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ATTRACTING UNIVERSITY PROFESSORS TO INTERIOR CITIES IN BRAZIL: INDIVIDUAL PERCEPTIONS AS A BASIS FOR EDUCATIONAL PLANNING

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ABSTRACT

One of the difficulties in Latin American development is attracting highly qualified professionals to interior cities with growth potential. Also, as in most less developed countries of the world, this is accompanied by a tendency toward a permanent rural-urban migration of the existing, more qualified personnel, leaving interior regions deficient in an important development resource. In this study a culturally versatile method to identify perceived desirable characteristics of cities as places to work and live is proposed. A triadic selection procedure and factor analysis are employed with a case study sample of graduate students in Rio Grande do Sul, Brazil. The results show that there are four major categories of attributes (population, economic, cultural, and physical) which could be used as incentives to attract people to medium sized interior cities in developing countries. Various ways in which the local university could be employed in such strategies are presented as examples of planning possibilities.

Introduction

Among the more important and complex problems facing the majority of developing countries is the reduction of regional disparities in internal growth and development. Development paradigms have, in general, focused on urban-located industrialization while relying on a spontaneous process of trickling down to eliminate gradually center-periphery imbalances. Such development, however, has at times created situations of dependency through which metropolitan cities flourish at the expense of their hinterlands. The area of higher education often reflects this dependency with the best students from the interior going to the city where, after being trained in abilities also in demand in the center, they tend to remain.

It has been suggested that one way to achieve an equitable spatial

distribution of the benefits of development would be to stimulate the growth of middle sized cities, especially those with promising signs of growth potential, through public funds (Hansen, 1972). A policy aimed at the development of medium sized cities would seem to imply a need for the establishment and support of extensive education services. Not only has overall increased education been linked to economic development (Denison, 1962) but investment in human capital is generally seen as an option which people favor to raise their personal earnings. More knowledge, however, is needed concerning attitudes and preferences involved in professional and worker relocation if education is to play a part in regional human resource development.

In Latin America, higher education is considered the key factor in most educational networks as it provides teachers for the other levels of schooling, trains technicians and administrators and offers enrichment courses to the community. Hence the stimulation of growth of middle sized cities, which contain universities, within a given region could offer a partial solution to regional disparities.

Brazil has long been cognizant of spatial imbalances in her development (Lopes, 1970). First attempts at interiorization came in the form of creating urban centers away from its coast. More recently, the national government has placed increased emphasis on investments in human resources through the rapid expansion of its university system and graduate schools. This process includes medium size interior cities as well as the existing metropolis (Brasil, 1974).

The National Plan of Graduate Education (PNGP) has stipulated that all university professors must have a minimum of a Master's Degree by 1979, thereby being prepared to carry out activities of teaching, research and formation of professional administration (Brasil, 1975). Unfortunately however, those professors who already possess graduate degrees, gained principally abroad, and those who they prepare have tended to remain in the centers. As a result universities in the interior must rely on part-time or poorly trained faculty members lacking advanced degrees and with little experience in either research or planning.

If universities of the interior are to compete with those of the centers, thereby providing the human resources needed for an equitable regional development, it is felt that they must attract faculty members with advanced degrees. Previous research has suggested that economic considerations such as income or promotion possibilities are determining factors in choosing a place to live and work (UNESCO, 1965). Some evidence exists, however, that perceived environmental or educational advantages may attract professionals to a certain city (Cantuarias and Juricic, 1975). The purpose of this study is to outline those conditions which Brazilian professionals preparing for advanced degrees perceive as desirable in the place they want to live and

to suggest ways of attracting such potential university professors to peripheral cities. The results of the study should also open some new perspectives on solving the interior human resources problem as it exists in other developing countries.

Theory

It has recently been shown that an area may be defined by individuals, not geometrically, but in terms of more complex subjective meanings ascribed to them (Tuite, 1974). Burnett et. al., (1975 p. 2) suggest that places are defined by individuals as "alterable bundles of learned meanings". Their justification for such a definition is based on theoretical and empirical criteria growing out of the "Personal Construct Theory" of George A. Kelly (1955, 1963) [1]. Kelly draws an analogy between the real-life functioning of man and the scientific method of the scientist, whereby the individual arranges elements (e.g. university cities) of his perceived environment by discrimination on the basis of their attributes (Kelly, 1963). The attributes are considered to be arranged by each person into bipolar scales which express meaningful contrasts. Because the scales are created by each person on the basis of his own knowledge and experience, they are called *personal constructs.* A construct is thus explicitly a mental tool to allow not only discrimination and organization of events (e.g., knowledge and experience of various places) but also the anticipation of future possibilities (e.g., selection of a new place to live and work).

