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Approaches to Understanding the Urban Roots of Brazil

Brazilian cities have much in common with other South American cities in terms of spatial organization and internal social structures. Much care must be taken, however, before general assumptions are made regarding "Iberian" or "Hispanic" cities. Furthermore, too much already has been written about urban "nucleation" in Latin America. Urbanization in Brazil is, in fact, very different from urbanization in many countries which have Spanish roots, and this is the first in a series of studies following this assumption. This study suggests several approaches to understanding some of the more salient mechanisms which have traditionally influenced Brazil's culture and hence its urban system. Initially the Brazilian city is viewed as an extension and modification of a Portuguese colonial model. The system of Brazilian cities is then examined within the general context of economic development. Finally, the internal city structure of Rio de Janeiro is analyzed as a sample of the spatial organization of Brazilian urban society. It is also proposed that the methods utilized here can be employed in future studies.

The Portuguese model

Sjoberg offers a strong argument for a preindustrial urban type. and from the preindustrial model a colonial variant can be developed (Sjoberg, 1960, 1955). The physical arrangement of the Sjoberg's preindustrial city is a reflection of a rigid social order. This walled city type is centered about important religious and administrative edifices,

Between the city center and the walls the masses of urbanites dwell. There is a sharp distinction and a wide social gap between the elite who occupy residential dwellings within immediate proximity to the center and the remainder of the populace. Generally, social status decreases with distance from the city center until the walls are reached, and, consistently, beyond the walls the lowest social orders reside in varied forms of slums and tent camps. Also, minority groups are often segregated into separate quarters of the city.

Furthermore, according to Sjoberg, it is especially easy to identify a colonial city type when a former colony has recently attained independence. This city type

reflects many of the social-spatial traits of the pre-industrial city. However, there are also many variations of the original type presumed that give the colonial city a unique and identifiable quality. The city center is still the point of emphasis for political control, but the residential structures surrounding it house in a segregated fashion representatives of the colonial power, foreign elite who serve the colonials, and the local elite.

None of these groups show disdain for commercial enterprise. Another difference from the pre-industrial model is to be found in the presence of a well, developed middle class often comprised of foreigners residing in highly segregated quarters (Fig. 1). Much can also be learned about Brazil's system of cities by viewing the Proliferation of Portuguese colonial city type.

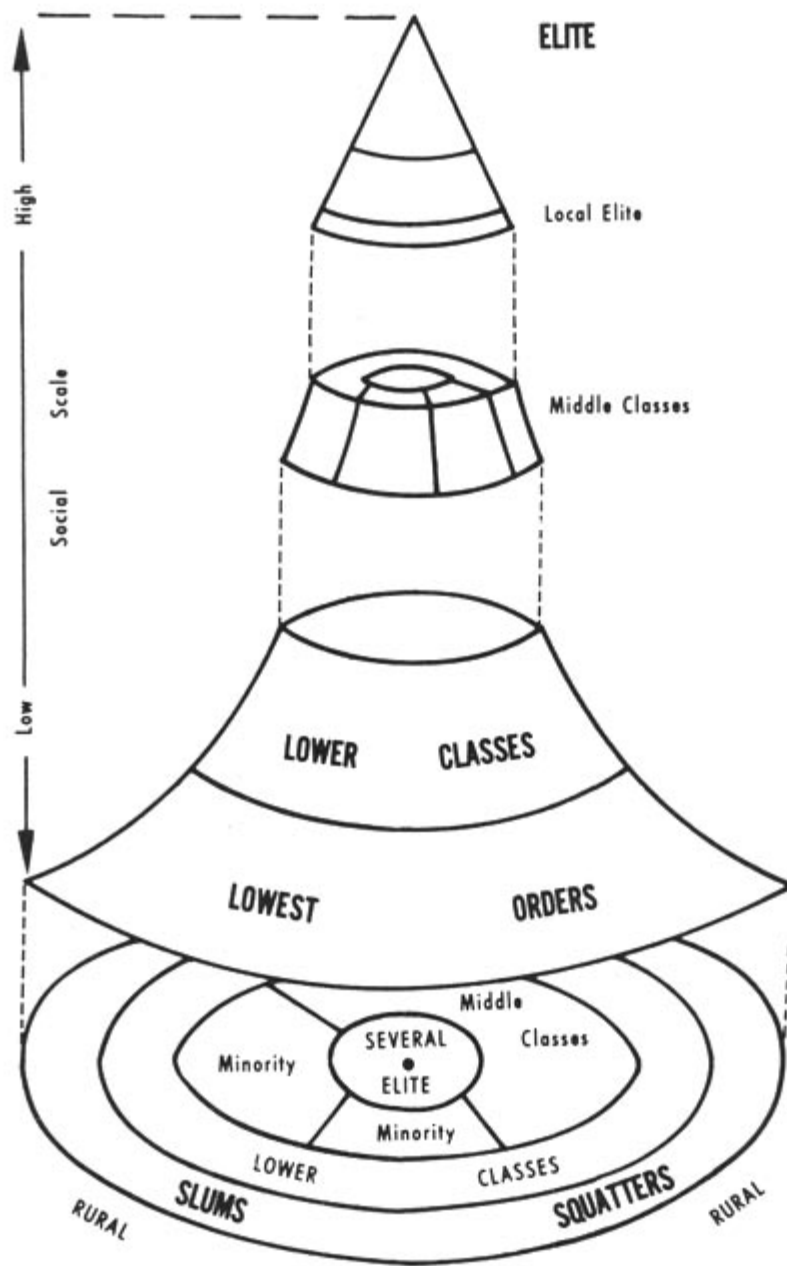


Fig. 1. The social-spacial organization of the early Portuguese colonial city.

