is unlikely to be spectacular at any of the three price levels. However, the 2 dollar price level (A) will clearly produce the highest impact on cabling rate.

EXHIBIT 6

Values of Market Response Parameters for
Price/Content Scenarios: Low Profile Content

	<u>Low Price</u> (A)	<u>Base Case Price</u> (D)	<u>High Price</u> (G)
CMA Percent Cabled			
<u>Households Plot</u>			
K1	0.005	0.005	0.005
K2	0.015	0.01	0.005
Base CMA Signup			
<u>Rate Plot</u>			
PP _{ss}	0.22	0.16	0.14
K3	1.4	1.2	0.06
K4	0.5	0.3	0.15
K5	0.03	0.02	0.01
K6	0.06	0.04	0.03
Base CMA View			
<u>Rate Plot</u>			
PV _p	10	8	7
PV _{ss}	6	4	3

EXHIBIT 7

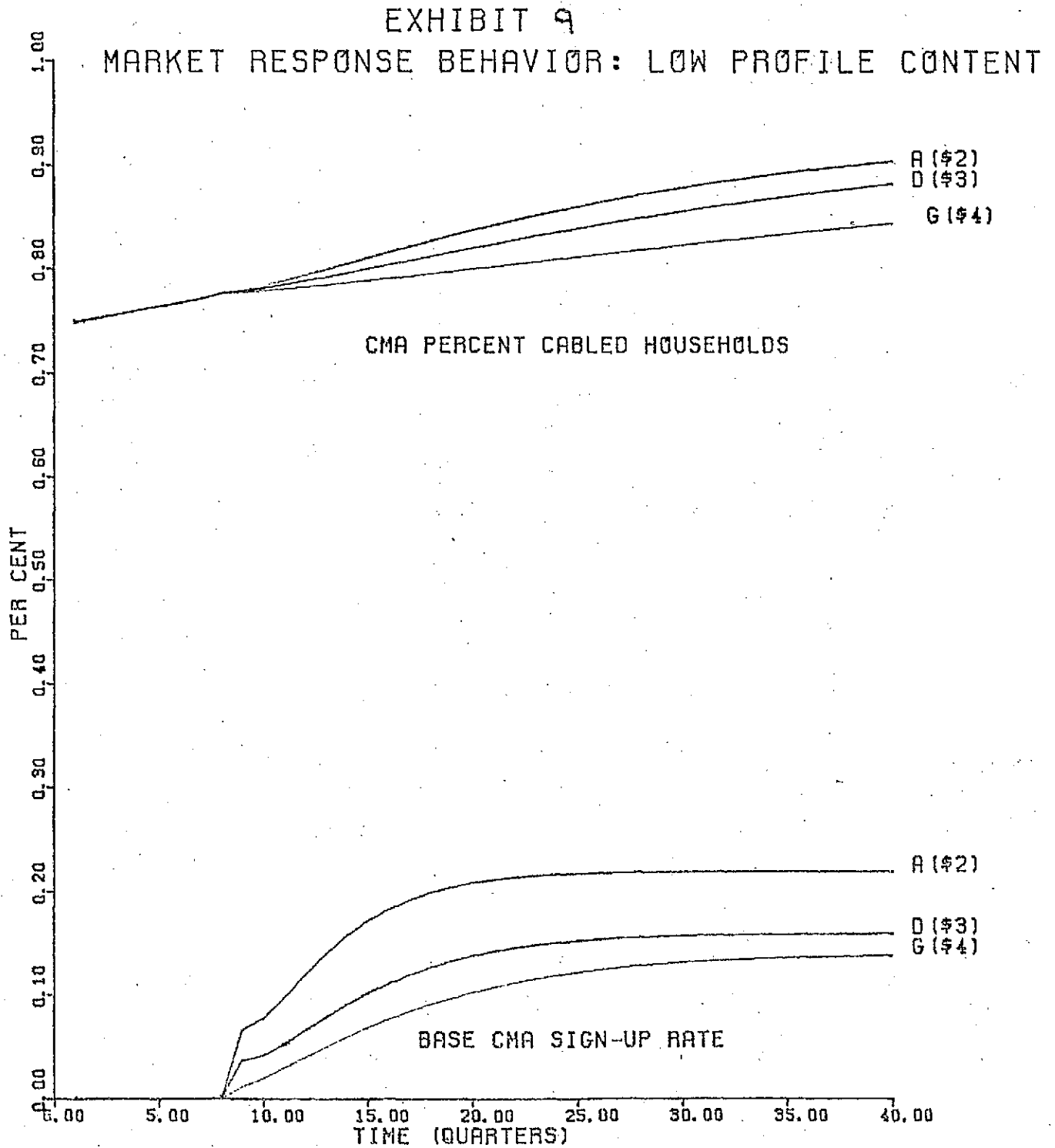
Values of Market Response Parameters for
Price/Content Scenarios Base Case Content

	<u>Low Price</u> (B)	<u>Base Case Price</u> (E)	<u>High Price</u> (H)
CMA Percent Cabled			
<u>Households Plot</u>			
K1	0.005	0.005	0.005
K2	0.03	0.02	0.01
Base CMA Signup			
<u>Rate Plot</u>			
PP _{ss}	0.24	0.20	0.16
K3	3.0	2.0	1.0
K4	1.0	0.7	0.3
K5	0.07	0.05	0.025
K6	0.15	0.10	0.04
Base CMA View			
<u>Rate Plot</u>			
PV _p	12	10	8
PV _{ss}	8	6	4

EXHIBIT 8

Values of Market Response Parameters for
Price/Content Scenarios: High Profile Content

	<u>Low Price</u> (C)	<u>Base Case Price</u> (F)	<u>High Price</u> (I)
CMA Percent Cabled			
<u>Households Plot</u>			
K1	0.005	0.005	0.005
K2	0.06	0.04	0.02
Base CMA Signup			
<u>Rate Plot</u>			
PP _{ss}	0.28	0.24	0.18
K3	4.0	2.4	1.6
K4	1.5	0.8	0.7
K5	0.12	0.06	0.05
K6	0.25	0.12	0.08
Base CMA View			
<u>Rate Plot</u>			
PV _p	22	18	14
PV _{ss}	18	14	10



As can be seen in Exhibit 9, the impact of different price levels on signup rates for this low profile content is expected to be more dramatic. At a 2 dollar price per program (A), 22 percent of cabled households are expected to subscribe to PATV, approaching this at a fairly rapid rate as shown. At a 3 dollar price, this percentage declines to 16 percent (D), and at a 4 dollar price, to 14 percent (G). Scenario G thus represents the minimum response situation to PATV; low profile program content coupled with a high price per program.

