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ABSTRACT

Examining the factors that influence the distribution of technologies in developing countries should provide new possibilities for organizations engaged in international communication and audience research to understand, and respond, to potential audiences. Five critical elements influence the distribution of media technologies in developing societies: (1) population growth and the distribution of that growth; (2) income distribution; (3) development of private commercial media; (4) metropolitanization; and (5) increasing technological sophistication and its attendant aesthetic and economic demands. The Bihar state in India (nearly 87% rural) and Venezuela (with over 86% of its population classified as urban) serve as case studies of how these factors apply in particular situations. Despite the rapid development of media since India's independence, millions of Indian citizens are still outside their reach. The discrepancy between the media rich and the media poor appears to be widening. In Venezuela, the larger the community, the higher percentage of people who report ownership of advanced media. The case of Venezuela reaffirms that the arrival of new technologies in developing countries does not necessarily allow for greater levels of involvement of the population as a whole. What results is not a global village but increasing density of access for metropolitan elites, followed by gradual extension into smaller communities. Questions asked by scholars conducting international audience research have begun to change in response to such new environments--using the old categories and assumptions will mean losing a sense of the new audiences. (Nineteen figures of data are included; 21 references are attached.) (RS)

The Changing Context for Audience Research

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Introduction

We have become accustomed to hearing talk of a "global village." Although McLuhan's vision of such a village has been discounted (see Fortner, 1993, pp. 23-24; & Pleydell-Bouverie, 1991, p. 11), the news media continues to use the metaphor each time a new technology appears or finds application in what conventional Western wisdom considers a "remote" part of the planet, i.e., a part of the globe distant from New York. A recent story in the Washington Post, for instance, claimed that STAR-TV, a Hong Kong-based satellite television operation, had been "stunned by its voracious growth." Despite the fact that STAR's target audience was "high income and English-educated," and company officials said its audience was "for the most part--the most affluent and best-educated slice of the populace," the reporter claimed that "increasing numbers of South Asia's poor and uneducated also are gaining access to cable and satellite television. It has spread rapidly in dense urban neighborhoods and slums, where competition among local operators is so fierce that subscribers can pay as little as 80 cents per month for cable television or less than $2 per month for STAR-TV offered through cable outlets . . . ." (Moore, 1993, p. A12; see also Brauchli, 1993, pp. A1, A8).

Such claims, however, conceal as much as they reveal. [monthly wage amounts in urban areas of India] Also, the claims, while qualified by references to "urban" populations, fail to disclose that 28% of India, 46% of China, 32% of Pakistan, 22% of Bangladesh, and 25% of Indonesia live in rural areas, outside not only the reach of cable TV, but also often of electrical power grids needed to power television sets. On the one hand, it is impressive to consider 4.8 million households in India watching BBC World Service Television or MTV; on

the other, this largely represents another layer of media access for an already media-saturated elite, not a breakthrough in finally beginning the long march towards the promised global village.

The important question, then, is what difference it makes that new communications technologies find their way into developing countries. Do these technologies increase the access of otherwise inaccessible people, or do they merely contribute to the further differentiation of societies already stratified by income, education, residence, and occupation? Examining the factors that influence the distribution of technologies in such societies should provide new possibilities for organizations engaged in international communication to understand, and respond, to potential audiences.

Factors Influencing Access to Media in Developing Countries

There are at least five critical elements that influence the distribution of media technologies in developing societies. These include: (1) population growth and the distribution of that growth; (2) income distribution; (3) development of private commercial media; (4) metropolitanization; and (5) increasing technological sophistication and its attendant aesthetic and economic demands.

POPULATION GROWTH AND DISTRIBUTION

Developing countries' population growth is several magnitudes higher than that in the developed world. Examples of such growth in developed countries are 0.8% annual growth in the United States, 0.4% in France, and 0.3% in the United Kingdom. At these rates the population of the U. S. would double in 87 years, while France's would double in 174 years, and the U. K.'s would double in 231 years. This contrasts with the situation in developing

countries, where population growth rates a. .ypically between 1.5% and 4% annually. Examples, by continent, are as follows:

Country	Growth Rate	Pop. Doubling Time
AFRICA		
Kenya	3.6%	20 years
Mozambique	4.6	15
Nigeria	3.0	23
Rwanda	3.8	19
Senegal	3.1	23
INDIAN SUBCONTINENT		
Bangladesh	2.3	30
India	1.9	37
Indonesia	1.8	39
Pakistan	2.5	28
ASIA		
China (PRC)	1.6	44
Korea (ROK)	0.8	87
LATIN AMERICA		
Brazil	1.8	39
Colombia	2.1	33
Venezuela	2.4	29

The significance of these differences lies in the ability they signal for the ability of countries to absorb new technologies quickly. The higher the population growth rate in a society, the more rapid the creation of households. Even to maintain a given level of access to an existing technology, let alone accounting for the introduction of a new one, requires that rapidly populating societies invest more extensively in technologies than must societies with lower population growth. But the inverse of this is more generally the rule. Those societies with the lowest levels of population growth generally are richer, allowing them to invest in new technologies more rapidly, and extend them more widely, than rapidly populating

societies. Thus the logic of electronics companies is to invest in introducing newer, more sophisticated, and costlier equipment than to simplify, cut costs, or maintain existing equipment so as to supply the needs of ever wider, but poorer, markets.

One example of this is the personal computer. Although the prices for personal computers on a cost per transistor basis have fallen dramatically since 1982, this fact obscures two other equally salient features. First, programs written for PCs, and especially for graphics interfaced-based computers (including Windows, OS/2, and Macintoshes) have required more powerful computers and greater amounts of storage to function as designed. Even as the cost per transistor has fallen, then, programs written for computers have required that they include more and more transistors. This requirement has meant that the capabilities of central processing units (CPUs), that are at the core of PCs, have had to increase, incorporating more transistors, faster processing speeds, and now heat-sinks or an additional cooling apparatus to maintain temperatures at levels where the faster chips could function. Second, the gradual movement toward ever faster computers and more complicated (and demanding) software has meant that older models with less capable CPUs have been rendered obsolete. Programs that would run on 8088-based computers (IBM XTs) have been rewritten over time to require first an 80286 CPU (IBM AT), then a 80386 CPU. In mid-1992 the 50 MHz 80486 machine was state of the art, only to be supplanted late that year by the 66 MHz 80486, and, in early 1993, the Pentium (or what would have been the 80586). As each generation of CPUs has developed, the prices have started at high levels, only to fall rapidly as competitive systems are introduced by different companies. But then the prices would be jerked higher again by computers with faster processors, improved video performance, increased RAM, new hard

disk configurations (MFM, RLL, IDE, SCSI), or architectures (ISA, EISA, micro-channel). The result is that poorer segments of society, or poorer countries, are forced to choose between investing in a few state-of-the-art machines to forestall obsolescence for a longer time, or in many more nearly-obsolete machines that will rapidly lose access to available programs (and perhaps technical support).

To a more limited degree, a similar phenomenon has affected audio recording and playback equipment (cassette tape to CD, to digital tape, to recordable CD), television (monaural to stereo, PAL, SECAM, or NTSC to HDTV, analog to digital), radio (SW to MW, FM-VHF, to satellite delivery at different frequencies; analog to digital broadcasting), and even the telephone (mechanical to electronic switches, electrical to optical signals). The introduction of compression technologies will further increase the investment required to participate in the global information system (see Saunders, Warford, & Wellenius, 1983, pp. 40-41, for an example using the cost of electronic load switching equipment).

The results of high population growth in relatively poor countries is apparent. The countries least capable of investment must invest the most or find themselves falling ever-further behind wealthier countries with low population growth. Thus, even with a relatively inexpensive technology--the radio--a 1986 analysis suggested that, if population growth were considered, the penetration of radios on a per household basis declined in subsaharan Africa from 1981 to 1987, and then began a slow ascent. In the Indian subcontinent this problem of radio penetration keeping up with population growth was even more pronounced than in Africa, and in Central America and the Caribbean penetration remained flat from 1976 through 1990. In South America radio penetration was actually calculated to have declined

from 1981 through 1990, and would only reach its 1981 level in 1996 (see Fortner & Durham, 1986, pp. 153-169). A second study completed in 1991 demonstrated that these areas of the world would see a relatively flat trajectory in number of radio receivers available through 2010 (see Fortner, 1991, pp. 51-65). If population growth is accounted for over this period, barring some unforeseen circumstance, the penetration of radio receivers, one of the simplest and least expensive of modern communication technologies, would decline on a per household basis in many parts of the world.

Income Distribution

Income distribution has historically been a difficult issue to discuss, because statistics are updated so infrequently. So it is not unusual to examine recent literature on economics in developing countries and find that analysis continues to be based on distribution statistics a decade or more old. In Latin America, for instance, a 1989 publication shows that between 1960 and 1970, the 50% poorest people increased their share of total income from 13.4% to 13.9%, while the wealthiest 30% found their share decreasing slightly from 72.5% to 72.2%. (Wilkie & Ochoa, 1989, p. 339) There are more recent statistics, however, that provide some insight into the problem of income distribution outside the advanced industrialized countries. These statistics suggest that in many parts of the world the disparity between rich and poor is growing wider by the year, or that wages are not keeping pace with the cost of living.

Examining statistics on gross national product per capita in subsaharan Africa, India, China, and Latin America demonstrates how little the economies of these areas have improved

since 1968. (See Figure 1)[1] A second set of statistics is the comparison between manufacturing wages in countries and the cost of living index. Such statistics demonstrate the variation in the economic value of work across countries on the same continent. In Africa, for instance, wages have fallen far behind the cost of living in Sierra Leone (particularly between 1972 and 1980), but in Zimababwe wages have kept pace with the cost of living. (See Figures 2 and 3) In both El Salvador and Venezuela, however, the cost of living has far outstripped the wages paid in manufacturing, despite a **fold increase in Venezuela. (See Figures 4 and 5)

Still a third indicative statistic is the value of merchandise imports into regions of the world. This is of particular importance when considering the spread of technology, since most developing countries import communications equipment from radios to satellite dishes. Although each area of the world has different dynamics in imports, all have had some type of variable pattern as imports have increased or decreased in response to countries' economic health. (See Figure 6) The volume of imports, too, is related to their marketability; the more disposable income available to people, the more goods are likely to be imported for resale.

Development of Private Commercial Media

In many parts of the world the development of privately-owned, commercially driven radio and television stations, or commercial satellite-delivered programs (such as STAR TV), is a new phenomenon. Perhaps the area of the world where this is most apparent is in those countries formerly behind the "iron curtain." There have been so many new commercial

[1]Information for this section taken from International Labour Office, 1982, pp. 504-507, 589-593, and 1992, pp. 806-809, 945-950, and World Tables, 1990, pp. 2-5.

stations spring up in eastern Europe and in countries that were formerly part of the Soviet Union that RFE/RL has begun to conduct market-based audience research. In Latvia alone, for instance, the Radio and Television Council granted frequencies to nine new commercial radio stations in early 1993 (Frequencies granted to nine commercial radios, 1993, p. 10). Increasingly people who listen to RFE/RL programs do so on local radio stations rather than on short-wave. Calculating listenership thus requires that each market be sampled individually. BBC surveys in these areas, too, have begun to take account of the new media environment. A BBC survey conducted in Moscow, St. Petersburg, and Kiev in 1990, for instance, undertook the task of providing regular and yesterday audience measures for the large number of independent radio stations operating in these three cities.