An examination of cities with a colonial history reveals many common elements

(Pyle, 1969). The basis for Portuguese colonial expansion was, of course, economic, and many economic systems were knit together to form a network of strategic nodes (Fig. 2). From these nodes it was possible to exploit interior areas in many ways, but the phase of economic development was almost always of a primary nature. The extent of interior penetration varied with locational differences and the kinds of cultures involved. Perhaps one of the most common colonial urban forms in general was the dual city which may have resulted either from the superimposition of a new culture upon an existing one (The Portuguese in North Africa and the East) or simultaneous colonial urban development on a new site (Brazil). But even with the dual cities many of the urban ecological traits ascribed to the colonial city appeared in varied form.

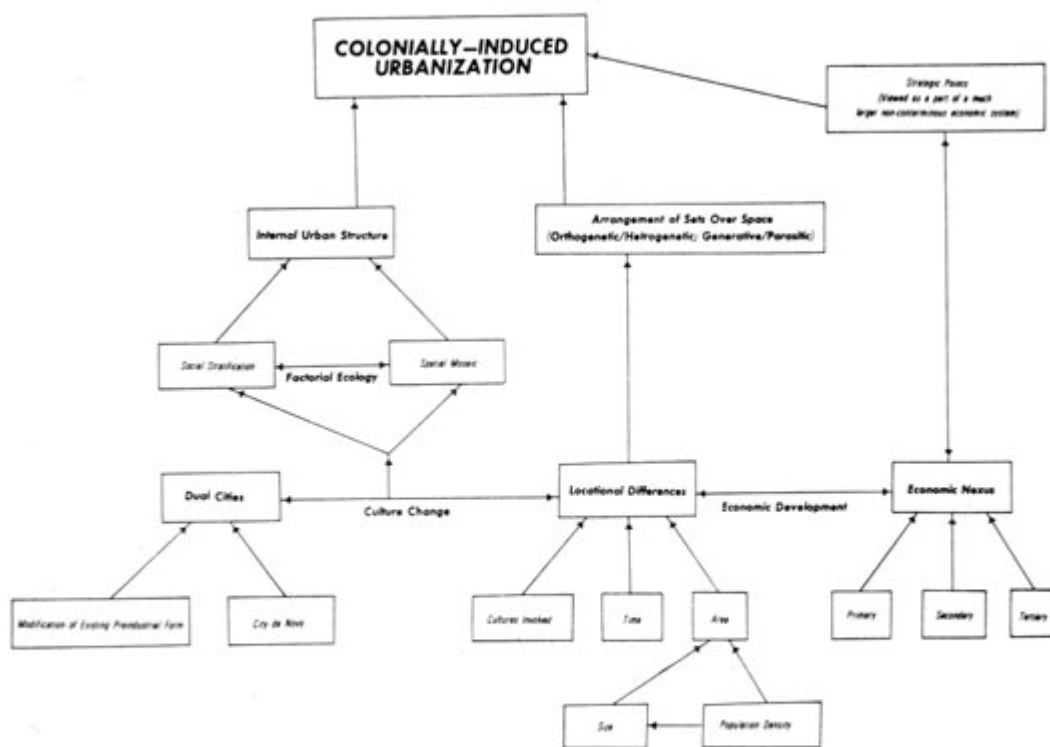


Fig. 2. A network of possible connections for colonialy-induced urbanization.

There is much evidence, in fact, indicating that the Portuguese city which spread to buttress a vast colonial network had most of the colonial traits already mentioned *before* any overseas expansion. Portugal is generally characterized by an Atlantic North and a Mediterranean South with a transition zone between the

two (Stanislawski, 1967). The two largest cities, Lisboa and Porto, have been seaports since pre-Roman times (Ribeiro, 1945, 1955). The network of roads connecting interior towns can be traced to Roman and Germanic times (Livermore, 1966). During Muslim and Mozarabic times, interior towns such as Alcacerdo do Sal flourished, and sea trade also reached new heights. Meanwhile, a *bastide* system was established in the new kingdom of Portugal to the north. When the Mediterranean South was conquered by Burgundian-Portuguese led Christians a "colonial" type of city became quite widespread. Special charters (*forais*) were issued as all incentive to many different Europeans to colonize new areas, and these early *forais* included trade rights. New overland trade with Northern Europe coupled with an extension of both Northern and Southern maritime traditions to produce a city type whose internal social-spatial structure was quite similar to the model under discussion in this study.

Early Brazilian Cities

The Portuguese had known of Brazil since the beginning of the sixteenth century, but they were few in number and their colonial efforts in Africa and Asia prevented any large scale attention for nearly two hundred years. The wealth of Brazil was realized early, however, and a colonial economic system was established initially to control dyewood trade and extend sugar Production from Madeira. Trade was placed in the hands of a few key persons (*donitários*).