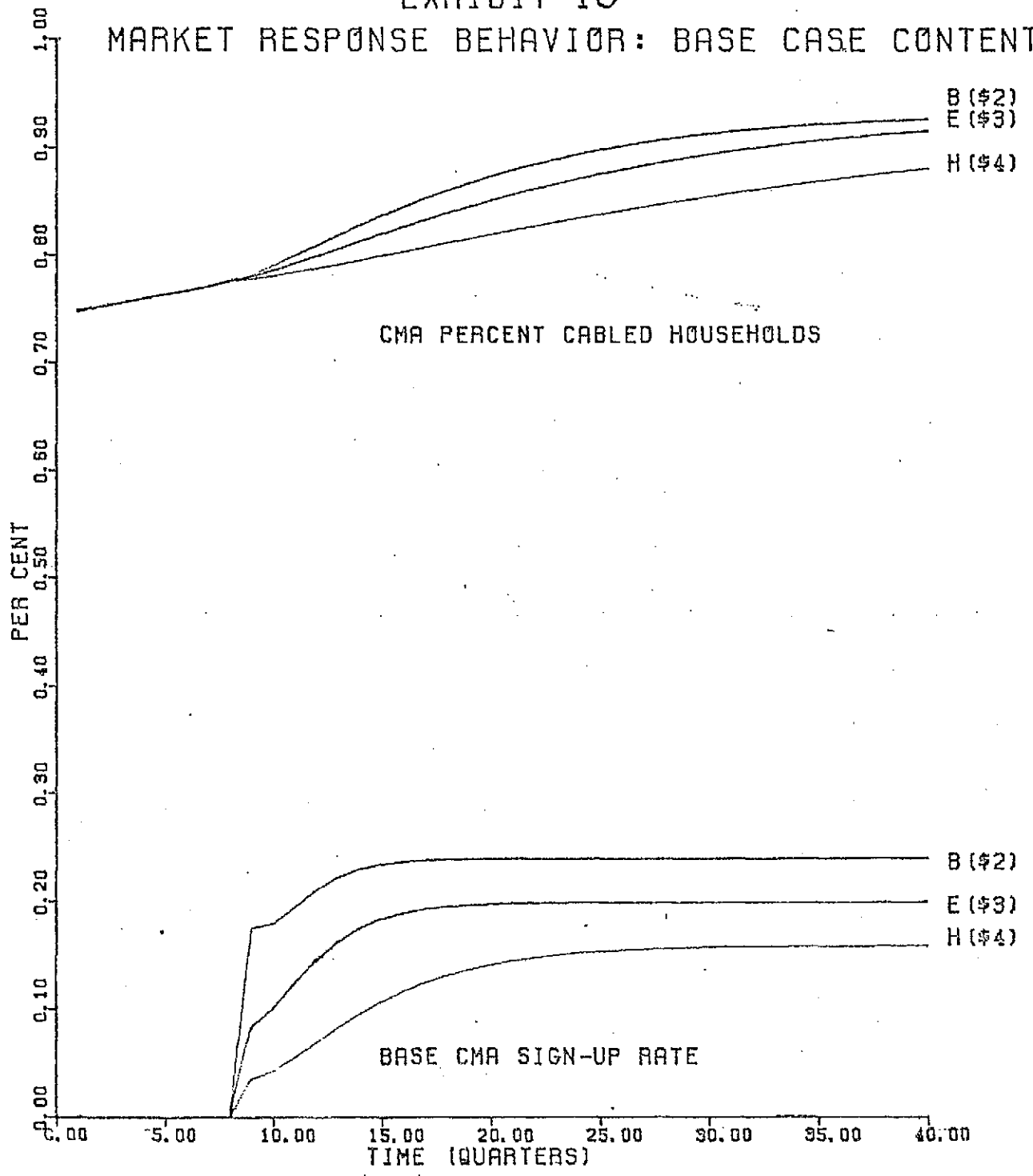
The impact of changes in price/content scenario can also be seen in the program view rates (Exhibit 6). At a 2 dollar price per program, the steady state average household view rate is 6 programs per quarter, or 35.2 percent of the programs available. At a 3 dollar price, this decline to 4 programs per quarter (23.5 percent of programs available) and at a 4 dollar price, 3 programs per quarter (17.6 percent of programs available).

As outlined later in this report, these price/content sensitivities have a dramatic impact on the overall financial and market results for a PATV operation.

PRICE/CONTENT SENSITIVITY: BASE CASE CONTENT

The consumer price sensitivity for the base case program content is shown graphically in Exhibit 10. As seen, changes in price per program have a greater impact on cabling rate than for the low profile program content. More attractive content is likely to have a greater impact on cabling rate at all three price levels.

EXHIBIT 10 MARKET RESPONSE BEHAVIOR: BASE CASE CONTENT



As can be seen in Exhibit 10, at 2 dollars per program, 24 percent of households would be expected to subscribe to PATV, a 2 percent increase over the low profile scenario. Also, the average CMA would approach this 24 percent at a much faster rate as shown (compare B to A). At 3 dollars per program, the PATV penetration would decline to 20 percent, and at 4 dollars per program, the PATV penetration would decline to 16 percent.

When compared to the low profile content penetration rates, these estimates reflect the likelihood that base case program content will be less sensitive to price increases than low profile content, which is reflected in empirical evidence.

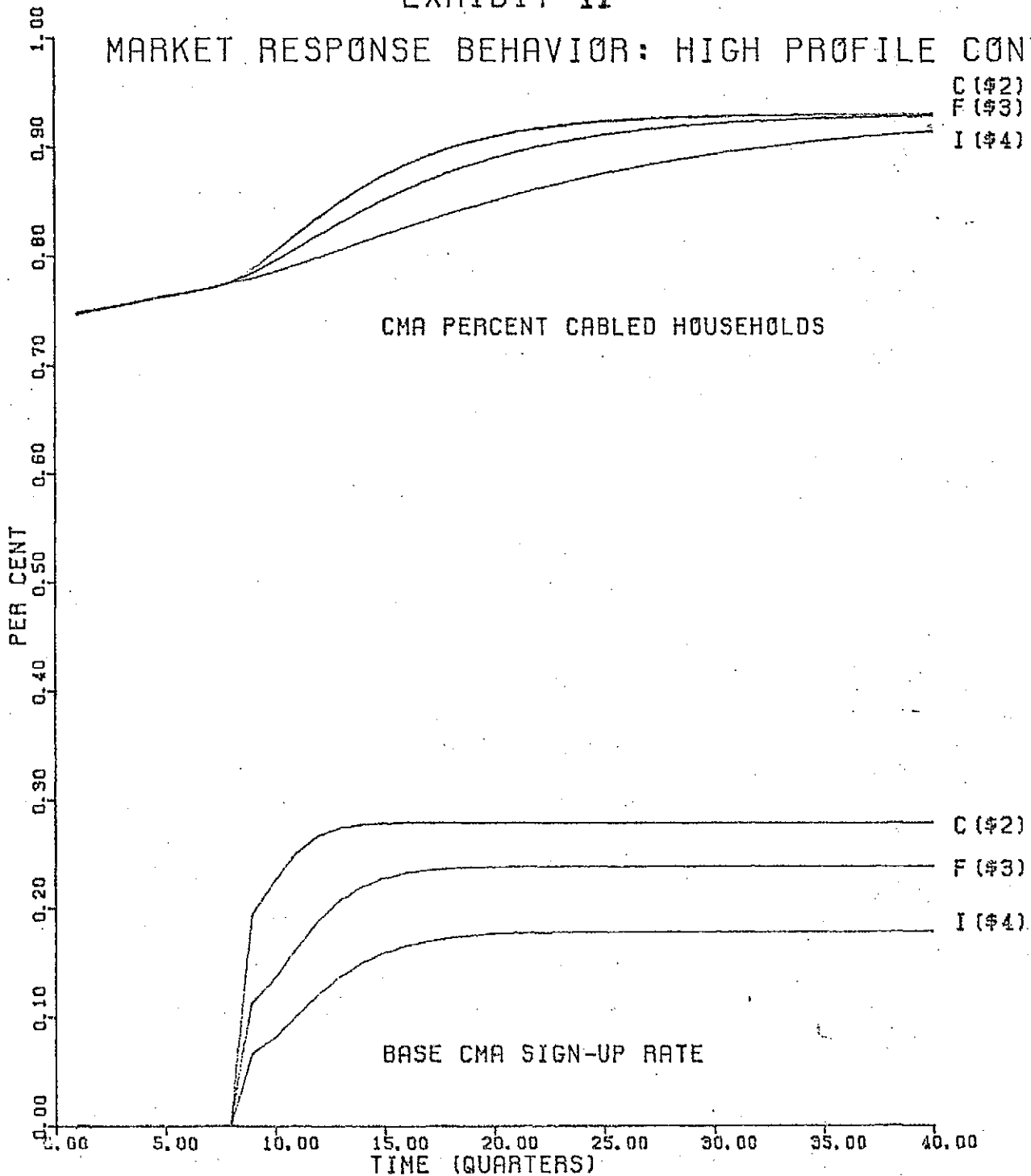
The impact of price/content changes can also be seen in the program view rates (Exhibit 7). At a 2 dollar price per program, the steady state average household view rate is 8 programs per quarter, or 29.6 percent of programs available. At a 3 dollar price (the base case price), this declines to 6 programs per quarter, or 22.2 percent of programs available, and at a 4 dollar price, 4 programs per quarter or 14.8 percent of programs available.

PRICE/CONTENT SENSITIVITY: HIGH PROFILE CONTENT

The market response behavior for the high profile program content is shown graphically in Exhibit 11. As shown, changes in price per program have their highest impact on the cabling rate for this very attractive program content alternative. For the most attractive price/content scenario C, the impact on cabling rate is likely to be dramatic; the combination of very attractive programming at a low 2 dollar per program price.