A variety of changes in the media situation of various countries of Africa are also notable. Examining the World Radio-TV Handbooks for 1988 and 1993 indicates that a variety of changes had occurred. In Equatorial Guinea a new commercial shortwave station, Radio Africa/Radio East Africa, had begun broadcasting. In Nigeria ten new state radio stations serving different areas of Nigeria had been initiated. In South Africa, in addition to the creation of Channel Africa, Bophuthatswana, Ciskei, Transkei, and Venda all had new radio services on the air, and, in Transkei, Capital Radio, a commercial radio station, was operating. In Zambia the government-operated Zambia Broadcasting Service had been changed to a commercial operation, the Zambia National Broadcasting Corporation.

WBI also provides news of changes in Africa. In November 1992 "the Minister of Establishments and Maritime Services, Chief Gilbert Chikelo, expressed concern over the proliferation of satellites dishes in the country." (Concern expressed about satellite dish

proliferation, 1992, p. 5) In Libreville, Gabon, the opposition political party began private radio and television broadcasting in December 1992 (Lumberjacks leader inaugurates "Canal Liberte" radio-TV station, 1993, p. 8). In Dakar, Senegal, Africa No. 1 was scheduled to begin FM broadcasts in December 1992 (Africa No 1 to begin FM transmissions in Senegal, 1993, p. 16).

Similar developments have also affected other parts of the world. In China (PRC), cable television was inaugurated in November 1992 (Shanghai Cable TV Station begins trial broadcasting, 1992, p. 1). In Indonesia the government claimed in November 1992 that 400,000 satellite dishes were in operation, "the largest number in South-East Asia . . . ." (Satellite TV's effect on domestic broadcasting policy, 1992, p. 4). In Malaysia four new television networks, including three cable services, were planned to be operational by early in 1994. These services would carry two channels from STAR TV and the Cable News Network (CNN) (Four more TV networks to operate by early 1994, 1993, p. 5).

This is not a comprehensive list of the changes occurring around the world in broadcasting, of course. It is merely indicative of such changes, and thus of a dynamic media environment that has begun to alter the staid government monopolies of the past in most parts of the world.

Metropolitanization

Metropolitanization refers to the process by which elites in major cities of developing countries identify themselves with a non-indigenous metropolitan culture than with their own native culture. Indicators of metropolitanization (besides those in the economic and political spheres) include availability of electricity (necessary to operate much communications

equipment), extensive import of foreign media products, especially films and television programs, and media marginalization of rural or small town populations. Metropolitanization is more difficult to quantify on a regional level, so this discussion will limit itself to the two case studies to be presented.

Technological Sophistication

Developing technological sophistication is perhaps so obvious that little needs to be said concerning it. There are, however, four aspects of this sophistication that are worth a brief mention here. First, international radio and television broadcasters are increasingly using satellites to deliver their signals to rebroadcasters. In some cases these signals merely duplicate what is available more generally on short- or medium- wave. In other cases, however, programming is only available to audiences via rebroadcasting, such as the VOA Thai language service. This can mean that people must listen on VHF-FM rather than on traditional international frequencies, and often such services are only available in major cities of developing countries. The result is exclusion of portions of the potential broadcast audience.

Second, radio receivers increasingly use digital read-out or tuning systems, often employing LCD screens. These new systems drain power supplies at a rapid rate compared to the older analog tuner systems, and in countries where batteries are expensive or scarce (or both), owning a more sophisticated radio can mean fewer hours of listening.

Third, the distribution of stereo "boom boxes," and now compact disk players (on a limited scale) have raised the stakes for broadcasting using high fidelity. As one National Research Council document (1989, p. 40) put it, "In many areas of the world, particularly

along the Pacific Rim but including other regions as well, domestic radio services are beginning to change significantly with a shift to higher fidelity broadcasting. This implies that a satellite broadcast service should have a signal quality at least equal to that of a VHF FM stereo signal. Given the technological capability of satellite broadcasting, providing an even higher quality signal (equal to that of a compact disk player), should be feasible without significantly increasing the cost of radios."

Application of These Factors in Two Case Studies: India and Venezuela

All of these factors do not affect the situation in all countries equally, of course. The remainder of this paper will examine those that are germane in two countries, India and Venezuela. The data used to report on India come from a survey completed by the Indian Market Research Bureau in 1991. The study covered both urban and rural populations in Bihar state. It queried over 4,000 respondents. The data for Venezuela come from a national survey (urban and rural) conducted in 1992 for Trans World Radio. It included over 3,100 respondents. These two parts of the world are stark contrasts to each other. Bihar, for instance, is nearly 87% rural, while Venezuela is the most urbanized country in Latin America, with over 86% of its population classified as urban. Over two-thirds of Bihar's population is illiterate, while 88% of Venezuela's is literate. Finally, the metropolitan centers of India are scattered over the entire subcontinent, and capture the areas surrounding them in their orbit, whereas in Venezuela the area around the Federal District in the Carabobo Valley and Valencia in the North Central region along the Caribbean constitute the dominate metropolitan influence in the country. This allows an analysis based on remoteness from the metropolitan influence to be calculated.

India[2]

Bihar is in north India, neighboring Nepal. Its population in 1991 was 86,339,000, of which 13.2% were urban, and 86.8% rural. Its largest cities are Patna (1 mil.), Dhanbad (750,000), Jamshedpur (700,000), Ranchi (600,000), and Bokaro Steel City (325,000). 73.5% of Bihar's urban residents, and 18.8% of rural residents, have electricity. Over 40% of all Bihar residents have household incomes less than 500 rupees per month (about $19 U.S.). Over 93% of these poorest people live in rural areas. As income levels rise from 500 to 6000 rupees ($228) the percentage of households in each income range decreases (from 18.4% earning 501 to 750 rupees per month to 0.3% earning 5001 to 6000 rupees per month), as does the percentage of each range's population that is rural. The rural percentage in the two ranges above 6000 rupees increases, however, with 38.5% of residents in the 6001 to 8000 rupee/month category being rural, and 60% of the 8001 and above category being rural. These two categories together only comprise 0.36% of Bihar's total population, however.

The significance of these three factors, however, is two-fold. First, they show the degree of metropolitanization existing even in an area of India that is not heavily urbanized. In India, metropolitanization favors those in cities, who are literate, have electricity, and have high incomes. Second, the metropolitans have access to communications technology--as a function of living in cities with electricity and having more adequate incomes than most people in rural areas. So, while over 40% of urban residents own television sets, only about 5% of rural residents do. While between 40 and 50% of urban residents (depending on sex) own radio sets, only about 20% of rural residents do. While neither urban nor rural residents

[2]The data reported here are taken from Fortner, 1992-93.

won videocassette recorders in great numbers, urban residents own them far more frequently than rural residents (3% compared to 0.15%). (See Figure 7)

It matters, too, in Bihar whether a household has electricity. About 45% of households with electricity own radio sets, and about 35% own television sets, but only 20% of households without electricity own radio sets, and under 5% own television sets. (See Figure 8) Even more telling is income. As incomes rise the ownership of all three of these technologies (radios, television, and VCRs) rises apace. (See Figure 9) Clearly, then, there are "haves" and "have nots" in terms of access to media in Bihar.

This is no surprise. Researchers from varying perspectives have known that the bulk of India's people, as well as people of other developing countries, are excluded by illiteracy, poverty, and remoteness from participation in the national economic and social life of their countries. But communications has often been seen as the bridge between such people and their government. As the Washington Post and Wall Street Journal articles suggest, even newer technology than those tested in Bihar are opening up "millions" of people to the "global village." The popular media are content with superficial quantitative measures to uphold the mythos of the power of communication. The reality is that most people in Bihar are largely excluded from participation in national life, or knowledge of international affairs, by their inability to access the means of reception on an on-going basis. If they are members of the so-called "global village" it is a function of using other people's radio or television sets, or seeing indigenous or foreign films on someone else's VCR. And the likelihood of such participation, too, is often a function of available electrical power in urban areas.

To broaden this conclusion somewhat, an earlier national urban study in India (1990),

which surveyed 77,000 respondents, provided data to calculate two classes of people ever in Indian cities. These were the "media rich" and the "media poor." The media rich were defined as those who listened to the radio (AIR) daily, and who also watched television (Doordarshan) daily, watched videos daily, or attended the cinema at least once each week. In other words, they were people who had incorporated media into daily life on a regular basis, and who used at least two media to do so. The media poor were defined as those who did not listen to AIR at all, and who also did not use Doordarshan, videos, or film. The result of this classification, by state, was as follows:

TABLE 1: Media Rich versus Media Poor in Urban India, by State

STATE	MEDIA RICH	MEDIA POOR
Andhra Pradesh	3 million	2 million
Delhi	1.4 million	300,000
Bihar	3 million	2 million
Gujarat	1.5 million	1.7 million
Haryana & Chandigarh	540,000	340,000
Karnataka	2 million	1.3 million
Kerala (urban) Kerala (rural)	3.3 million 5.5 million	1 million 2.8 million
Maharashtra & Goa	5.6 million	2.1 million
Madhya Pradesh	1.4 million	1 million
Northeast & Assam	350,000	327,000
Orissa	290,000	790,000
Rajasthan	830,000	1.6 million

Tamil Nadu	2.9 million	1.2 million
Uttar Pradesh	1.7 million	4.8 million
West Bengal	1.6 million	1.7 million

Even in urban areas of India, then, the discrepancy in use of media is significant. In some states the number of people who have virtually no contact with media is higher than the number who use it daily. And the more sophisticated the technology tested (for instance, moving from television to the videocassette recorder), the larger the number of media poor becomes, while the number of media rich shrinks to a merely tens of thousands.

Despite the rapid development of media since India's independence, millions of Indian citizens are still outside their reach. Even while millions of urban Indian residents have been able to enrich their media participation, millions more have been left without even the most rudimentary involvement with media. And there is some indication that the discrepancy between these two groups continues to widen, with the media rich continuing to increase their amount and type of participation with the media--and incorporating still more sophisticated technologies--while the media poor fall further and further behind.[3]

Venezuela[4]

The main metropolitan regions of Venezuela are the areas surrounding Caracas (including the Federal District), and Maracaibo. These cities are situated in the states of Miranda and Zulia, with Aragua, Carabobo, and Yaracuy also in their orbit. They are

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[3]This conclusion is based on personal communication with Graham Mytton, Head of audience research for the BBC World Service, in March 1993.