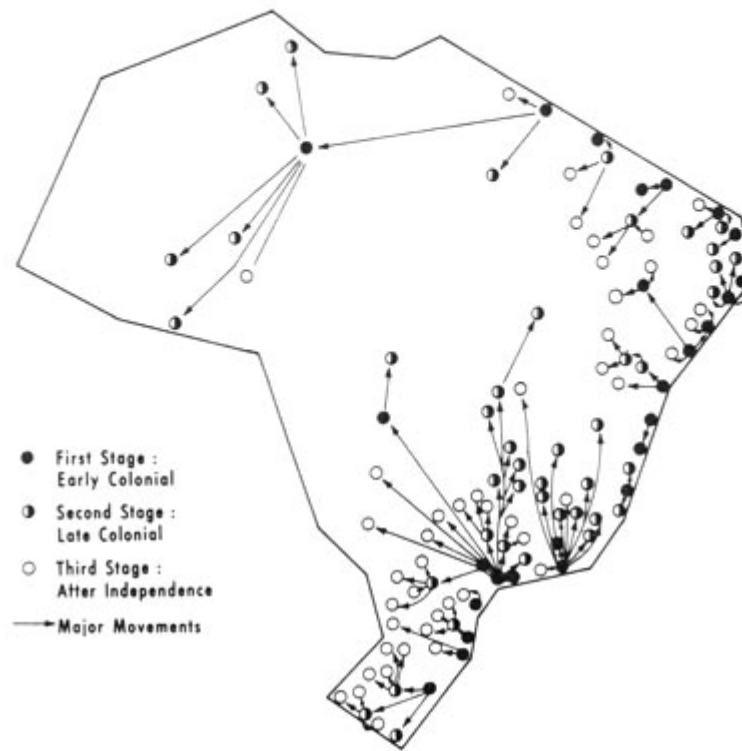


Fig. 3. The three major stages of colonial penetration of Brazil.

Donitários were awarded *capitanias*, or strips of coastal territory no less than 30 leagues, along the coast from Cabo de São Roque south to Lagoa dos Patos. Each *donitário* was to establish at least one urban center for control of his capitanias. The *capitania* was to be developed at the expense of the *donitário* and the crown was to receive a proportion of trade profits. Only two of the original fifteen *capitanias*, São Vicente in the south and Pernambuco (Recife) in the north, really prospered. However, a system of cities under control of the central government eventually developed along the coast, and increased central colonial control after the middle of the sixteen century led to the penetration of the

continent from 4 key points, Bahia (Salvador), Pernambuco, São Paulo, and Belém (Muralha, 1970).

Penetration of the Amazon Lowland from Belém was the result of efforts to hold the Atlantic coast from the French and Dutch and further explore the interior. Although this part of Brazil was frequently visited by southerners, and some cattle raising developed around Belém, it was administered directly from Lisboa and considered a separate colony.

After the establishment of many coastal urban settlements, the backlands of the Northeast were initially penetrated by *mulattos* and *mamelucos* (Portuguese and Amerindian mixtures). Black slaves had been brought from Portugal and Africa to work when sugar cane *engenhos* which had developed along the coast (Freyre, 1963). A strict social-spatial hierarchy following the Portuguese colonial model previously suggested had been transplanted. Some of the "other foreigners" of the colonial social *elite* included New Christians and Jews expelled from Portugal by the Inquisition. In the backlands, a cattle herding culture developed, and although the owners of large *fazendas* had a rural economy, they formed part of the urban *elite* (Poppino, 1968). During this early period, Rio de Janeiro functioned largely as a naval installation and little colonial expansion took place from that city.

Farther south, São Paulo had developed a uniquely Brazilian culture which was to have a lasting influence upon the present system (James, 1959). The growth of São Paulo also contributed to the decline of São Vicente. Initially established as a Jesuit mission village, it quickly became the center for penetration of the interior. The social stratification of São Paulo developed along lines not previously experienced in Portuguese colonization. The settlement was isolated from the major areas of development, and many of the early settlers were poorer Portuguese. Small in numbers, they mixed with Tupis and the Brazilian *bandeirante* culture was formed. Egalitarian in nature, the culture largely thrived on the capture of Amerindian slaves to be used for farming and herding. Wandering clans of Paulista *bandeirantes* penetrated the Sertão from São Paulo to Belém. Although the *bandeirantes* changed the landscape little, they did pave the way for future settlement.

Later colonial settlement

The loss of most East Asian possessions combined with the discovery of gold

and diamonds in the Minas Gerais area to lend new Portuguese colonial impetus to Brazil (Livermore, 1966). During the period from 1700 to 1822, Rio de Janeiro became the colonial center of Brazil. The interior of Brazil was penetrated from both Rio and São Paulo (Fig. 3). The Portuguese once again became a wealthy people in Europe, and during the Napoleonic Era Rio was the capital of the Portuguese Empire. Other parts of Brazil showed much more limited outward urban spread; however the Amazon Lowland was deeply penetrated from Lisboa-based movements through Belém and Manaus.