EXHIBIT 11

MARKET RESPONSE BEHAVIOR: HIGH PROFILE CONTENT



As shown in Exhibit 11, at 2 dollars per program, 25 percent of households would be expected to subscribe to PATV, a 4 percent increase over the base case scenario, and a 6 percent increase over the low profile scenario (both at the \$2 price per program). This patv penetration would decline to 24 percent at 3 dollars per program, and 18 percent at 4 dollars per program. As seen, the rate of increase of PATV penetrations to steady state is very rapid, particularly at the 2 dollar per program price.

The impact of price/content changes can also be seen in the program view rates (Exhibit 8). At a 2 dollar price, the steady state average household view rate is 18 programs per quarter, or 40.9 percent of programs available. This declines to 14 programs per quarter at 3 dollars, or 31.8 percent of programs available, and 10 programs per quarter at 2 dollars, or 22.7 percent of programs available.

In order to illustrate the marketing impact of the nine price/content scenarios in a more pragmatic fashion, the effects of the changes on the Toronto market are shown in Exhibits 12, 13 and 14. Shown are the total number of PATV subscriber households on a yearly basis for each of the nine scenarios. This data illustrates the dramatic expected impact of different price/content scenarios on consumer response to PATV.

For the overall Canadian market at steady state after ten years of network operation, Exhibit 15 shows the estimated impact of different price/content scenarios on total PATV subscribing households.

EXHIBIT 12

EXAMPLE OF PRICE/CONTENT SENSITIVITY

TORONTO MARKET: TOTAL PATV HOUSEHOLDS

BY YEAR: LOW PROFILE CONTENT

		PRICE/CONTENT SCENARIO		
YEAR	(QUARTER)	A(\$2)	D(\$3)	G(\$4)
1	(12)	92,831	50,473	30,285
2	(16)	148,788	89,300	60,292
3	(20)	176,667	114,612	83,290
4	(24)	190,540	129,459	99,277
5	(28)	199,195	138,552	110,162
6	(32)	205,967	144,847	117,769
7	(36)	211,926	149,842	123,420
8	(40)	217,410	154,221	127,957

EXHIBIT 13

EXAMPLE OF PRICE/CONTENT SENSITIVITY

TORONTO MARKET: TOTAL PATV HOUSEHOLDS
BY YEAR: BASE CASE CONTENT

PRICE/CONTENT SCENARIO				
YEAR	(QUARTER)	B(\$2)	E(\$3)	H(\$4)
1	(12)	161,301	113,325	53,048
2	(16)	198,959	155,956	92,875
3	(20)	211,518	170,689	117,333
4	(24)	220,121	178,675	131,080
5	(28)	227,150	185,033	139,386
6	(32)	233,106	190,626	145,233
7	(36)	238,338	195,666	150,007
8	(40)	243,110	200,284	154,288

EXHIBIT 14

EXAMPLE OF PRICE/CONTENT SENSITIVITY

TORONTO MARKET: TOTAL PATV HOUSEHOLDS

BY YEAR: HIGH PROFILE CONTENT

PRICE/CONTENT SCENARIO

YEAR	(QUARTER)	C(\$2)	F(\$3)	I(\$4)
1	(12)	218,805	162,436	94,884
2	(16)	245,514	202,551	136,775
3	(20)	257,103	215,426	152,647
4	(24)	264,829	223,557	160,620
5	(28)	170,673	229,838	166,500
6	(32)	275,698	235,053	171,560
7	(36)	280,422	239,671	176,099
8	(40)	285,071	243,984	180,255

EXHIBIT 15

TOTAL CANADIAN PATV SUBSCRIBING HOUSEHOLDS
AFTER 40 QUARTERS OF NETWORK OPERATION

<u>SCENARIO</u>	<u>PATV SUBSCRIBER HOUSEHOLDS</u>
A	1,088,000
B	1,238,000
C	1,465,000
D	762,000
E	1,010,000
F	^{1,249} 2,855 ,000
G	617,000
H	763,000
I	909,000

VI. FINANCIAL RESULTS FOR PRICE/CONTENT SCENARIOS

The primary purpose of this phase of the study was to assess the financial implications of nine different price and content scenarios for the introduction of PATV into Canada. All fixed costs and variable cost relationships were held constant for all nine simulations. The cost assumptions were documented in an earlier study and are reproduced in Appendix B for convenience.

Exhibit 16 summarizes the key financial results from the simulations. The nine scenarios illustrated were described in Exhibit 3.

I. Revenue

As seen in Exhibit 16, Scenario F generates the greatest total revenue over the 40 quarters of network operations¹. It also generates the greatest total revenue from Canadian films, foreign films and live events. For the nine scenarios total revenue estimates over the 40 quarters vary from \$418 to \$855 million.

II. Producers' Fees

Scenario F provides the greatest total fees to producers of films and live events, \$77 million. Total fees to Canadian producers vary from \$37 to \$77 million over the nine scenarios. It should be emphasized that this is an estimate of the total funds that would be available to pay Canadian program

¹Recall that although in these simulations the network operates for 40 quarters the service is offered to consumers for the first time in the 9th quarter and the service is not offered to all of Canada until the 17th quarter.

producers over a ten year period. It should also be stressed that although foreign producers are generating 80 per cent of total revenues they are only being paid 20¢ for every dollar of revenue they generate whereas Canadian film producers are paid 90¢ for every dollar of revenue they generate. The key notion here is that through the rate card foreign producers are cross subsidizing Canadian producers.

Recall that the high profile scenarios C, F and I assumed 6 new Canadian films per quarter while all other scenarios assumed 3 new Canadian films per quarter. Thus from the standpoint of funds available to Canadian producers on a per film basis the high profile scenarios are all less desirable than the other scenarios.

III. Other Costs

Some of the major costs associated with the delivery of PATV are seen in Exhibit 16. Notice that the funds required to pay for hardware related items such as rental of cable lines, rental of the black box and use of the satellite are substantially greater than those going to producers. It is also interesting that the funds going to the cable companies for line rental are modest compared to the satellite rental and the black box. One should keep in mind however that both the cable and the satellite are in place while the fees directed toward rental of the black box must pay for both the manufacture and maintenance of the box.

IV. Income Statement Data

All of the low price (\$2 per view) scenarios lead to net losses over the 40 quarter period. Although scenario C becomes marginally profitable for some

quarters it reverts to unprofitable operations. The scenario providing the highest total income to the network is scenario I with \$121 million.

The income results highlight the differential impact of the scenarios on those who have an interest in PATV. Scenario F generates the highest revenue to Canadian producers; scenario C provides the greatest line rental revenue to cable companies and the greatest black box rental revenue to the manufacturer of the box and finally scenario I provides the greatest net income to owners of the network. Obviously all of the parties involved would like to influence the way PATV is organized in order to achieve maximum benefit for themselves. These diverse interests must be carefully considered by any network operator.

V. Profit and Loss Timing

All of the scenarios have net losses for at least some quarters. Scenario A has the largest quarterly loss with \$2.3 million while several scenarios have a lowest quarterly loss of \$0.8 million. All scenarios lose money until the beginning of the 9th quarter because that is when the first market is entered. Scenario E is unprofitable for quarters 13 and 14 because at this time the large satellite fixed cost begins to occur. By quarter 15 revenues are sufficiently high to cover these costs. Scenarios A and B do not generate a profit in any quarter.

VI. Timing of Financing

It is assumed that the network puts up no equity so all financing is done through debt. The financing is needed for head office equipment, to finance accounts receivable and to finance losses in the start up phase. Since scenarios A, B and C generate regular losses at steady state they continue to build up debt indefinitely. Scenario D builds up a maximum debt of \$30 million in the 39th quarter and although profitable has not repaid that debt by the 40th quarter. Similarly scenario G has maximum debt of \$24 million by the 24th quarter but the debt is not repaid by the 40th quarter. The remaining scenarios require maximum financing of \$4-10 million and are all repaid within 8 quarters after the maximum is reached.

To avoid confusion it must be emphasized that we are referring to the financing required to operate a network which rents most of its physical facilities. Also it does not address the question of how much financing is needed by cable companies to modify their head ends or by the monitoring companies to manufacture the black box.