[4]The data for this section are taken from Fortner, 1992.

considered Ring 1 in this analysis. The next ring of influence (2) includes the states of Anzoategui, Guarico, Cojedes, Lara, and Falcon. Ring 3 includes Nueva Esparta, Sucre, Monagas, Barinas, Portuguesa, and Trujillo. Ring 4 includes Delta Amacuro, Bolivar, Amazonas, Apure, Merida, and Tachira. Most of these states were sampled in the survey completed in Venezuela.

Even in Ring 1 the ownership of media technologies follows a pattern that suggests the relative importance of particular areas. Ownership of satellite dishes, VCRs, color television sets, and personal computers is significantly higher in the Federal District, Carabobo, and Zulia than in the other "outlying" states. Only ownership of black and white television sets does not suggest this bias for metropolitan proximity. (See Figure 10) The percentage of informants reporting that they owned these technologies who live in Ring 2 also drops in all categories except for black and white TV. (See Figure 11) Ownership of color televisions and personal computers is slightly higher in Ring 3 than 2, while satellite dish and VCR ownership continue to slip. The slightly higher incidence of computer ownership is probably due to their use in regional commercial centers. (See Figure 12) This same pattern applies to Ring 4 as well, although black and white TV ownership slips significantly. (See Figure 13) There is no real pattern for ownership of radio (which is consistently high across Venezuela), or for types of radios owned, with the exception that ownership of AM/FM/SW sets is slightly higher in Ring 4 than in the other three. (See Figures 14-17)

This is a rather complicated situation. Actual proximity to the major metropolitan regions of Venezuela does not seem to be related necessarily to ownership of media technology. It is true that ownership of the most advanced technologies (satellite dishes,

VCRs, and personal computers) follows the predictable downward path through Rings 1 and 2, but then it recovers slightly in Ring 3. Why?

Part of the answer lies in community size itself. Larger communities are capable of supporting radio stations and perhaps television stations (commercial media operate extensively in Venezuela), video rental shops, and personal computer retailers and repair facilities. Smaller communities begin to lose this support structure for media ownership. If ownership in Venezuela is examined by community size, then the pattern of ownership that was expected does emerge: the larger the community the higher the percentage of people who report ownership of advanced media (excepting black and white television sets). The only exception to the pattern is a peculiarity in Venezuela: the petroleum camp. These are small settlements clustered around oil exploration and production sites. They are often in remote areas. Ownership of both videocassette recorders and color television sets is far higher than in villages, and color television ownership actually reaches its highest levels in these camps. (See Figure 18) Again, however, the same phenomenon does not affect radio set ownership, since it has reached nearly universal penetration. Sets with FM capability are apparently preferred over those without it. (See Figure 19)

It is again not surprising to see confirmation that people in larger cities have more access to the means of advanced communication than do people in smaller, or more remote communities--unless unusual circumstances intervene, as in the petroleum camps. What these statistics should suggest (or reaffirm), however, is that the arrival of new technologies in developing countries does not necessarily allow for greater levels of involvement of the population as a whole. What it does provide is new means for the media rich to get richer

and to associate themselves more closely with the elites in other metropolitan areas outside their own countries. What results is not a "global village," but increasing density of access for metropolitan elites, followed by a gradual extension into smaller communities and more remote areas as hard currency reserves allow imports, and people have the financial capability to invest in it.

Implications for Audience Research in Developing Countries

The questions asked in international audience research have already begun to change in response to such new environments. Researchers are asking about ownership of more types of communication technology, and increasingly about its use. They are asking about listenership to local stations that carry rebroadcasts of their external signals, and they are increasingly treating countries as a set of distinct markets, particularly in eastern Europe and the countries that comprise the Commonwealth of Independent Republics.

Other strategies are called for as well. One is increasing use of national surveys that are coded to allow for differentiation by city size, and assessments of local media environments that will affect the availability of alternative programming to that which has traditionally been the focus of research: other international broadcasters and national services. This means collecting data on availability of cinemas, video rental shops, local radio or television stations, and electricity in local communities. It also implies a more precise use of day parts to determine days and times of use of various media. Questions have been asked for some time about times of radio listening, and more recently television viewing, but not of video use, or of domestic/local listening versus listening to international stations, or of satellite broadcasting signals, or personal computers.

Also, the disparity between those who have more comprehensive access to media and those who do not requires greater examination. Ownership and use of computers, for instance, is likely to be related to literacy, while use of videos, radio, or television may not. Ownership of videocassette recorders, computers, or satellite dishes is likely to be related to income, while ownership of shortwave radio receivers may be high both in metropolitan areas where more highly educated people interested in world affairs live, and in remote areas of developing countries where domestic information sources are inadequate (or use shortwave propagation).

Given the disparities in access to the means of communication reception, other questions related to information needs seem to be called for as well. International radio services still largely program to "national" or "language group" needs, since services are organized by language and aimed at different parts of the world. The needs of audiences with comprehensive access to information through a variety of communication devices, however, is likely to differ from those of people whose access to information is limited to radio or domestic television services. If services are aimed at well-educated, metropolitan elites, then it should be no surprise that the audiences that do not fit this mold are smaller or less frequent listeners. This conclusion, too, is likely to apply not only to government-operated services, such as VOA, and independent broadcasters, such as the BBC or Radio Monte Carlo, but also to missionary broadcasters, such as FEBC or TWR. More differentiation of content to meet the needs of particular audience segments is likely to result in audience growth as new audiences develop in response to content that aims to provide information they do not otherwise receive.

Conclusion

During the 1960s and 1970s communications technology exploded horizontally, expanding into increasing numbers of households throughout most developing countries, providing access to international news and public affairs programming and allowing citizens a measure of participation in world affairs. During the 1980s this horizontal expansion was halted by the economic difficulties of developing countries, and the availability of even the most basic technologies began to slip as population growth overtook the ability of countries to continue to import technology. What has occurred in the wake of this retrenchment has been not a return to horizontal expansion, but vertical consolidation. Ever more sophisticated technologies have become available, but they have been imported in limited quantities and their use is more restricted than were the technologies of the earlier period.

Now, new choices for participation in the global information enviroment are available to metropolitan elites, but this choice does not necessarily equal increased dialogue between elites and non-elites in developing countries, nor does it guarantee increased civic participation or even access to information itself for people whose access is limited by cost, geography, or the politico-economic preferences of those who make the choices about expansion of access. Much of the increased access--even to metropolitan elites--that has come through availability of VCRs, FM radio development, and privatization, has not increased their stock of information, but their participation in global entertainment.

International audience research, however, largely continues to be premised on the value of news, public affairs, and religious programming. Even when the audiences for international broadcasting seem to be in such program categories, the slippage in audience

size suggests that the salience of such programs is itself declining. It is being replaced by visual entertainment or information retrieved via computer or fax machine. It becomes increasingly necessary to discover where the eroding audiences are going when they use communications media, when they are using these media, and why. Continuing audience research using the old categories and assumptions will mean losing a sense of these audiences, or programming to a shrinking pool of international audience affecionados.

Increasing questionnaire length to account for these factors will drive up the cost of completing field research. I would argue that more value will result, however, from the activity than merely replicating studies that have already been completed. It may be desirable, too, to treat national surveys as a set of regional studies, with data coded appropriately and analyzed separately, to allow distinctions among various parts of large countries to emerge. Cross-tabulations based on national samples do not necessarily allow for the most interesting aspects of a media environment to emerge, particularly if the environment is more appropriately thought of in regional, or market, terms.

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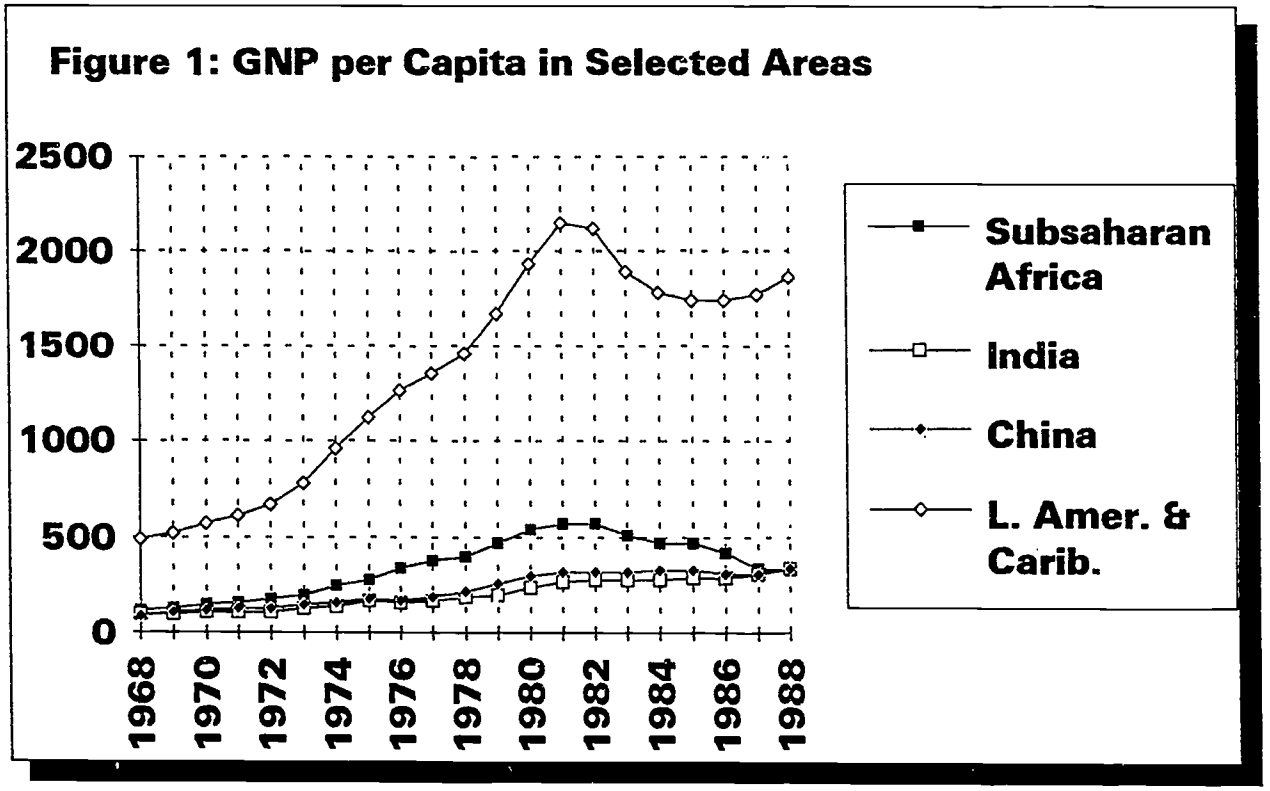


Figure 1: GNP per Capita in Selected Areas
2500
2000
1500
1000
500
0
1968
1970
1972
1974
1976
1978
1980
1982
1984
1986
1988
Subsaharan Africa
India
China
L. Amer. & Carib.