Rank - Size Distribution of Cities over 20,000 in 1960

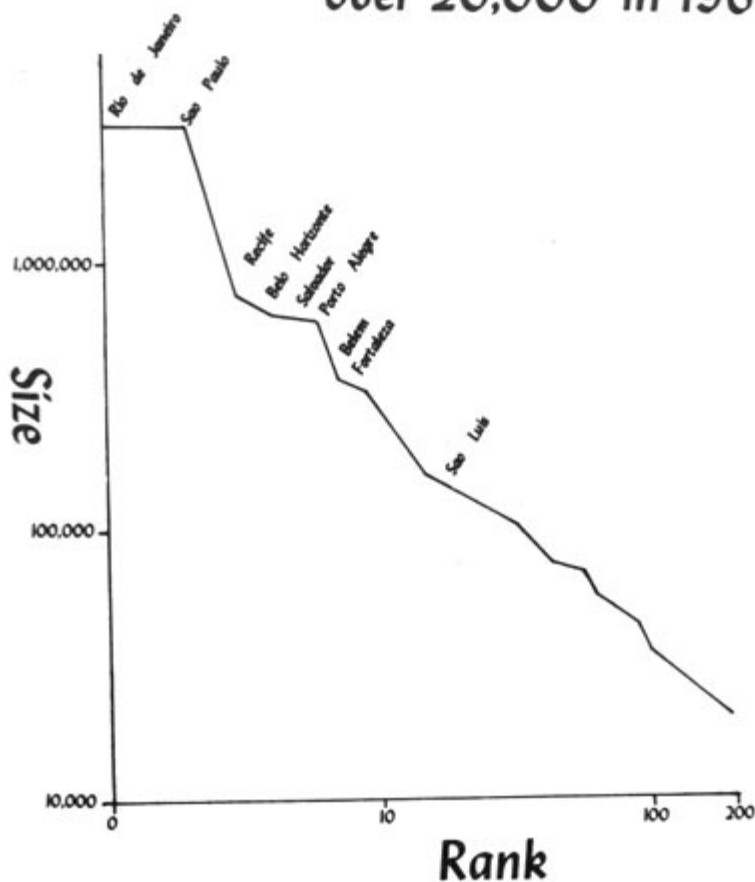


Fig. 4. Rank-size distribution of Brazilian cities in 1960.

Urban growth after Independence

The third state of proliferation of major settlements in Brazil is viewed as the result of three growth trends: a colonial extension, transformation from colonial patterns, and the industrial revolution (Geiger, 1963). The colonial extension, which encompassed most of the first half of the nineteenth century was characterized by primary economic exploitation funneled through major urban

centers. After 1822 many German settlements were established south of São Paulo. During the period of colonial transition many innovations diffused through the urban system which was developing (Smith, 1951). Large numbers of Italians, Portuguese and Spaniards emigrated to Brazil and helped the major cities become more cosmopolitan. In the Southeast, second generation Germans started to "swarm" over the countryside (Smith, 1951, 1954). The Backlands from the outskirts of São Paulo to the Northeast were proliferated with urban settlements. The industrial revolution came to Brazil during and after World War I, and many cities, especially Sao Paulo, were to become modern urban industrial centers.

The urban system

The Portuguese-Brazilian colonial infrastructure of coastal ports and inland mining cities combined with subsequent Brazilian industrial developments to form the present urban system. Berry (1961, 1970) has suggested methods of analyzing urban systems in general and testing relationships between city size and economic development, and these tests can be applied to Brazil's cities.

If city size and city rank are plotted against one another on double logarithmic paper as on Fig. 4, the resultant regression line tends to approximate a slope of 45 degrees for Brazil (Berry, 1961, 1970). This is an indication of a fairly "well developed" urban system. The most noteworthy deviation from the slope is the position of São Paulo in relation to the first ranked Rio de Janeiro of 1960 and the remainder of the system. This condition might perhaps best be termed as a case of minor twin primacy. Sao Paulo has now surpassed Rio de Janeiro in size. If present growth rate differentials continue, the system could eventually more closely approximate a lognormal condition. However, size comparisons in the case of Brazil do not fully account for spatial variations.

As recently as 1967, Belo Horizonte was the only large urban center more than 100 miles from the Atlantic coast (Fig. 5). In addition, most of the smaller important cities are close to the coast. Furthermore, many inland cities, Manaus being the outstanding example, are ports. Although this pattern certainly strongly suggests the results of the Portuguese maritime orientation, Brazil paradoxically has never developed a very strong national merchant marine fleet. Conversely, this pattern does reflect the foreign export elements of Brazil's economy.