VII. Rate of Return

Only four scenarios provide a positive time adjusted rate of return based on network cash flows. Of these four scenarios, F is the highest with 17.6 percent per quarter or an annual return of over 90 percent.

EXHIBIT 16

SUMMARY OF THE ECONOMIC IMPACT OF THE NINE SIMULATED SCENARIOS

	SCENARIO								
	\$2 PRICE				\$3 PRICE			\$4 PRICE	
	A	B	C	D	E	F	G	H	I
I. Revenue From Monthly Customer Charges (all 40 quarters)									
Canadian Film	52.2	64.8	79.9	45.1	66.8	85.6	41.8	56.4	73.2
Foreign Film	444.0	550.7	679.0	383.0	567.8	727.5	355.6	479.6	622.2
Live Events	26.1	32.4	39.9	22.5	33.4	42.8	20.9	28.2	36.7
Total	522.3	647.9	798.8	450.6	668.0	855.9	418.3	564.2	732.1
II. Fees Paid to Producers (all 40 quarters)									
Canadian Producers	47.0	58.3	71.9	40.5	60.1	77.0	37.7	50.8	65.9
Foreign Producers	88.8	110.1	135.8	76.6	113.5	145.5	71.1	95.9	124.4
Live Event Producers	13.1	16.2	20.0	11.3	16.7	21.4	10.5	14.1	18.3
Total	148.9	184.6	227.7	128.4	190.3	243.9	119.3	160.8	208.6
III. Selected Other Costs (all 40 quarters)									
Line Rental From Cable Companies	22.3	12.4	34.5	14.6	30.0	28.3	10.9	14.9	19.5
Line Monitoring (black box)	202.9	253.3	313.5	133.3	199.5	256.9	99.4	135.3	177.1
Satellite Rental	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
IV. Selected Income Statement Data (all 40 quarters)									
Total Net Income	(62.5)	(43.5)	(19)	(17.8)	45.4	99.6	3.9	60.7	121.9
Total Cash	(70.6)	(52.6)	(30.2)	(25.1)	35.8	87.8	(0.6)	51.7	111.2
V. Timing of Profits and Losses									
Maximum Loss in a Quarter	(\$2.3)	(1.9)	(0.8)	(1.9)	(0.8)	(0.8)	(2.1)	(1.1)	(0.8)
Quarter in which Maximum Occurs	31	28	8	14	8	8	13	13	8
Quarters that are profitable	NOT	NOT	9-12	32→	9-12	9→	24→	17→	9→
			15-20		15→				
VI. Timing of Financing									
Maximum borrowing required	\$70.6	52.6	30.8	28.0	5.9	4.7	24.4	10.8	4.6
Quarter in which Maximum Occurs	40	40	39	33	15	9	24	17	9
Quarter in which Debt is Completely Repaid	NOT	NOT	NOT	NOT	21	16	NOT	25	17
VII. Time Adjusted Rate of Return Per Quarter	0	0	0	0	9.6	17.6	0	8.7	17.4

VII. SCENARIO E - A CLOSER LOOK

In the preceeding section we compared the financial results of the nine scenarios over the entire 40 quarters. Another way of looking at the results is to see what the PATV operation looks like at steady state (i.e., after all markets have been entered and the novelty has worn off). Scenario E has been chosen for closer analysis since it represents our average price and base case content.

PATV Subscribers

During the 10th year of network operation and assuming scenario E ; PATV viewership is estimated to be as seen in Exhibit 17 below.

EXHIBIT 17

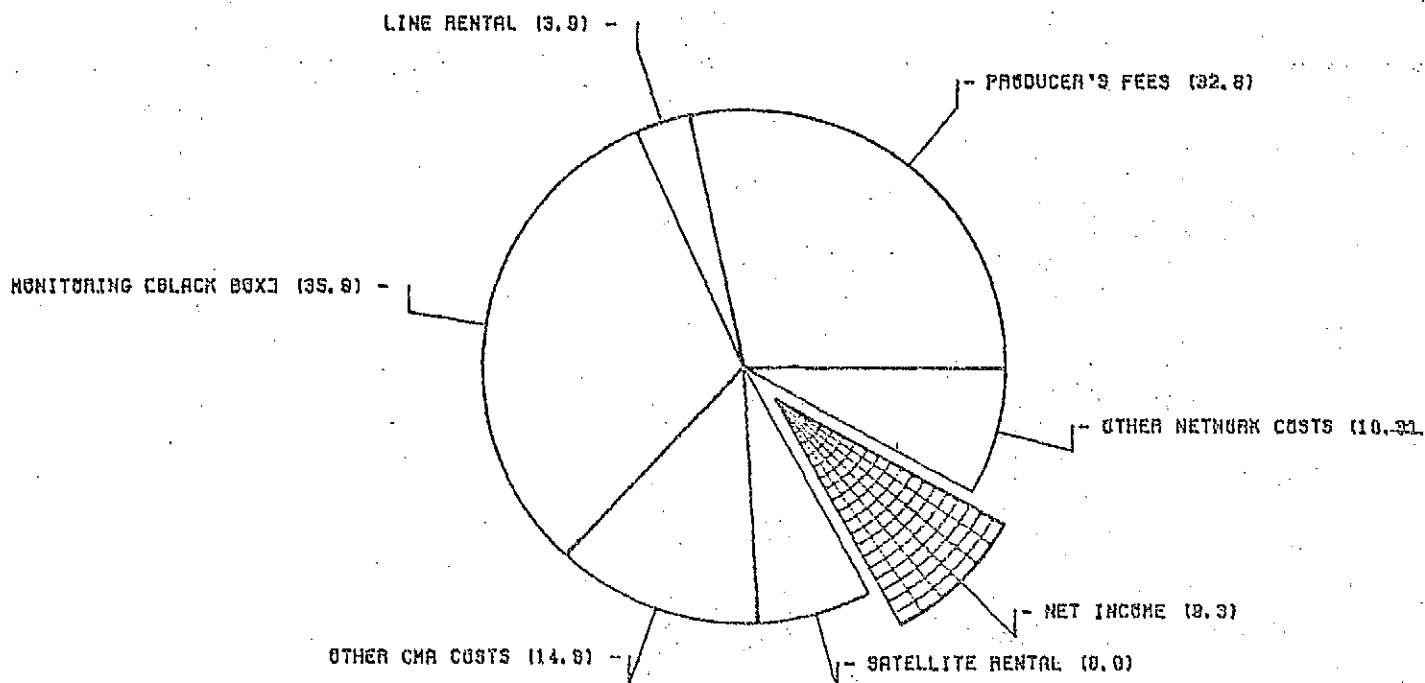
CANADIAN MARKET CHARACTERISTICS IN THE 10TH YEAR OF NETWORK OPERATION, SCENARIO E

Total Canadian Cable Passed Households	8,694,000
Cabled Households	5,051,000
PATV Connected Households	1,010,000
% of Households Cabled	58%
% of Households Connected to PATV	12%
% of Cabled Households Connected to PATV	20%

EXHIBIT 18

DISTRIBUTION OF REVENUE

PAYTV - - - 10TH YEAR
(SCENARIO - E)



Network Operations

The total revenue of the network during the 10th year of operations is estimated to be \$114 million. Exhibit 18 outlines how that revenue is expected to be spent.

REFERENCES

1. J. Hatch, I. Kmiec, P. Kuzdrall, R. More, PATV Study Phase One
A Pay Per Program Simulation Model, February 15, 1980.
2. Correspondence from Gerald Lavallee to Dr. James Hatch, March 10,
1980 with reference to Canadian content guidelines for PATV.

APPENDIX A

OPERATION OF PRICE/CONTENT SENSITIVITY SIMULATION

As outlined in the report, the price/content sensitivity analysis is based on nine (9) possible scenarios of program price and content. For each of the nine scenarios, the model simulates consumer response for that particular combination of program content and price.

The basic operation of the market response simulator was outlined in the report on Phase One of the PATV study (1). This outline will be used as a basis to describe the price/content sensitivity analysis.

The operation of the market response module is shown schematically in Exhibit A1. It goes through a series of quarterly iterations for 40 quarters for each of the 38 CMA's starting when each CMA first receives PATV service. The model proceeds through the 11 steps for each market producing revenue estimates. The 11 steps in the market response module are now outlined in more detail.