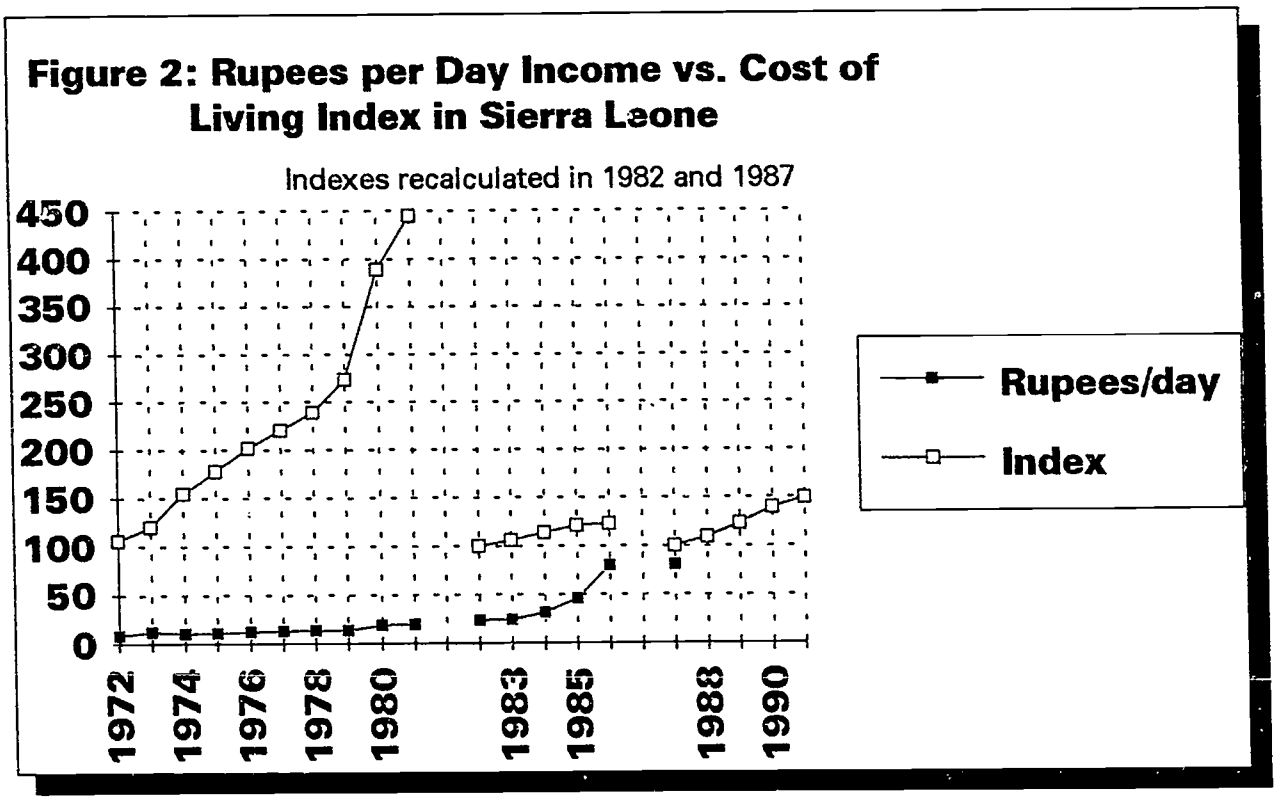


Figure 2: Rupees per Day Income vs. Cost of Living Index in Sierra Leone
Indexes recalculated in 1982 and 1987
450
400
350
300
250
200
150
100
50
0
1972
1974
1976
1978
1980
1983
1985
1988
1990
Rupees/day
Index

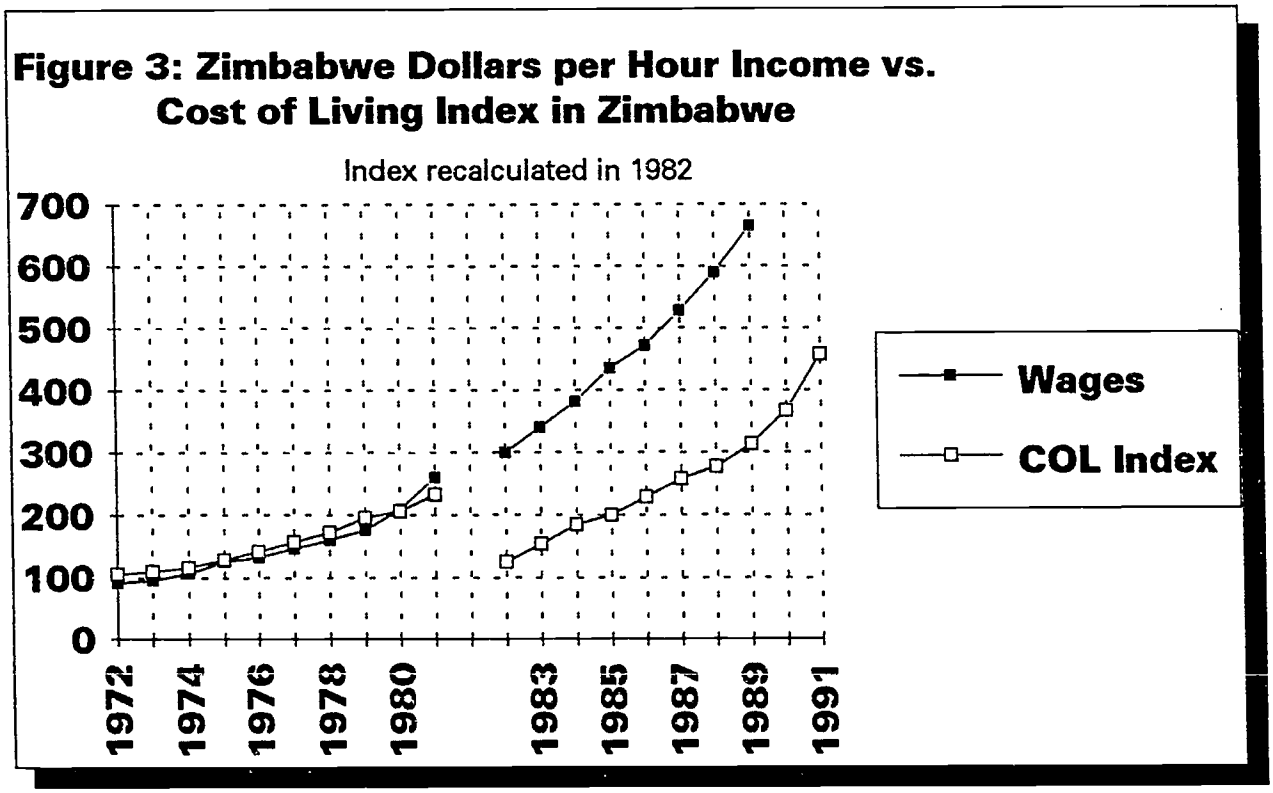


Figure 3: Zimbabwe Dollars per Hour Income vs. Cost of Living Index in Zimbabwe
Index recalculated in 1982
700
600
500
400
300
200
100
0
1972
1974
1976
1978
1980
1983
1985
1987
1989
1991
Wages
COL Index

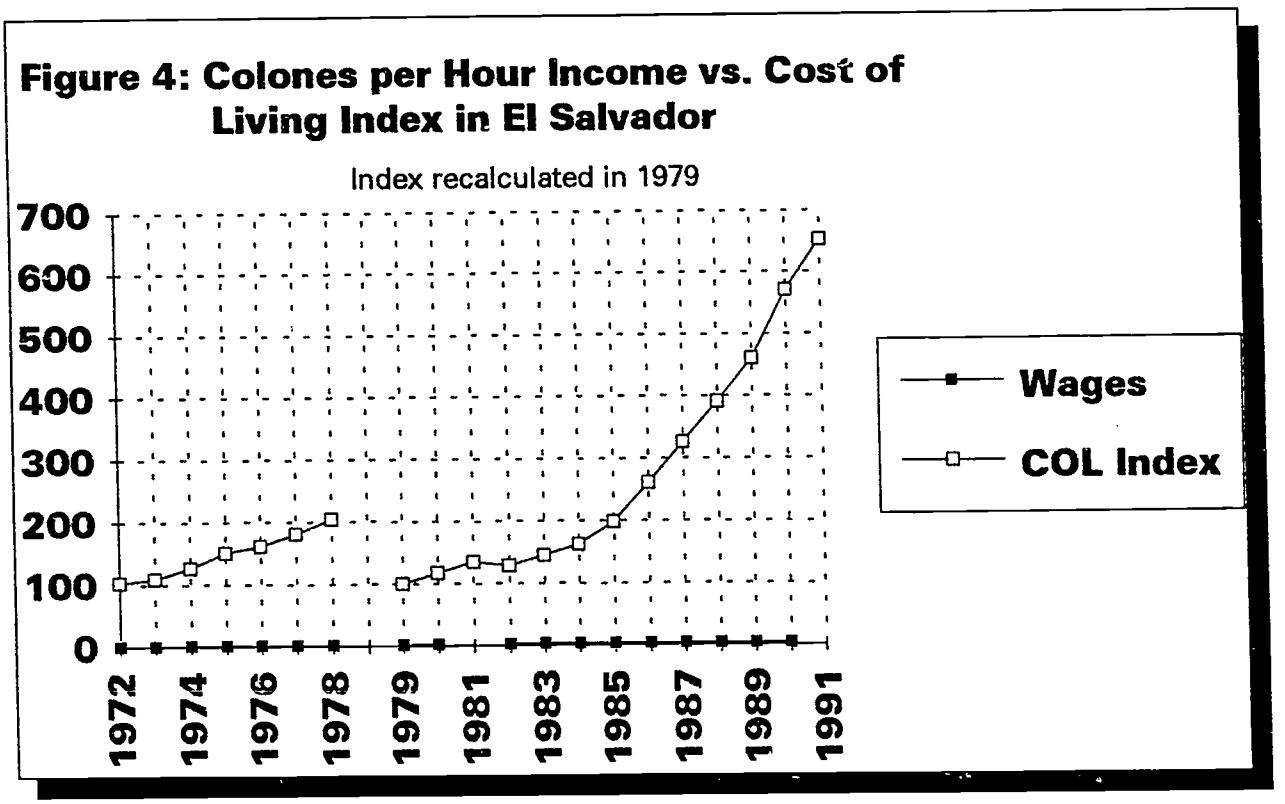


Figure 4: Colones per Hour Income vs. Cost of Living Index in El Salvador
Index recalculated in 1979
700
600
500
400
300
200
100
0
1972
1974
1976
1978
1979
1981
1983
1985
1987
1989
1991
Wages
COL Index