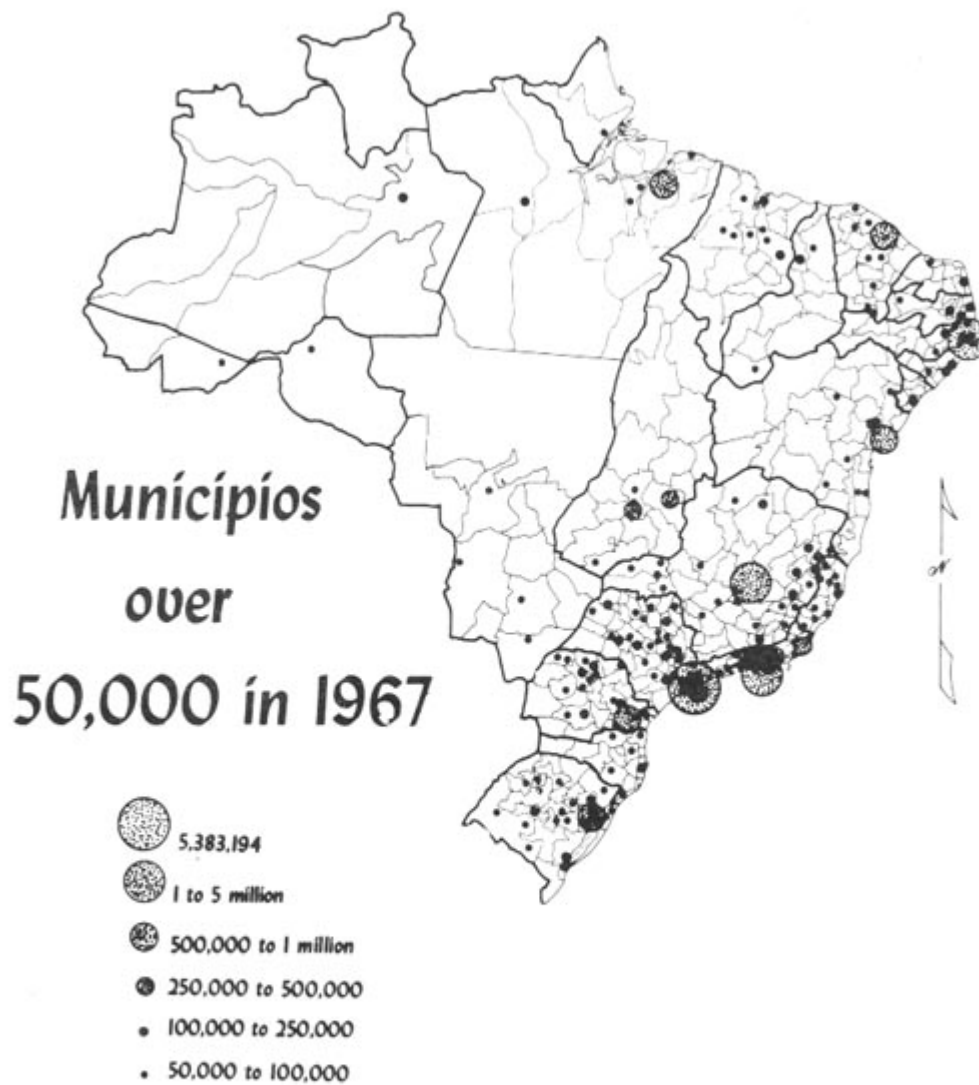


Fig. 5. The distribution of major Brazilian cities in 1967.

In addition to offering a functional classification of cities, Geiger (1963) has ranked Brazil's major cities in a manner which can be interpreted as a classification of the largest cities as either national, regional, or local centers. Some cities obviously serve in more than one of the above capacities. The twin *metropoli* of Rio de Janeiro and São Paulo are first classified as *metropoles nacionais*. São Paulo has actually shown a growth rate this century several times that of Rio de Janeiro. After the spread of coffee into the São Paulo region during the last part of the nineteenth and the first part of the twentieth centuries São Paulo

became the major commercial center for coffee production and from this base early food processing, leather, and textile industries grew at a rapid rate. Other, more diversified activities prospered, and São Paulo now leads the country in industry. São Paulo's hinterland is vast. It includes the entire southern sertão as well as a large portion of the southern coast and agrarian areas of the South.