1. CMA Cable-Passed Households

The quarterly simulation for each CMA for each quarter starts with an estimate of cable-passed households (HH). This estimate for each CMA at any point in time is taken from the CMA cable-passed households plot (Exhibit A2), which estimates the increase in cable-passed households over time for each CMA for the 40 quarters after the start of the operation of a PATV network. The creation of the cable-passed households plot was outlined in the Phase One report (1). In the price/content sensitivity analyses, households estimates do not vary.

2. Percent of Households Cabled

The percentage of households cabled is estimated from the percentage of cable-passed households connected to cable television service at any point in time. This value for each CMA for each quarter is taken as shown in Exhibit A1, from the CMA percent cabled household plot (Exhibit A3), which plots the percent of passed households cabled versus time for each CMA for 40 quarters after the start of the PATV network. The source of the percent cabled household plot was outlined in the Phase One report (1).

As shown in Exhibit A3, the rate of increase in cabled households after market entry of PATV is expected to vary between particular price/content scenarios. The simulator uses changes in the values of parameters K1 and K2 to reflect these differences in growth in cabled households. The sets of K1 and K2 values actually used in the sensitivity analyses are outlined in Exhibits 6, 7 and 8 of the report.

3. CMA Cabled Households

The CMA cabled households estimate for a given quarter of network operation is calculated as shown in Exhibit A1 from CMA cable-passed households (step 1) and percent of households cabled (step 2). It represents the number of cable-passed households in a CMA that are connected to cable television service in any quarter.

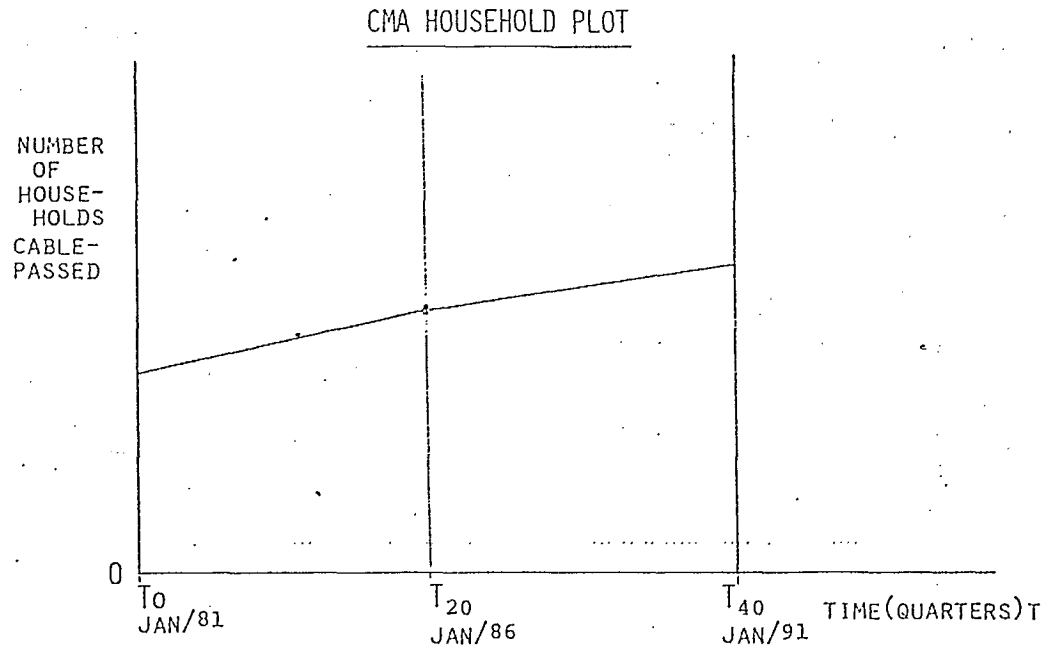
4. Base PATV Signup Rate

The base PATV signup rate is the percentage of cable-connected households that have subscribed to PATV in any quarter. This rate is a

EXHIBIT A1

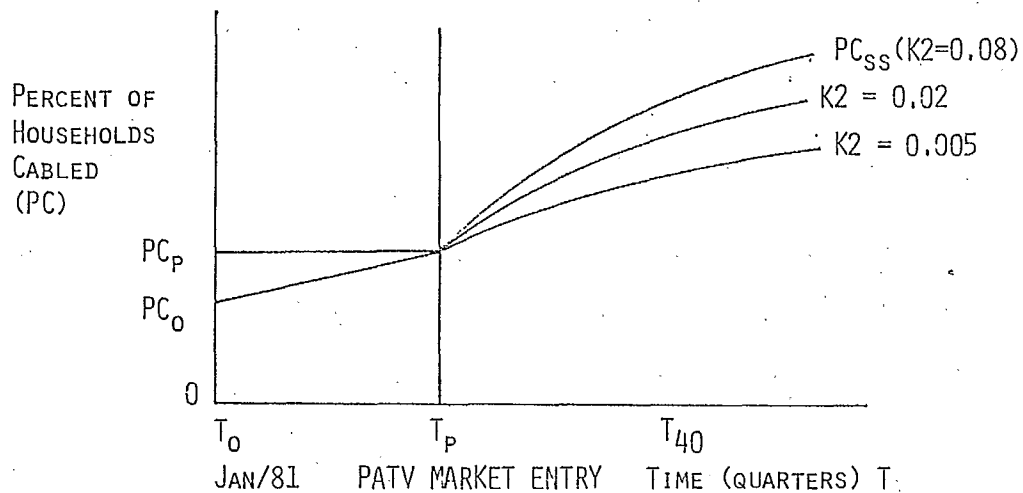
PATV MARKET RESPONSE MODULE
BASIC OPERATION FOR EACH QUARTER

DATA	SOURCE
1. <div>CMA CABLE-PASSED HOUSEHOLDS</div>	CMA CABLE-PASSED HOUSEHOLD PLOT
x	
2. PERCENT OF HOUSEHOLDS CABLED	CMA PERCENT CABLED HOUSEHOLD PLOT
3. <div>CMA CABLED HOUSEHOLDS</div>	
x	
4. BASE PATV SIGNUP RATE	BASE CMA SIGNUP RATE PLOT
5. <div>CMA PATV HOUSEHOLDS</div>	
x	
6. BASE PAY CABLE VIEW RATE	BASE CMA VIEW RATE PLOT
7. <div>CMA BASE PROGRAMS VIEWED</div>	
x	
8. CMA MARKET RESPONSE FACTOR	CONSTANT FOR EACH CMA
9. <div>CMA ACTUAL PROGRAMS VIEWED</div>	
x	
10. PRICE PER PROGRAM VIEWED	
11. <div>CMA REVENUE FOR THAT QUARTER</div>	

EXHIBIT A2ASSUMPTIONS

1. HOUSEHOLDS AT T_0 = ESTIMATED HOUSEHOLDS FOR JANUARY, 1981. ESTIMATE MADE FOR EACH CMA FROM '76 CMA CENSUS DATA (STATS CANADA) UPDATED BY CMA GROWTH RATES (STATS CANADA CATALOGUE 91-207)
2. GROWTH OF EACH CMA FOR FIVE YEARS TO T_{20} (JAN/86) BASED ON RECENT CMA GROWTH (STATS CANADA CATALOGUE 91-207)
3. GROWTH OF EACH CMA FOR FIVE YEARS FROM T_{20} TO T_{40} (JAN/86 TO JAN/91) BASED ON YEARLY GROWTH RATE OF 1 PERCENT

EXHIBIT A3

CMA PERCENT CABLED HOUSEHOLDS PLOT: PRICE/CONTENT SENSITIVITYBASIS FOR SENSITIVITY ANALYSIS

FOR THE PLOT SHOWN:

- 1) FOR TIME $T_0 \rightarrow T_p$ (BEFORE PATV MARKET ENTRY)

$$PC_T = PC_0 \left(1 + K_1\right)^{\frac{T}{T_0}}$$

WHERE $K_1 = 0.005$ (0.5 PERCENT PER QUARTER SECULAR GROWTH RATE)