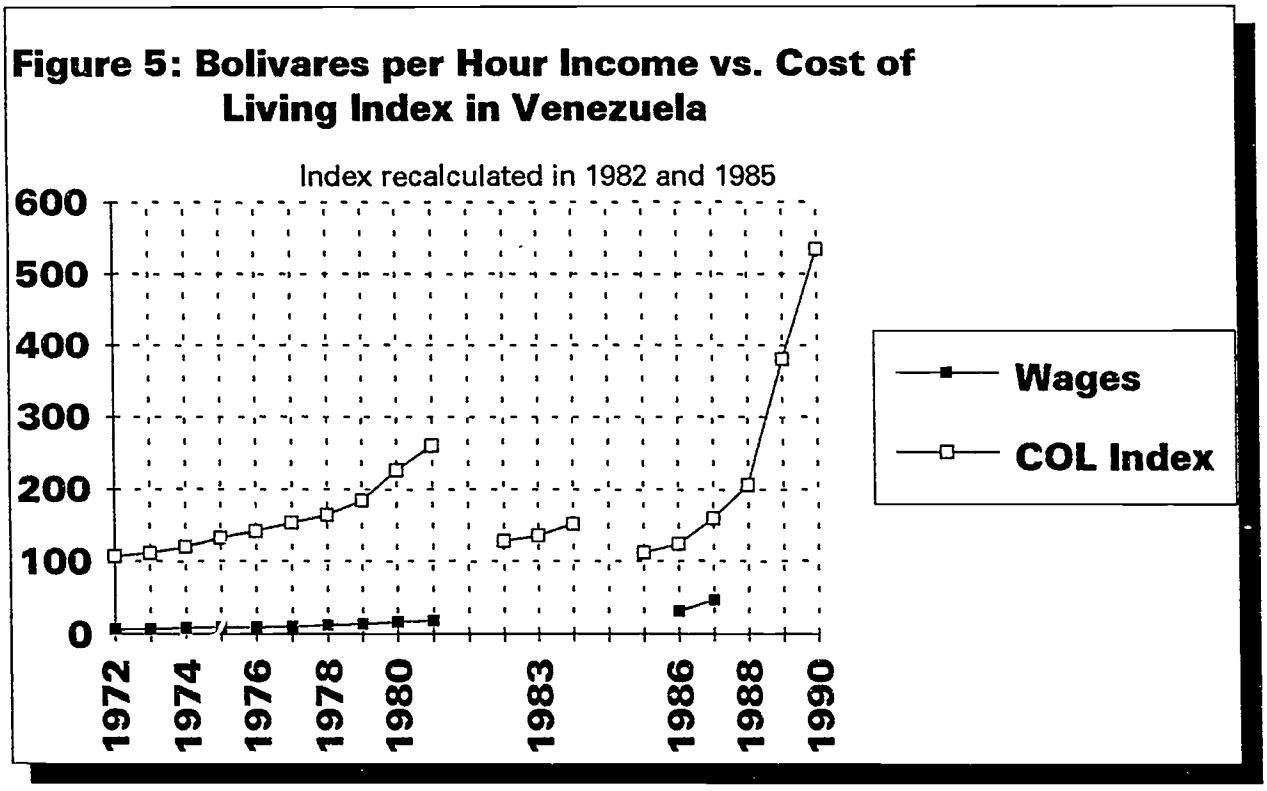


Figure 5: Bolivares per Hour Income vs. Cost of Living Index in Venezuela
Index recalculated in 1982 and 1985
600
500
400
300
200
100
0
1972
1974
1976
1978
1980
1983
1986
1988
1990
Wages
COL Index

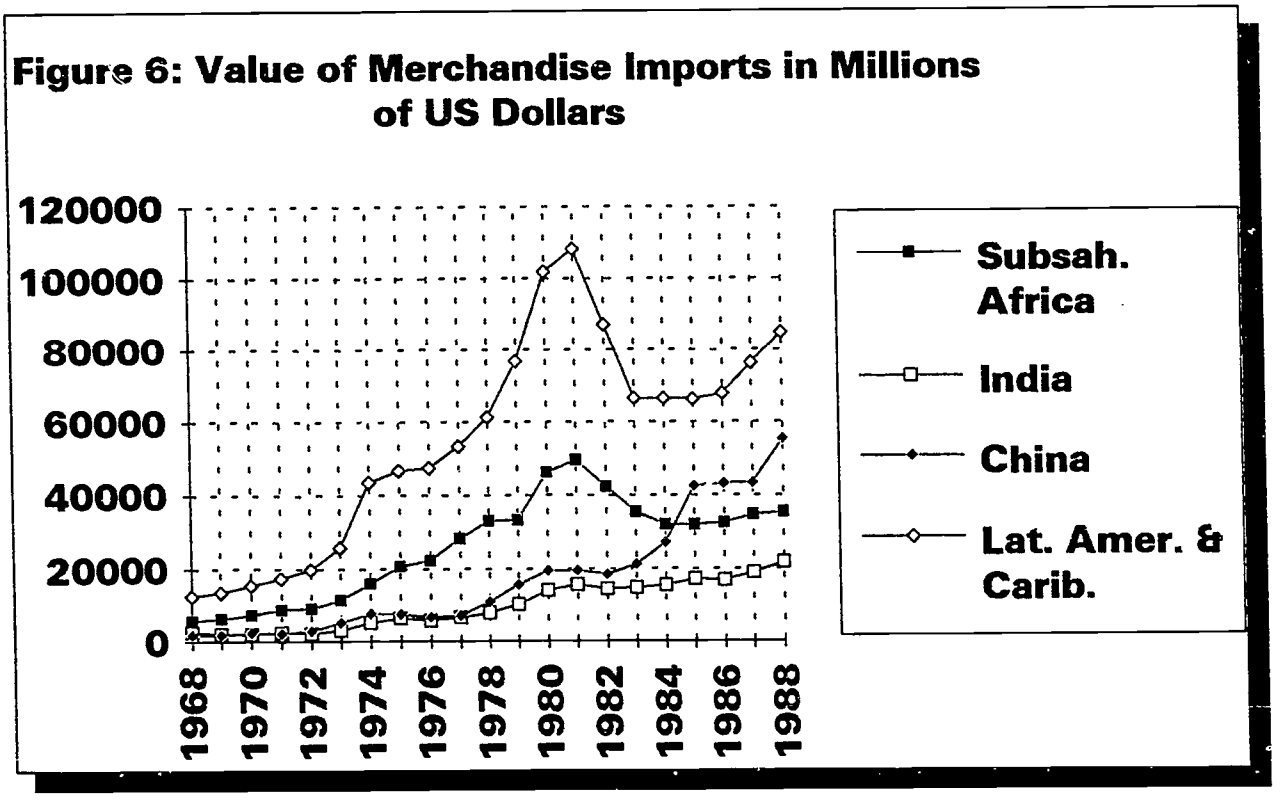


Figure 6: Value of Merchandise Imports in Millions of US Dollars
120000
100000
80000
60000
40000
20000
0
1968
1970
1972
1974
1976
1978
1980
1982
1984
1986
1988
Subsah. Africa
India
China
Lat. Amer. & Carib.

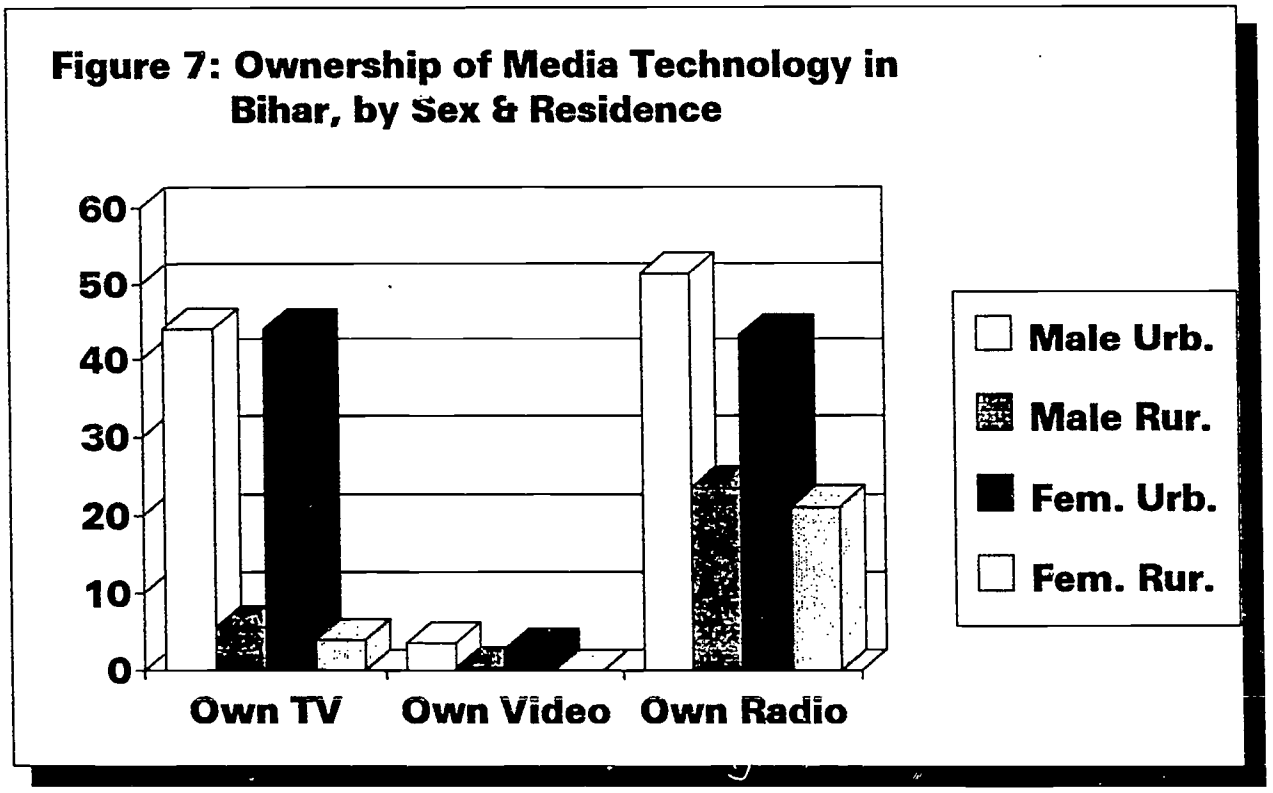


Figure 7: Ownership of Media Technology in Bihar, by Sex & Residence
60
50
40
30
20
10
0
Own TV
Own Video
Own Radio
Male Urb.
Male Rur.
Fem. Urb.
Fem. Rur.