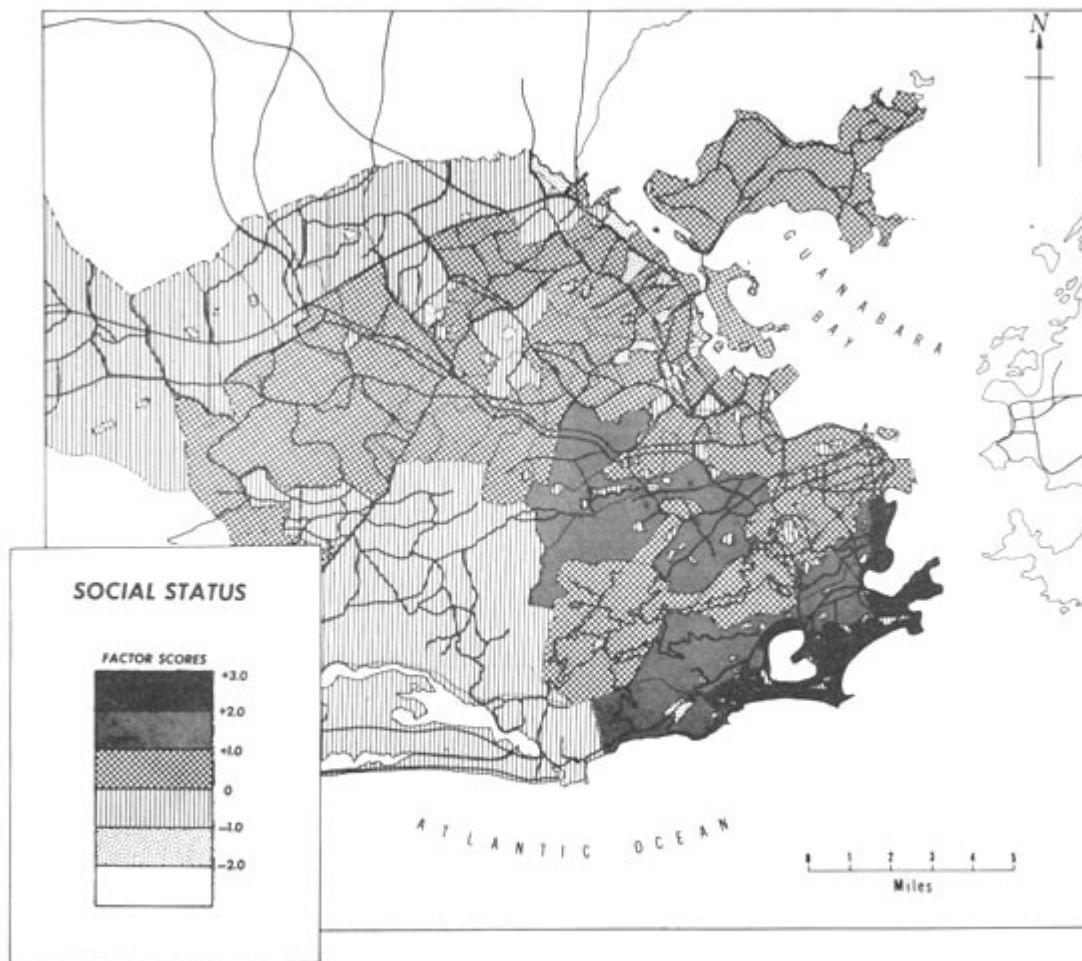


Fig. 6. The distribution of various social status groups in Guanabara in 1960.

Rio do Janeiro is also an industrial center of national importance, but unlike São Paulo, it commands a relatively small regional hinterland. In addition, Rio is functionally much more diverse than São Paulo. Its role for two centuries as the country's capital led to the development of nationally important financial institutions, administrative functions, cultural leadership, and a variety of industrial developments. Rio de Janeiro is also a seaport of international

importance. Its long-term role as an exporter of agricultural and other extractive products has strongly influenced patterns of urban growth.

Four other urban centers, Pôrto Alegre, Salvador, Recife, and Belém demonstrate hinterlands of regional extent. Porto Alegre is less traditional than other coastal centers of Portuguese origin in that its hinterland is the area of more recent European colonization. Salvador commands an area of plantations, and the agrarian nature of the area is still prominent in the social structure. Farther north the Recife hinterland demonstrates an even better sample of traditional Brazilian agrarian production. The extensive area controlled by Belem reflects the sparsity of population in Amazónia.

Three other cities, Belo Horizonte, Fortaleza, and São Luis are especially important local centers. Belo Horizonte is an industrialized administrative center in Minas Gerais, and except for the strong influence of the major twin metropoli, it might have a much larger hinterland. The hinterlands of two other local centers, Fortaleza and São Luis, are coastal enclaves within the larger hinterland of Recife.

In a study completed for the Fundação Instituto Brasileiro de Geografia e Estatística essentially intended to identify major agricultural regions of Brazil the opportunity arose to further examine the urban system (Berry and Pyle, 1970). A combination of factorial and taxonomic procedures were applied to a matrix of 360 microregions containing 1968 information for 80 economic variables. The 360 microregions had been formed by a prior grouping of Brazil's 3,963 *municípios*. Included in 4 matrices of 77 variables were 23 products of industrial origin, which were then put to separate principal axis factor analyses (one for value and one for quantity), the industrial variables clustered as the factors with the highest loadings in both instances. Furthermore, when all areas with correlations exceeding 0.500 were compared, the familiar areal pattern of Brazilian urbanization appeared. This "urban activity cluster" shows heavy urbanization between Rio and São Paulo, as well as an urbanized area around Porto Alegre, new industrial areas of São Paulo's hinterland, coastal enclaves in the Northeast, and Manaus.

The social environment of Rio de Janeiro

Given the availability of 1960 census information (Pyle, 1969), it was possible to learn much about the social geography of Rio. The method of "factorial ecology" which has been successfully employed as an indicator of dimensions of urban social differentiation in Anglo-American and British cities also proved helpful in reaching an understanding of the spatial aspects of Rio's social environment (Rees, 1969). A review of one of these social dimensions along with some aspects of Rio's urban growth together represent a methodology which can be employed for other major Brazilian cities -- provided the census data for smaller areas are made available.

$$\begin{aligned} X_3 &= -0.711 (X_1) + 0.240 (X_2), \\ X_1 &= -0.724 (X_3) - 0.224 (X_2), \text{ and} \\ X_2 &= 0.449 (X_3) - 0.412 (X_1) \end{aligned}$$

where

$$\begin{aligned} X_3 &= \text{Literary rate} \\ X_1 &= \text{Proportion of marriages common law} \\ X_2 &= \text{Crowding measure} \end{aligned}$$

The more striking features of Rio de Janeiro include the enormity of Guanabara Bay and drastic differences in elevation due to mountains, hills and an escarpment. Although there is plenty of level and slightly sloping land within the city, the *Tijuca-Carioca* (Andaraí Range) extends from east to west dividing the city into northern and southern sectors. A second range (*Pedra Branca*, or *Rural*) forms a western rural boundary, and a third (*Rural Marapicu-Gericino*) forms the northern boundary. Unlike the *Planalto* of São Paulo, the areas interior to Rio are comprised of the rugged *Serra do Mar*.