- 2) FOR TIME $T > T_p$ (AFTER PATV MARKET ENTRY)

$$PG = PC_0 \left(1 + K_1\right)^{\frac{T}{T_0}} + \left\{ \frac{PC_{SS} - PC_0}{1 - \frac{1}{\left(1 + K_2\right)^{\frac{T}{T_p}}}} \right\}$$

- 3) K_1 CAN BE VARIED TO REFLECT A DIFFERENT SECULAR TREND (NATURAL GROWTH RATE IN CABLED HOUSEHOLDS INDEPENDENT OF PATV)
- 4) K_2 CAN BE VARIED AS SHOWN ABOVE TO REFLECT DIFFERENT INCREASES IN CABLED HOUSEHOLDS AS A RESULT OF A MORE OR LESS ATTRACTIVE PRICE/CONTENT SCENARIO
- 5) INITIAL PERCENT HOUSEHOLDS CABLED PC_0 FROM FINANCIAL POST, SURVEY OF MARKETS, 1979.
- 6) THE PERCENT OF HOUSEHOLDS CABLED FOR A PARTICULAR CMA IS ASSUMED TO STABILIZE AT PC_{SS} .
- 7) MINIMUM VALUE OF $K_2 = 0.005$ MAXIMUM VALUE OF $K_2 = 0.08$

base rate; that is its value for a quarter is taken from the base CMA signup rate plot (Exhibit A4). This base value is subsequently "corrected" for each CMA subsequently (step 8) using the particular CMA market response factor. The source of this plot was outlined in the Phase One report (1).

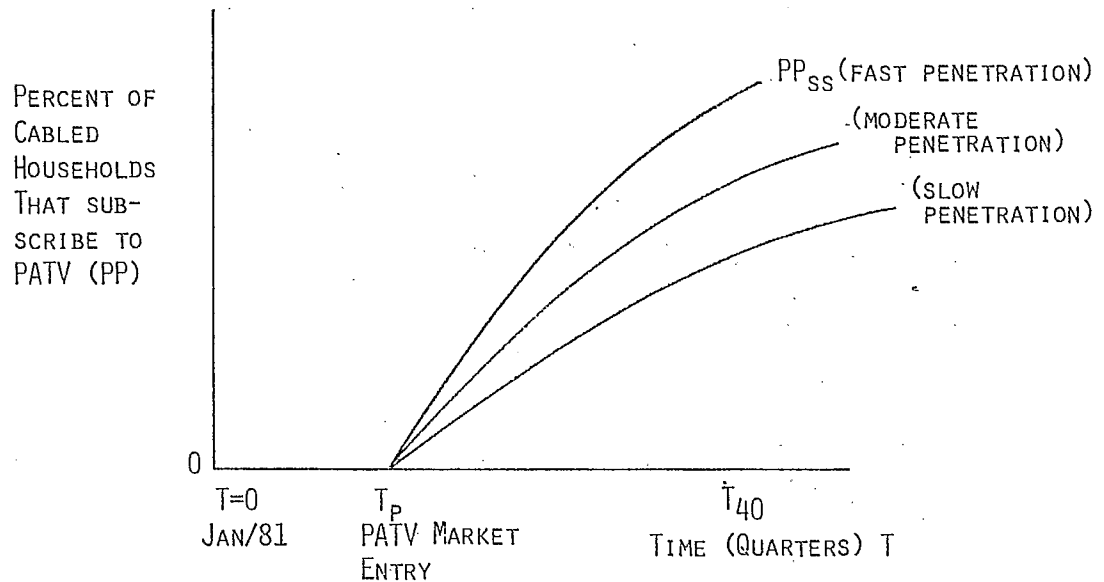
As shown in Exhibit A4, this signup rate is expected to vary depending on the attractiveness of particular price/content scenarios to consumer households. By varying the values of parameters PP_{ss} , K3, K4, K5 and K6, the model can simulate different responses of consumers to PATV based on different price/content scenarios.

5. CMA PATV Households

The CMA PATV households estimate for a quarter is the number of households that are subscribers to PATV service for that CMA in the particular quarter. It is calculated as shown in the simulation from the CMA cabled households estimate (step 3) and the PATV signup rate estimate (step 4).

6. Base Pay Cable View Rate

The base pay cable view rate estimate is the average number of programs watched per household per quarter for a base or average CMA. This estimate for a given quarter is taken from the base CMA view rate plot (Exhibit A5). This base value is then "corrected" for each CMA (step 8) using the CMA market response factor. The source of the base plot were outlined in the Phase One report (1).

EXHIBIT A4BASE CMA SIGNUP RATE PLOT: PRICE/CONTENT SENSITIVITYBASIS FOR SENSITIVITY ANALYSIS:ASSUMPTIONS

- 1) FOR A PARTICULAR CMA, PATV SERVICE BECOMES AVAILABLE AT TIME T_P .
- 2) AT ANY TIME T , FOR A "BASE" CMA, HOUSEHOLDS WILL ADOPT PATV BASED ON THE FUNCTION SHOWN.
- 3) FOR THE PLOT SHOWN:

- A) FOR TIME $T_0 \rightarrow T_P$ (BEFORE PATV MARKET ENTRY)
 $PP_T = 0$

- B) FOR TIME $T \geq T_P$ (AFTER PATV MARKET ENTRY)

$$PP_T = PP_{SS} \left\{ 1 - \frac{PP_{SS}}{T \left(\frac{K3}{2.7} + \frac{K4}{2} + K5 \cdot T + \frac{T}{T_P} K6 \right)} \right\}$$

THE PARAMETERS $K3$, $K4$, $K5$ AND $K6$ AND PP_{SS} CAN BE VARIED TO SHOW DIFFERENT RESPONSES TO PATV AS A RESULT OF MORE OR LESS ATTRACTIVE PRICE/CONTENT SCENARIOS.

- 4) FOR THE THREE PATV SIGNUP RATES SHOWN ABOVE, REPRESENTATIVE PARAMETER VALUES WOULD BE AS FOLLOWS:

	<u>FAST</u> <u>PENETRATION</u>	<u>MODERATE</u> <u>PENETRATION</u>	<u>SLOW</u> <u>PENETRATION</u>
$K3 =$	6.4	1.6	0.04
$K4 =$	2.0	0.5	0.125
$K5 =$	0.148	0.037	0.009
$K6 =$	0.32	0.08	0.02

As shown in Exhibit A5, the view rate plot can be shifted up or down to reflect different program viewing rates depending on the relative attractiveness of different price/content scenarios.

7. CMA Base Programs Viewed

The CMA base programs viewed estimate is calculated as shown in Exhibit A1 from the CMA PATV households estimate (step 5) and the base pay cable view rate estimate (step 6). It estimates the total number of PATV programs viewed for a particular CMA based on the "base" CMA, not corrected for the consumer response characteristics of that particular CMA.

8. CMA Market Response Factor

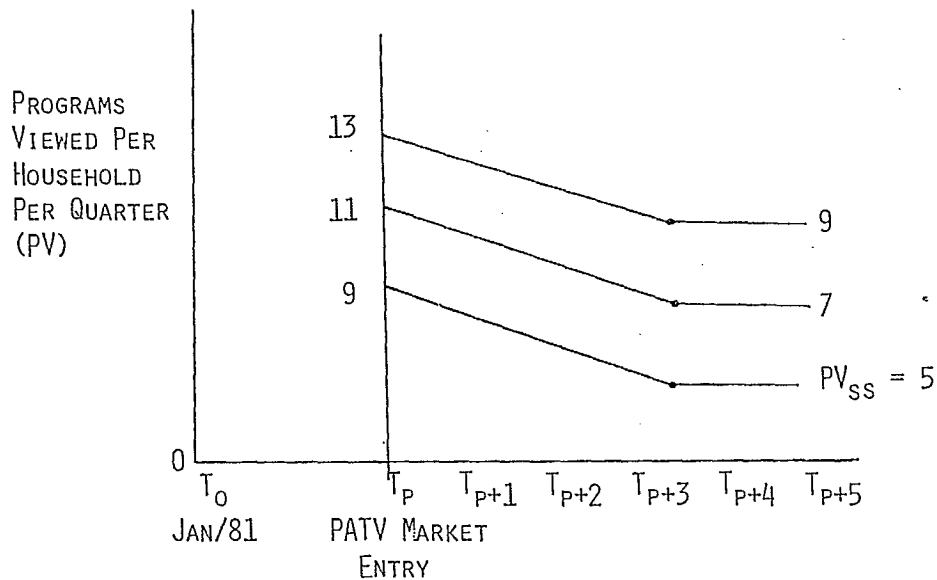
The CMA market response factor is a multiplier constant for each CMA which estimates how the CMA will respond to PATV as compared to the "base" or average CMA. The derivation of these factors was outlined in the Phase One report (1).