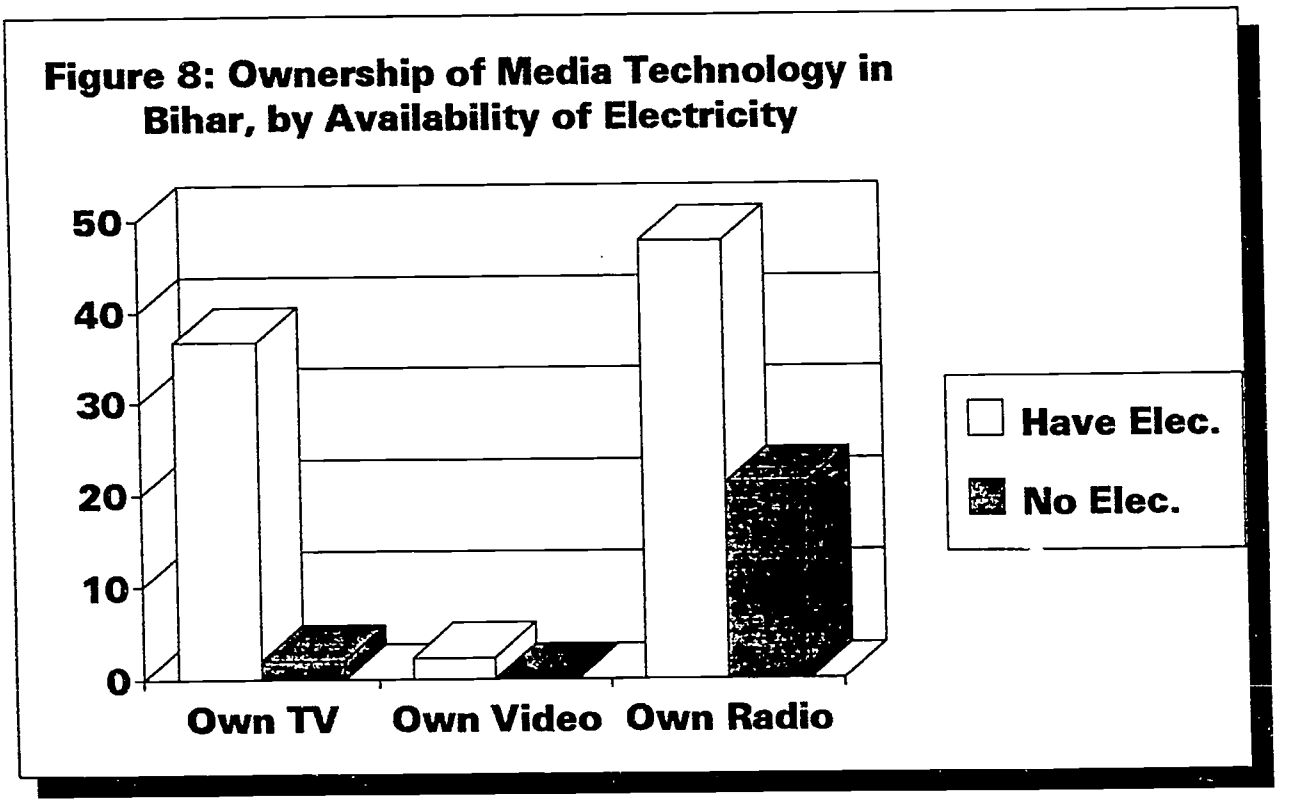
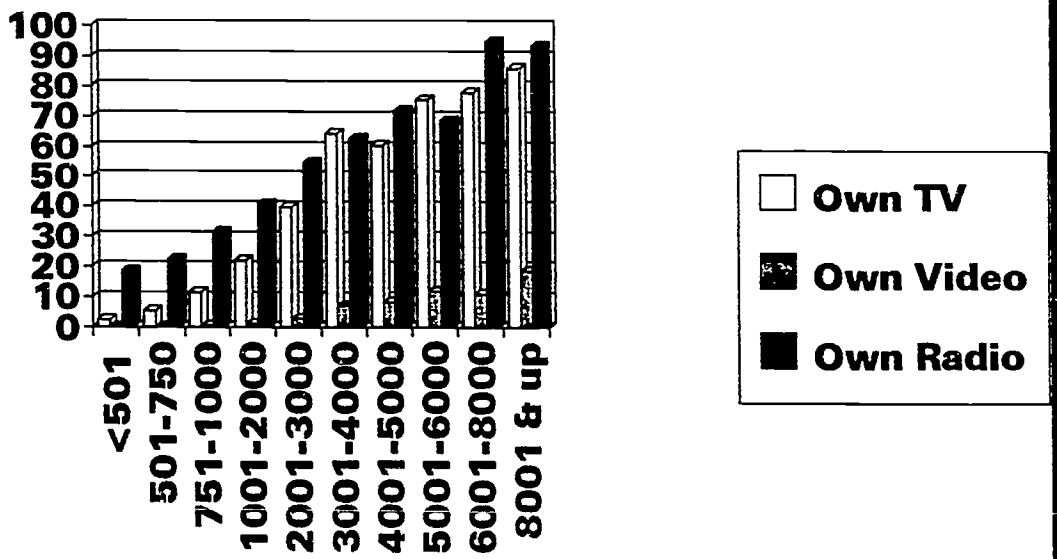


Figure 8: Ownership of Media Technology in Bihar, by Availability of Electricity
50
40
30
20
10
0
Own TV
Own Video
Own Radio
Have Elec.
No Elec.

Figure 9: Ownership of Media Technology in Bihar, by Monthly Income in Rupees



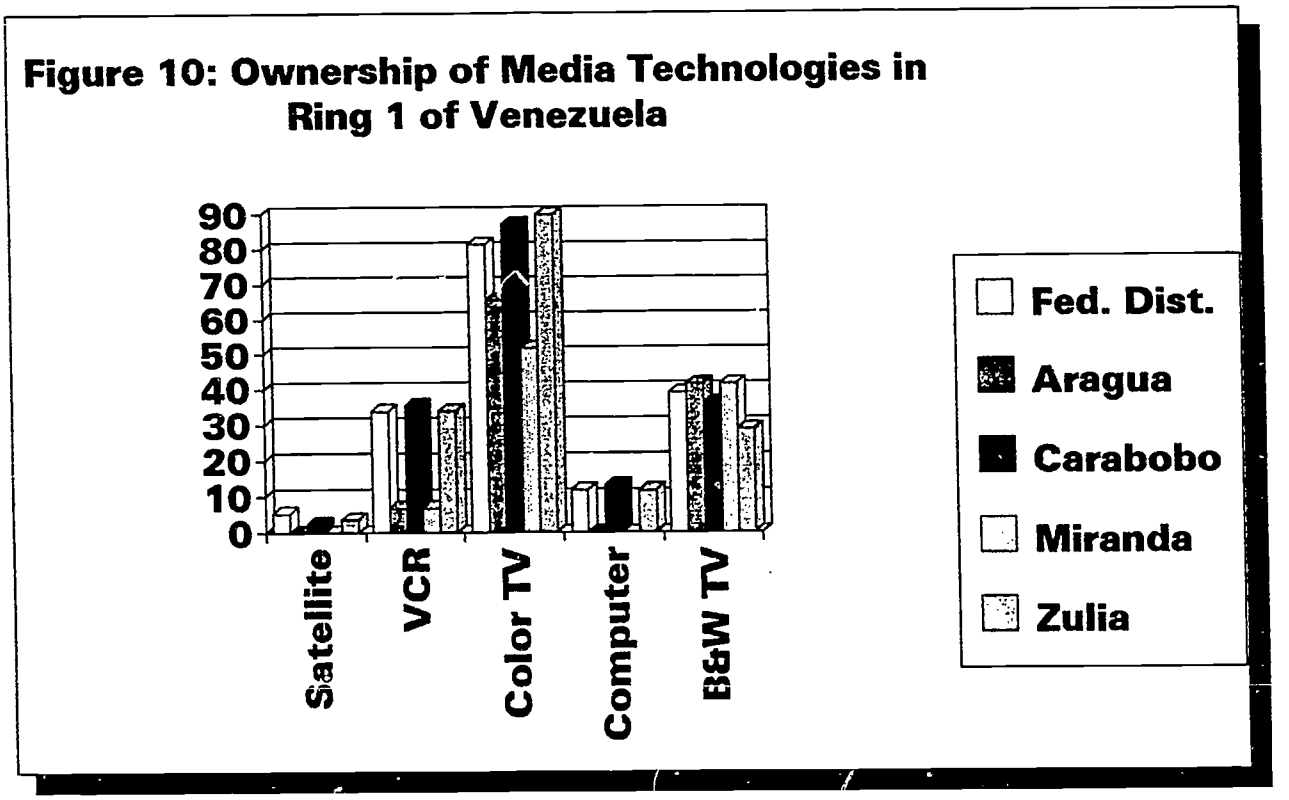
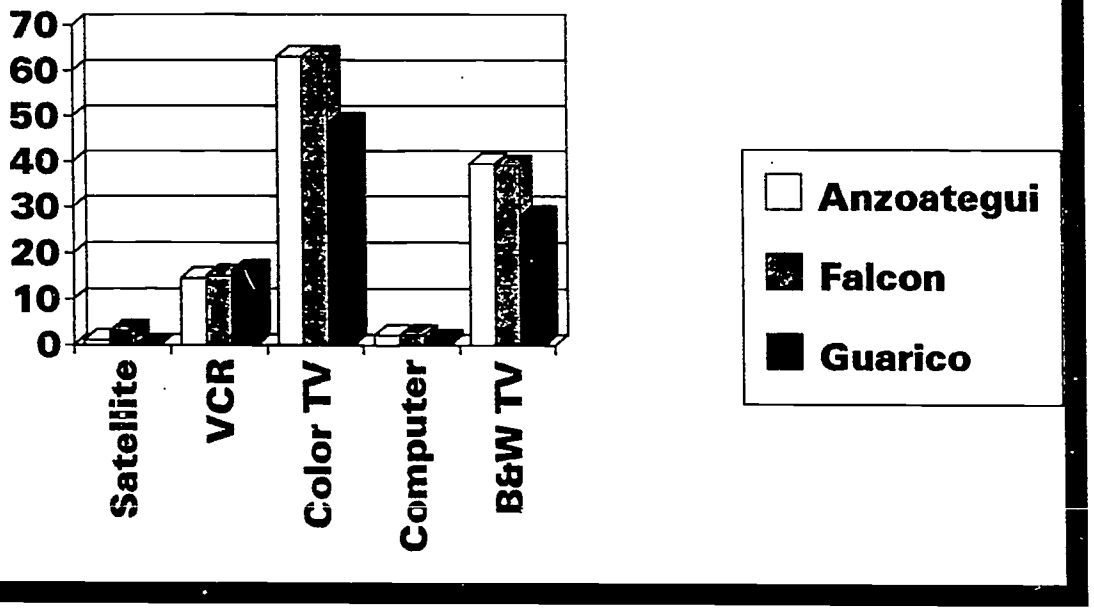


Figure 10: Ownership of Media Technologies in Ring 1 of Venezuela
90
80
70
60
50
40
30
20
10
0
Satellite
VCR
Color TV
Computer
B&W TV
Fed. Dist.
Aragua
Carabobo
Miranda
Zulia