The key to successful early growth was Rio's strategic location between the northern and southern Portuguese nodes. However, in addition to housing a naval garrison it was also possible for the early city to develop sugar *engenhos*. This was essentially the picture of Rio's economy, when the 17th century discovery of gold and diamonds in the interior gave impetus to new growth. From 1700 to 1821, Rio grew rapidly. The city spread outward from the older *castelo* and bay shore centers to fill up much of the level and slightly hilly land. The steeper hills and slopes were initially disdained as poor residential sites by the Portuguese-Brazilian culture. It was only after the movement of Portugal's capital to Rio at

the beginning of the nineteenth century that some of the higher areas were settled, and this settlement consisted of Northern European "colonies" in *Gloria*, *Flamengo*, *Botafogo*, *Floresta da Tijuca*, and *Santa Teresa*.

Rio continued to grow after independence (1822), and it continued to be a major seaport. Near the end of the nineteenth century shanty-towns started to develop on the steeper hillsides. These less desirable residential locations became filled with former slaves and soldiers returning from interior campaigns. In remembrance of a strategic battle hill, Antonio Conselheiro's victorious foes named their first settlement *favela*. Hence a generic name was derived for the shantytowns which now appear across the face of Rio.

During the twentieth century, Rio has taken up the appearance of a modern cosmopolitan metropolis. Many small hills have simply been removed. Wide avenues have been extended through the older heart of the city and around the shores of Guanabara Bay and the Atlantic Ocean. New areas for growth have been opened by the tunneling of former mountain barriers. A fashionable beach area, Copacabana, lined with 12 to 13 story (legal limits) apartment buildings has become the center of Rio's social life. Many modern shops and new office areas have done much to shift the center of the city's commercial emphasis (Morris, 1970).

At the same time there has been growth outward along rail lines and on the urban fringes. These areas, however, do not share some of the social amenities of urban life, and are made up of predominately middle and lower-middle class residents. Although many of these areas have been urbanized in the Physical sense for many years, a *suburbana* in the popular Carioca mind is one from the countryside who lacks sophistication and culture. Yet the *favela* paradox represents a transfer of Brazilian culture to the heart of Rio.

The factor analysis of 1960 population data for Rio includes two kinds of observational units: 74 *zonas* and the 40 *favelas*.

Zero-order correlation coefficients are shown on Table 1. Table 2 shows factor loadings after 10 rotations with varimax convergence. The most important factor, which can be considered as a barometer for social status, includes 14 variables which have loadings greater than +0.500. The second factor includes

migration traits, the third contains one variable, percent with wood stoves, loading independently, and the fourth is a family age factor.

When factor scores from Factor I are mapped (Fig. 4) it is possible to determine much about social status in relation to residential location in Rio. The areas of highest status, i.e., those with the highest factor scores, are to be found clustered in a fairly central group from south of the older commercial core around and beyond Copacabana Beach. There are no high status areas north of the *Serra da Carioca*; however, next to highest areas are found at the foothills of both sides of the eastern part of these heights. The lowest status areas are the rural fringes and the *favelas*. Nearly all *favelas* are very low status areas regardless of distance from the highest status central location.

While the factor analysis is a general method of describing the social areas of Rio it is of limited utility for other places in Brazil where data are lacking. However, by performing linear multiple regressions, it is possible to test the "predictive" nature of some census variables. Regressions of some of the more highly correlated variables indicate that knowledge of three major variables can help to explain many aspects of social status in Brazilian cities. In addition, all three variables, percent literate, rooms per dwelling, and percent of marriages common law, help make up the social status factor in the previous analysis. The statistical associations among these three key variables are shown on Tables 3, 4, and 5, and the following statements can be made:

TABLE 1
CORRELATION COEFFICIENTS

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Median Age	1.000										
2. % Female	0.519	1.000									
3. Alien	-0.104	0.140	1.000								
4. % in Guanabara 1 yr.	0.074	0.229	0.718	1.000							
5. % in Guanabara 1-5 yrs.	-0.221	-0.004	0.820	0.716	1.000						
6. % Age 15 yrs.	0.971	-0.471	0.093	-0.083	0.231	1.000					
7. % Age 60 yrs.	0.926	0.461	-0.267	-0.104	-0.381	-0.941	1.000				
8. Average Family size	-0.594	-0.130	-0.164	-0.185	-0.088	0.580	-0.543	1.000			
9. % Common Law Marriages	-0.737	-0.407	0.397	0.118	0.394	0.739	-0.771	0.201	1.000		
10. % in Industry	-0.693	-0.477	0.080	-0.189	0.142	0.694	-0.622	0.329	0.497	1.000	
11. % Unemployed	0.058	-0.185	-0.577	-0.385	-0.401	0.042	0.218	0.081	-0.298	-0.055	1.000
12. % Literate	0.828	0.410	-0.429	-0.104	-0.448	-0.842	0.829	-0.312	-0.907	-0.661	0.199
13. % Students	-0.032	0.116	-0.539	-0.281	-0.433	0.029	0.068	0.454	-0.467	-0.167	0.328
14. % Structures Owner Occupied	-0.549	-0.067	0.537	0.311	0.530	0.568	-0.620	0.273	0.678	0.417	-0.282
15. Rooms/Dwelling	0.721	0.628	-0.208	0.111	-0.254	-0.715	0.681	-0.065	-0.818	-0.670	0.127
16. % Wood Stoves	-0.439	-0.229	0.085	-0.106	0.020	0.440	-0.416	0.122	0.538	0.203	-0.062
17. % With Electricity	0.530	0.285	-0.396	-0.292	-0.462	-0.561	0.614	-0.164	-0.603	-0.420	0.220
18. With Refrigerators	0.878	0.575	-0.234	0.064	-0.291	-0.882	0.847	-0.366	-0.838	-0.747	0.121
19. % With Radio	0.677	0.374	-0.443	-0.229	-0.498	-0.698	0.713	-0.150	-0.758	-0.555	0.240
20. % With Water	0.802	0.425	-0.443	-0.133	-0.445	-0.818	0.822	-0.270	-0.582	-0.645	0.298
21. % Age 15 yrs. Married	-0.767	-0.687	-0.112	-0.178	0.069	0.793	-0.741	0.359	0.517	0.618	0.078
22. Population	0.611	0.332	-0.216	-0.004	-0.280	-0.621	0.617	-0.329	-0.555	-0.450	0.150