9. CMA Actual Programs Viewed

The CMA actual programs viewed estimate is the actual number of programs viewed in a given quarter for each specific CMA. It is calculated from the CMA base programs viewed (step 7) and the CMA market response factor for each CMA (step 8).

EXHIBIT A5

BASE CMA VIEW RATE PLOT: PRICE/CONTENT SENSITIVITY

ASSUMPTIONS:

1. FOR THE "BASE" CMA IN THE FIRST QUARTER THAT PATV IS AVAILABLE, THE AVERAGE HOUSEHOLD IN THE BASE CMA WILL VIEW PV_P PROGRAMS. THE CURRENT VALUE IS $PV_P = 9$.
2. THE PROGRAMS VIEWED PER QUARTER PER HOUSEHOLD WILL THEN DECLINE ONE PROGRAM PER QUARTER AS SHOWN TO A STEADY STATE VALUE OF PV_{SS} , THE BASE CASE VALUE IS $PV_{SS} = 5$.
3. OTHER CURVES SHOWN INDICATE HIGHER LEVELS OF PROGRAM VIEWING IN RESPONSE TO MORE ATTRACTIVE PRICE/CONTENT SCENARIOS.

10. Price Per Program Viewed

The PATV market response simulation currently assumes the base case price per program viewed is \$3.00. This price is varied in the price/content sensitivity analysis as shown in Exhibit 3 of the report.

1. CMA Revenue for that Quarter

The CMA revenue estimate is the total revenue from consumers watching PATV for a CMA for a quarter of network operation. As outlined in the operation of the overall simulation model, this revenue can be aggregated over any number of CMA's and any number of time periods (quarters) for any estimate of consumer revenue from PATV.

APPENDIX B

THE PAY PER PROGRAM FINANCIAL MODULE

This appendix is taken directly from the report submitted as Phase I of the PATV project.

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IV. The Pay Per Program Financial Module

Overview

The financial module produces income statements for each CMA or any group of CMA's by quarter or for any specified series of quarters. It also produces a network income statement and balance sheet by quarter or for a series of quarters. In addition this module produces a quarterly cash flow and an internal rate of return for the network.

Data on revenues per quarter per CMA are generated by the marketing module and are fed into the financial module. The financial module then computes the costs of delivering the product described in the particular scenario being run. A distinction is made between costs incurred at the CMA level and costs incurred by the national distributor (network). The initial cost assumptions are based on a background study by the DOC¹.

CMA Revenues and Costs

A typical CMA income statement follows.

¹Background Research Paper: Pay Per Program Pay TV, March 1978.

- 37 -

CMA: TORONTO
 INCOME STATEMENT
 STARTING 12 ENDING 12
 AMOUNT SUB-TOTAL TOTAL

REVENUE			
CANADIAN FILM REVENUE	466388.		
NON-CANADIAN FILM REVENUE	3964299.		
LIVE EVENT REVENUE	233194.		
GROSS REVENUE			4663882.
LESS			
CANADIAN EXHIBITORS FEES	419749.		
NON-CANADIAN EXHIBITORS FEES	396430.		
LIVE EVENT EXHIBITORS FEES	116597.	932776.	
GROSS MARGIN			3731106.
SIGN-UP REVENUE	225371.		
NET REVENUE			3956477.
EXPENSES			
CMA OPERATING EXPENSES			
SIGN-UP EXPENSE	225371.		
MONITORING FEES	1107957.		
BILLING AND TV GUIDE	284376.		
LOCAL MARKETING EXPENSE	271535.		
LINE RENTAL FEE	121875.	2011114.	
CONTRIBUTION TO THE N.E.T.			1945363.

CMA Revenues

The revenues from consumers are of two types, a signup fee and a viewing fee. The signup fee is expected to pay for the cost of installation of the monitoring device. It is currently assumed to be a one time charge of \$10 for each new customer. The computation of revenue from consumer viewing was discussed in part III.

Source of Revenues

The consumer watches Canadian and foreign films and live events. It is assumed that total revenues from these three sources are as seen in Table 7 below. These proportions may all be charged by the user.

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Table 7Source of Revenue by Type of Exhibitor

<u>Source of Revenue</u>	<u>% of Total Revenue</u>
Canadian films	10
Foreign films	85
Live Events	<u>5</u>
	<u>100</u>

Exhibitors Fees

All exhibitors who wish to sell their product through PATV are presented with a rate card by the network. The rate card specifies the proportion of revenue generated by the exhibitor that must be paid to the network for the opportunity to access the PATV network. The initial assumptions for the rate card follow.

Table 8Initial Rate Card Assumptions

<u>Exhibitor</u>	<u>% of Revenue to Network</u>
Canadian film	10
Foreign film	80
Live Event	50

All values in the rate card may be changed.

Sign Up Expense

It is assumed that all revenues from sign up fees are simply paid out to a firm which does the installation of the monitoring device. Consequently, if the revenue item called "signup revenue" is changed in the model, the "signup expense" item automatically changes as well.

Line Rental Expense

A fee is paid to the cable company to lease the line and head end facilities. The fee currently assumed is 99¢ per customer per quarter. This value may be changed.

Monitoring

In addition to the sign up expense mentioned earlier the firm supplying the monitoring device is paid \$9.00 per quarter to cover the cost of the monitoring device and its maintenance. This value may be changed.

Billing and TV Guide

Each quarter the out of pocket costs for billing and printing of a TV Guide which is enclosed with the bill is assumed to be \$2.31. This value may be changed.

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Local Marketing Expense

Beginning two quarters prior to entry into a specific CMA it is presumed that local marketing costs will be incurred. The present assumption for this cost is 30¢ per cabled household per quarter². This value may be varied.

Network Revenues and Costs

A typical network income statement is seen in Figure 9.

Network Revenues

The network receives all revenues from customers in all CMA's. It then pays all of the CMA related costs including exhibitors fees and the expenses associated with sign up, line rental, monitoring, billing and TV Guide, and local marketing. The remaining revenues are called the "Contribution to NET" and are available to cover the costs which are unique to the network.

²This assumption is based on an internal study done by R. More

Figure 9 Typical Network Income Statement

INCLUDES CMA'S:

C01 C02 C03 C04 C05 C06 C07 C08 C09 C10 C11 C12 C13 C14 C15 C16 C17 C18 C19 C20
 C21 C22 C23 C24 C25 C26 C27 C28 C29 C30 C31 C32 C33 C34 C35 C36 C37 C38

INCOME STATEMENT

STARTING 1 ENDING 13

AMOUNT SUB-TOTAL TOTAL

REVENUE

CANADIAN FILM REVENUE	2551061.50		
NON-CANADIAN FILM REVENUE	21684024.00		
LIVE EVENT REVENUE	1275530.75		
GROSS REVENUE -			25510624.00
LESS			
CANADIAN EXHIBITORS FEES	2295955.00		
NON-CANADIAN EXHIBITORS FEES	2168408.00		
LIVE EVENT EXHIBITORS FEES	637765.38	5102128.00	
GROSS MARGIN			20408496.00
SIGN-UP REVENUE	2281568.00		22690064.00

EXPENSES

CMA OPERATING EXPENSES

SIGN-UP EXPENSE	2281568.00		
LINE RENTAL EXPENSE	645949.88		
MONITORING EXPENSE	5872272.00		
BILLING AND TV GUIDE	1507216.00		
LOCAL MARKETING EXPENSE	2387710.00	12694714.00	
CONTRIBUTION TO THE N.E.T.			9995350.00