Figure 11: Ownership of Media Technologies in Ring 2 of Venezuela



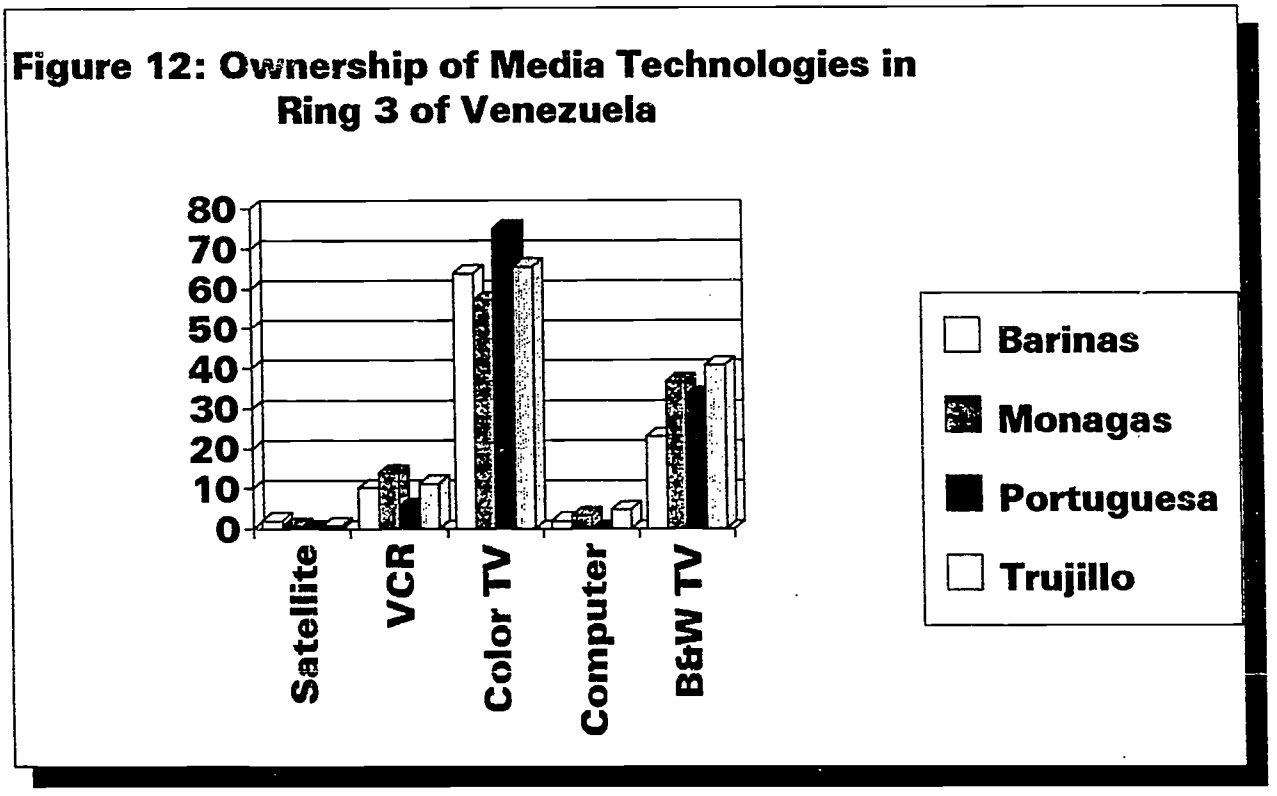


Figure 12: Ownership of Media Technologies in Ring 3 of Venezuela
80
70
60
50
40
30
20
10
0
Satellite
VCR
Color TV
Computer
B&W TV
Barinas
Monagas
Portuguesa
Trujillo