(Continued)

12	13	14	15	16	17	18	19	20	21	22
1.000										
0.397	1.000									
-0.712	-0.334	1.000								
0.822	0.466	-0.468	1.000							
-0.525	-0.045	0.160	-0.416	1.000						
0.612	0.275	-0.605	0.553	-0.301	1.000					
0.899	0.282	-0.582	0.890	-0.465	0.610	1.000				
0.794	0.391	-0.562	0.745	-0.487	0.861	0.784	1.000			
0.919	0.347	-0.594	0.800	-0.503	0.666	0.880	0.846	1.000		
-0.589	-0.008	0.352	-0.632	0.216	-0.398	-0.708	-0.499	-0.575	1.000	
0.636	0.109	-0.410	0.524	-0.421	0.457	0.590	0.566	0.647	-0.451	1.000

Thus, if the assumption is accepted that many Brazilian cities are similar to Rio in social structure, knowledge of any one of these variables for a particular city can reveal much about the social structure of that city.

Conclusions

Several avenues of future research have been examined, and in each instance much can be accomplished in understanding Brazilian urbanization. In addition, the descriptive and predictive models suggested have much to offer in terms of

future urban planning. Perhaps the most important data needed for that planning process are intraurban information about socioeconomic and demographic characteristics.

TABLE 2
FACTOR LOADINGS

Variables	FACTORS			
	I	II	III	IV
% With Refrigerators	-0.919	-0.125	0.262	-0.008
% Age 15 Years Married	-0.879	0.079	-0.224	0.361
Median Age	0.876	-0.071	0.218	-0.354
Rooms/Dwelling	0.866	-0.053	0.251	0.318
% Age 15 Years	-0.865	-0.155	0.110	0.134
% Age 60 Years	0.834	-0.268	0.202	-0.332
% Literate	0.820	-0.332	0.369	0.001
% In Industry	-0.805	-0.020	0.018	0.030
% With Water	0.796	-0.347	0.381	0.010
% Common Law	-0.738	0.328	-0.440	-0.115
% Female	0.736	0.315	-0.106	0.222
% With Radio	0.719	-0.403	0.339	0.103
% With Electricity	0.590	-0.454	0.171	0.002
Population	0.562	-0.172	0.398	-0.177
% Alien	-0.089	0.905	-0.099	-0.192
% In Guanabara 1 Year	-0.238	0.845	0.086	-0.101
% In Guanabara 1-5 Years	0.128	0.846	0.148	-0.032
% Unemployed	-0.027	-0.619	0.234	0.074
% Owner Occupied	-0.531	0.596	-0.070	0.145
% With Wood Stove	-0.283	-0.055	-0.872	0.006
Average Family Size	-0.363	-0.071	-0.047	0.826
% Students	0.231	-0.422	0.067	0.763
Percent of Common Variance	54.1	77.8	88.9	100.0

TABLE 3
REGRESSION MODEL ONE

Dependent Variable	Multiple R	Multiple R	Intercept A	Standard Error of Intercept	
% Literate	0.918	0.842	77.385	3.957	
Independent Variables	Partial R	Standardized B	Regression Error	Metric B	Regression Error
% Common Law	-0.717	-0.711	0.064	1.484	0.133
Rooms/Dwelling	0.328	0.240	0.064	2.628	0.695

TABLE 4
REGRESSION MODEL TWO

Dependent Variable	Multiple R	Multiple R ²	Intercept A	Standard Error of Intercept	
% Common Law	0.916	0.840	39.869	1.428	
Independent Variables	Partial R	Standardized B	Regression Error	Metric B	Regression Error
% Literate	-0.717	-0.724	0.065	-0.347	0.031
Rooms/Dwelling	-0.303	-0.224	0.065	-1.171	0.339

TABLE 5
REGRESSION MODEL THREE

Dependent Variable	Multiple R	Multiple R ²	Intercept A	Standard Error of Intercept	
Rooms/Dwelling	0.840	0.705	1.774	1.006	
Independent Variables	Partial R	Standardized B	Regression Error	Metric B	Regression Error
% Literate	0.328	0.4493	0.119	0.042	0.011
% Common Law	-0.303	-0.4107	0.119	-0.078	0.023

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