NETWORK OPERATING EXPENSES

NEGOTIATE WITH PRODUCERS FOR PRODUCT			
NEG. STAFF	260000.00		
NEG. CHIEF	97500.00	357500.00	9637850.00

PROVIDE SERVICES FOR MARKETING

PR TV GUIDE STAFF	220000.00		
PR TV GUIDE CHIEF	82500.00	302500.00	9335350.00

PLAY-BACK FACILITIES

PLAYBACK STAFF	507599.94		
PLAYBACK CHIEF	65799.98		
LEGAL COUNSEL	195000.00		
TRAVEL	825000.00		
OFFICE SPACE	1625000.00		
SECY AND SUPPORT STAFF	206250.00		
INTL ACCT STAFF	180000.00		
INTL ACCT CHIEF	75000.00		
PHONE RECPTS	116999.95		
CLERKS	24750.00		
WATS LINES	94499.97		
CHIEF AND ASST	20250.00		
REGIONAL STAFF	93750.00		
REGIONAL SECYS	16250.00		
MKTG, SUNDRY, TEL, ETC.	2605750.00		
SATELLITE RENTAL	1000000.00		
SENDUP CHARGES	656250.00		
MICROWAVE CHARGES	549600.00	8284349.00	477601.00
DEPRECIATION	162499.81		
NET INCOME			315101.19

Function of the Network

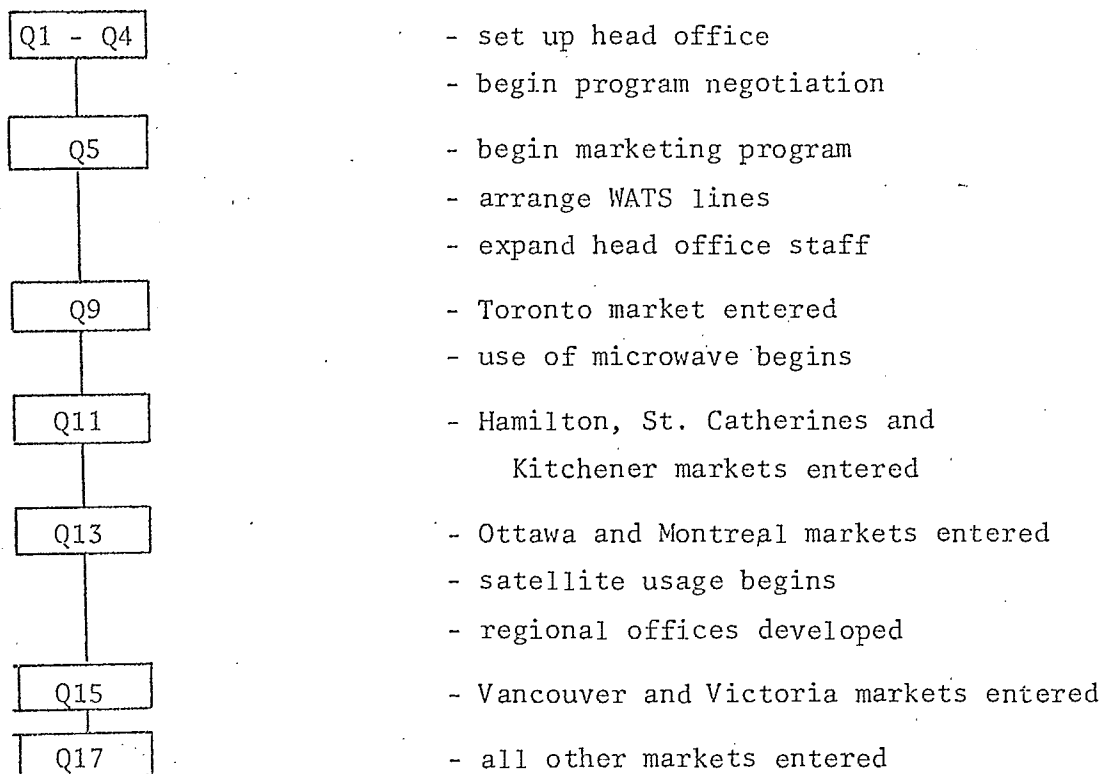
The national network is assumed to operate out of a rented building but the network purchases furnishings and video equipment. Its staff negotiates with suppliers of the product, produces the TV Guide, initiates program signals and handles accounting and other general management functions. In addition five regional offices would deal with regional exhibitors and interact by telephone with consumers.

Market Entry

It is currently assumed that markets are entered in the sequence seen in Figure 10.

Figure 10

Unfolding of the Market and the Network



Network Cost Behaviour

Network costs reflect the underlying assumptions regarding the unfolding of the market. Thus some costs are zero until the first market is entered; then for a while they rise to a new level. Finally when all markets are entered the cost increases to its steady state level. No allowance for inflation is made.

"Sundry costs" provide an example of network cost behaviour. From quarter 0 to quarter 4 they are \$0. From quarter 5 to quarter 8 they are 50 percent of the steady state cost, and from quarter 9 onward they remain at the steady state cost of \$372,250 per quarter.

The assumed costs of operating the network, except for delivery costs, are seen in Table 9.

Table 9

Assumed Network Operating Costs

THE PARAMETER VALUES FOR NETWORK EXPENSES CURRENTLY HAVE THE FOLLOWING VALUES:

ITEM	AMT	START	%	100% QTR
1) NEGOTIATION STAFF	20000.	0	1.00	0
2) NEGOTIATION CHIEF	7500.	0	1.00	0
3) PR TV GUIDE STAFF	20000.	0	0.50	4
4) PR TV GUIDE CHIEF	7500.	0	0.50	4
5) PLAYBACK STAFF	54000.	0	0.10	4
6) PLAYBACK CHIEF	7000.	0	0.10	4
7) LEGAL COUNSEL	15000.	0	1.00	0
8) TRAVEL	75000.	0	0.50	4
9) OFFICE SPACE	125000.	0	1.00	0
10) SECY AND SUPPORT STAFF	18750.	0	0.50	4
11) INTERNAL ACCT STAFF	18000.	0	0.25	4
12) INTERNAL ACCT CHIEF	7500.	0	0.25	4
13) PHONE RECEPTIONISTS	65000.	4	0.10	12
14) CLERKS	13750.	4	0.10	12
15) WATS LINES	52500.	4	0.10	12
16) CHIEF AND ASSISTANT	11250.	4	0.10	12
17) REGIONAL STAFF	93750.	12	1.00	12
18) REGIONAL SECRETARIES	16250.	12	1.00	12

Delivery Costs

The network can send out its signal via microwave or satellite. The model currently assumes that microwave is used for quarters 9 through 12. Table 10 outlines the assumed microwave costs.

Table 10Microwave Cost Assumptions

<u>Quarter</u>	<u>\$/quarter</u>
1-8	\$0
9,10	\$72,800
11,12	\$202,000
13-40	\$0

Beginning in quarter 13 the signal is sent up to the satellite. The assumed satellite rental and satellite send up charges are seen in Table 11.

Table 11Satellite Send Up and Rental Charges

<u>Quarter</u>	<u>Sendup Charge/Q</u>	<u>Rental Charge/Q</u>	<u># of Channels</u>
13-16	\$656,250	1,000,000	2
17-20	984,375	1,000,000	3
21-40	1,312,500	2,000,000	4

Depreciation

It is assumed that the network initially acquires equipment valued at \$500,000. This equipment is depreciated over 40 quarters on a straight line basis.

Taxes

No taxes are deducted.

Network Balance Sheet

The network rents its premises, therefore the assets employed are primarily for purchased equipment and accounts receivable. Purchased equipment is assumed to equal \$500,000 while accounts receivable are equal to one month's revenues. Early losses and all equipment purchases are assumed to be funded through borrowing. No interest cost has been built into the model.

A sample balance sheet follows.

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Figure 11

Sample Network Balance Sheet

N.E.T.
BALANCE SHEET
PERIOD 12

ASSETS =====		LIABILITIES =====	
CASH	0,	DEBT	2611913,
ACCOUNTS RECEIVABLE	1970437,		
EQUIPMENT (AT COST)	500000,		
LESS:			
ACCUMULATED DEPRECIATION	150000,		
NET EQUIPMENT	350000,	RETAINED SURPLUS	-291477,
	-----		-----
TOTAL ASSETS	2320437,	TOTAL LIABILITIES	2320437,
	=====		=====

Internal Rate of Return

The model automatically computes an internal rate of return for the network based on the net cash inflows and outflows to the network each quarter.

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