Figure 13: Ownership of Media Technologies in Ring 4 of Venezuela

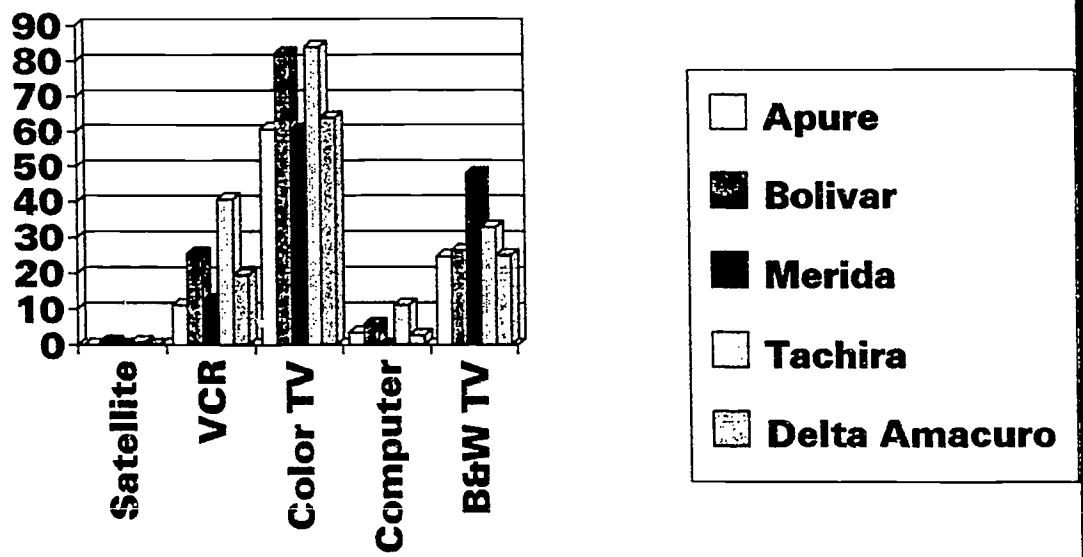


Figure 14: Ownership of Radio Sets in Ring 1 of Venezuela

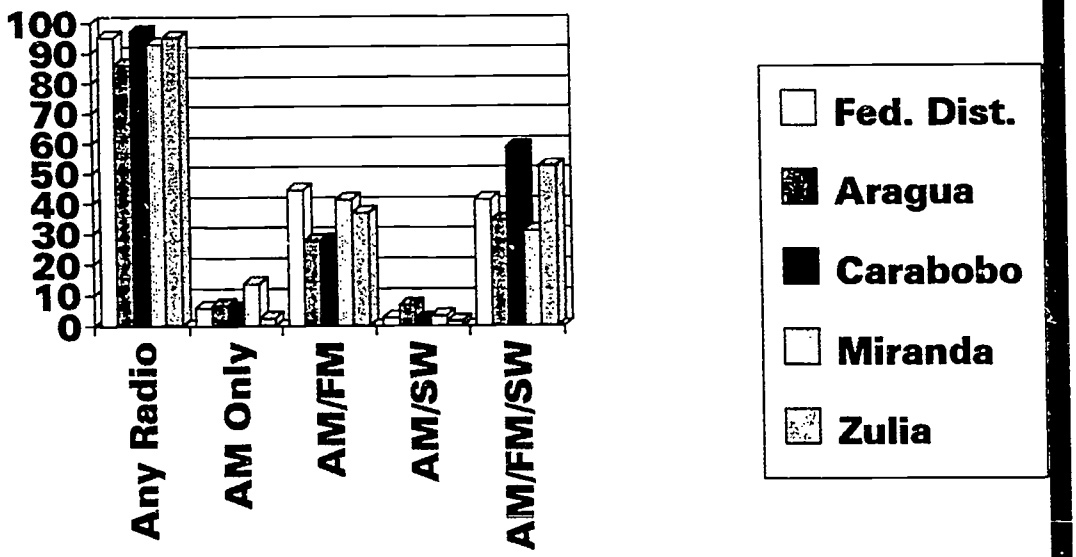


Figure 15: Ownership of Radio Sets in Ring 2 of Venezuela

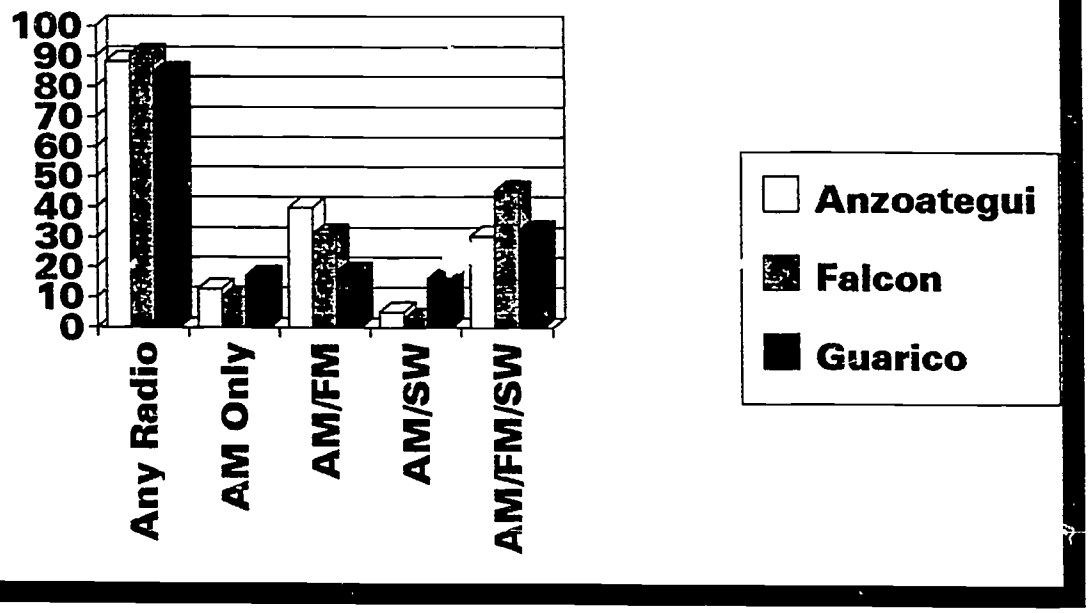


Figure 16: Ownership of Radio Sets in Ring 3 of Venezuela

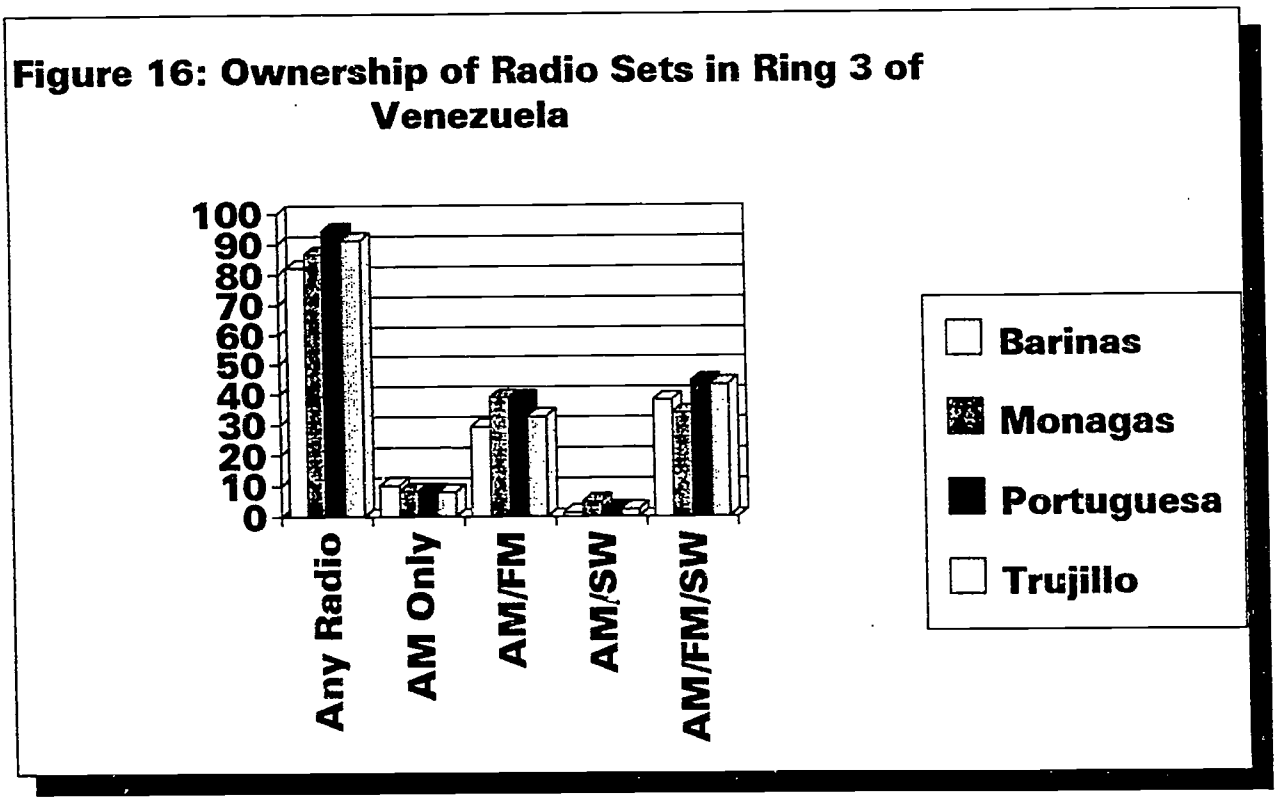


Figure 17: Ownership of Radio Sets in Ring 4 of Venezuela

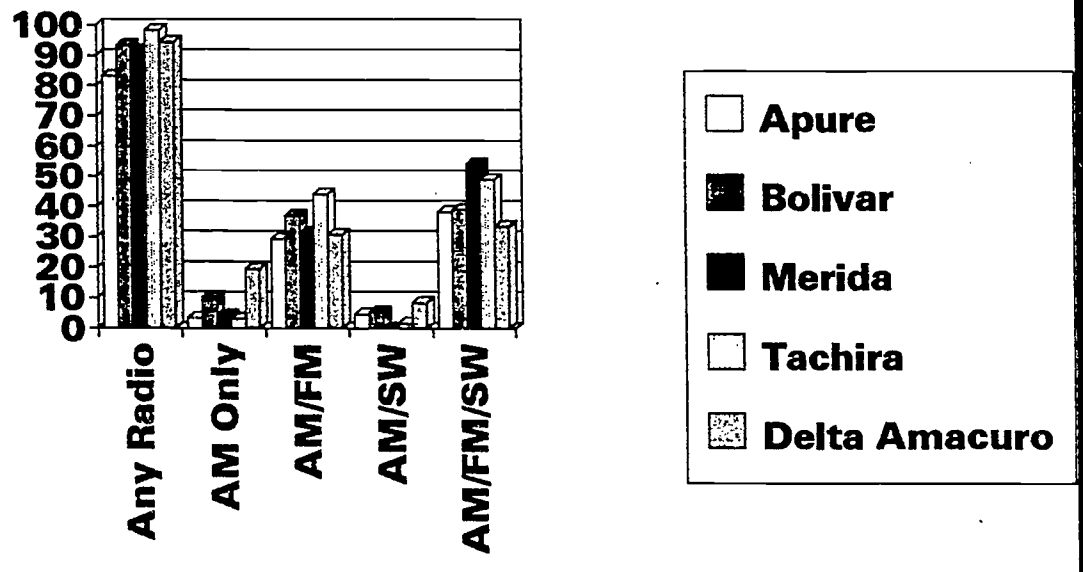
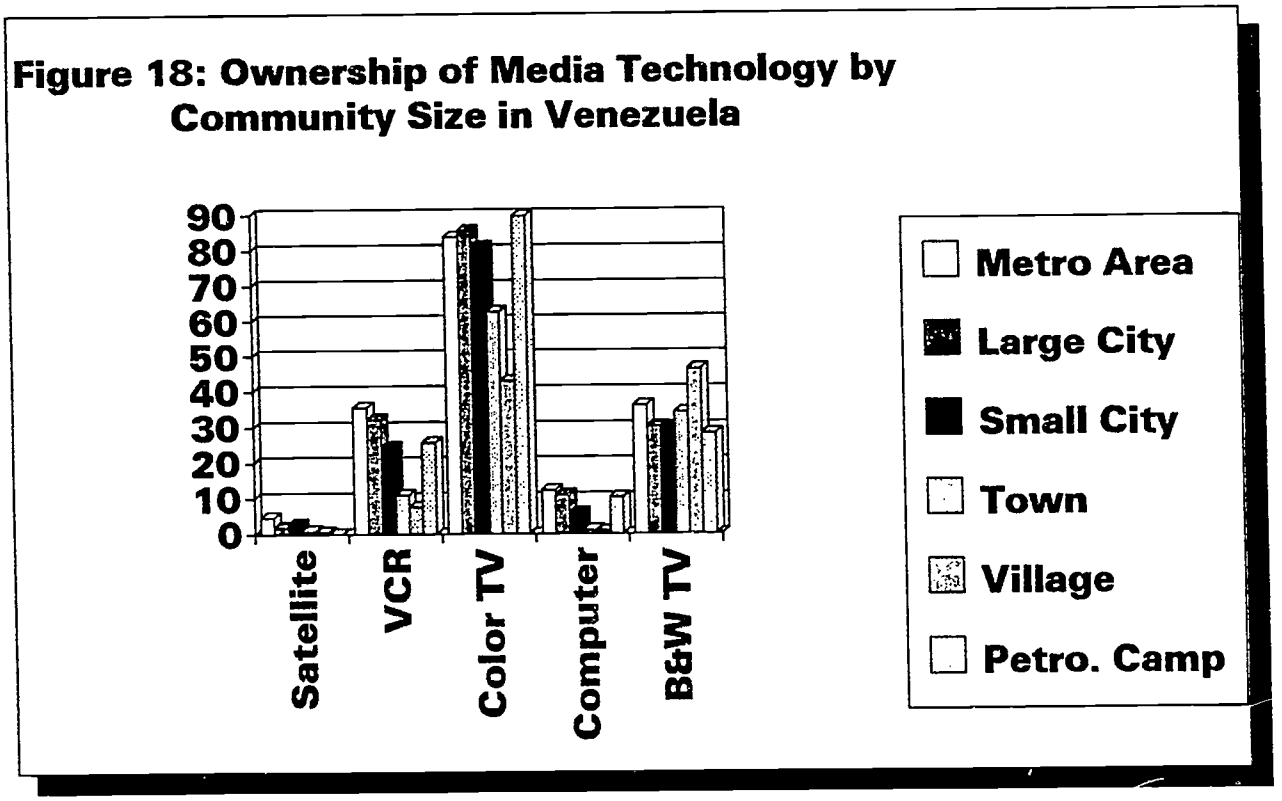


Figure 18: Ownership of Media Technology by Community Size in Venezuela



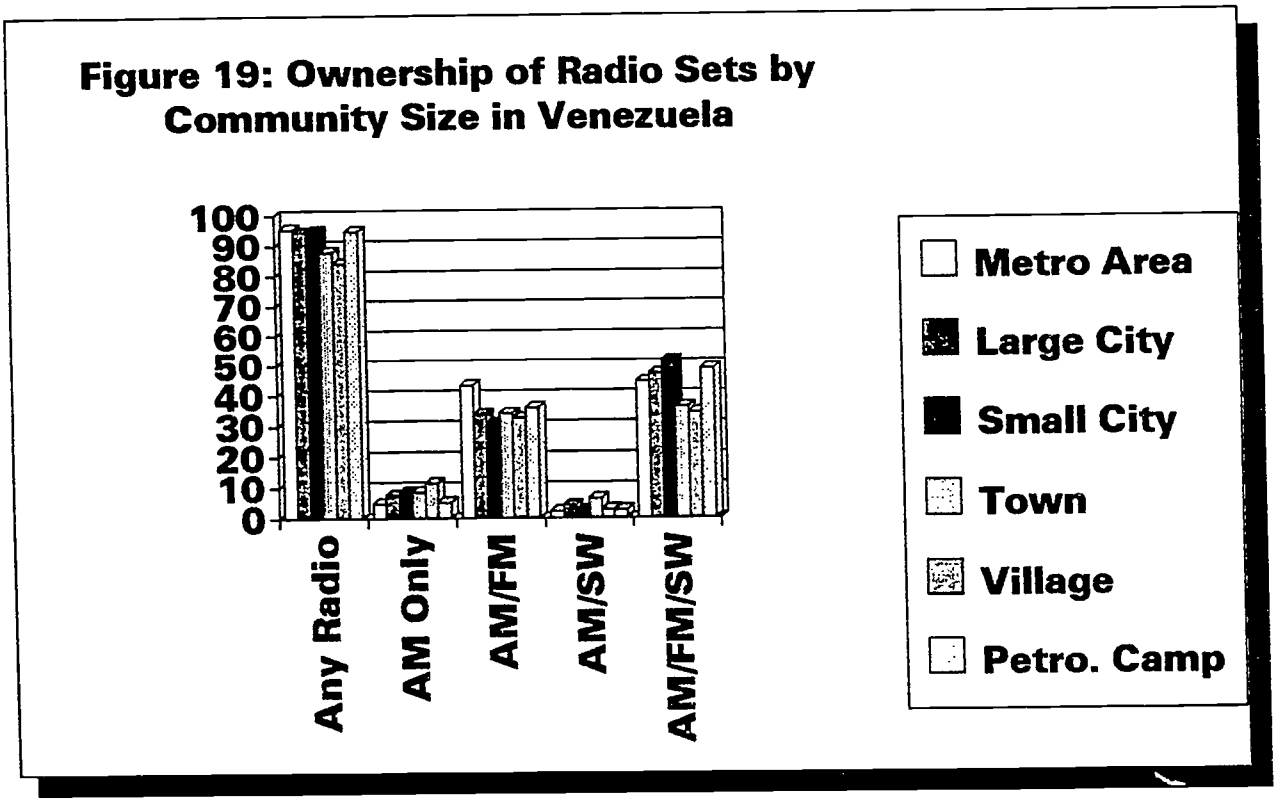


Figure 19: Ownership of Radio Sets by Community Size in Venezuela
100
90
80
70
60
50
40
30
20
10
0
Any Radio
AM Only
AM/FM
AM/SW
AM/FM/SW
Metro Area
Large City
Small City
Town
Village
Petro. Camp