The idea that a person's perception of a city may influence his decision to select a specific location as a desirable place to work and live is not entirely new. It has been generally recognized that the behavior of an individual is not dependent upon his reactions to some situation objectively measured, but rather to his perception of the situation (Downs, 1970; Cox and Golledge, 1969; Harvey, 1969). It follows that a person's perception of a situation does not necessarily correspond to the situation objectively measured. In choosing alternative places, the individual makes a subjective evaluation of the alternatives available to him on the basis of his perception of each place. The identification of the characteristics upon which future college teachers form their perceptions of alternative cities as places to work and live is important to this study.

Context of the Study

Rio Grande do Sul, Brazil's fifth largest state, exhibits the centre-periphery dichotomy in both its economic and educational systems. It is

dominated by the capital, Porto Alegre, which although not on the coast, is a principal river port as well as being an industrial center with more than 1,500,000 inhabitants in its metropolitan area. The city serves as a major receiver of primary goods, is a producer of services and manufactured products, and its two major universities, the Universidade Federal do Rio Grande do Sul (UFRGS) and the Pontifícia Universidade Católica (PUC), receive the best students from the entire state and provide most of the university professors for other universities and single department educational institutions throughout the state.

Among the interior universities there are five which are located in cities of intermediate size and offer extensive programs in a variety of areas. Although the universities themselves have similar course offerings, the cities present differing social and economic characteristics. Two, Passo Fundo and Santa Maria, function principally as suppliers to the agricultural regions in which they are located and have an ethnically mixed population. Two others, Caxias do Sul and Pelotas, are incipient industrial areas which have ethnically homogeneous populations. The last, while being a separate political entity, is contiguous to the metropolitan area of Porto Alegre and has a population largely of German extraction and a small industrial area. In each of these cities, the majority of both university professors and high level administrators lack advanced degrees, and there is a recognized need to attract qualified personnel.

Methodology

Seventy-eight graduate students in four different Master's Degree Programs at the Universidade Federal do Rio Grande do Sul in Porto Alegre made up the sample for this study. Students in education, urban and regional planning, economics, and administration were selected because of the Brazilian government's recent emphasis on developing these types of human resources (Brasil, 1974).

A research methodology was designed to permit each person to identify the characteristics desirable to him (personal constructs) of cities as places to work and live. An important element of the methodology was the elicitation of constructs from the individual graduate students thereby eliminating the potential biases inherent in providing prior researcher-nominated characteristics. Thus, a triadic procedure [2] of construct elicitation, explained below, was employed.

The triadic process began by first asking each respondent to list in order of preference the five best cities in Brazil, excluding the six university cities in Rio Grande do Sul, as places in which to work and live. On a work sheet with a pre-established system of randomly selected numbers in sets of three,

each person was provided with fifteen triads [3] of cities composed of various combinations of his favorite cities and the six university cities in Rio Grande do Sul. To the extent that cities and/or their preference order were different for each individual, the fifteen triads for each person were composed of different combinations.

Beginning with the first triad, each person was asked to select from the three cities the two most similar. He was then asked to define the characteristic that made the cities similar – a process which identified one pole of a personal construct. He then defined the characteristic that differentiated the third city from the two similar cities. This characteristic produced the contrasting pole of the construct. Finally, he was asked to select the pole (characteristic) he preferred in a city in which he would choose to work and live.

At the end of the first phase of the information-gathering process each of the seventy-eight respondents had identified several preferred features of cities as places to work and live. As a total, considerable cognitive information about many cities had been obtained because the triads represented different cities for different people. For planning purposes it is necessary to identify communality among the respondents or at least significant generalizations among sub-groups, upon which to base practical policy recommendations. Thus the second part of the methodology was an attempt to seek order and parsimony among the many respondents and characteristics.

Each person was provided with a repertory grid form with eleven columns and fifteen rows. Six of these columns bore the names of the university cities in Rio Grande do Sul. The respondent then entered in the remaining five columns, his choice of cities in which he would prefer to work and live. In the left margin each respondent recorded the preferred characteristics he had identified in the first part of the procedure. Beginning with the first characteristic, respondents evaluated each of the eleven cities on the basis of the quantity of that characteristic each city possessed. A scale of 1 to 7 was used whereby a score of 1 represented a maximum, a score of 4 implied an average amount of the characteristic and a score of 7 signified that the city did not possess the characteristic at all. The evaluation process continued until each individual had rated all cities on each of his preferred characteristics.

The seventy-eight completed repertory grids were subsequently factor-analyzed individually employing multiple regression coefficient values as the communalities and the varimax rotation criteria. This technique was used to extract the essential definitive substance from the grids, which identified the higher order attributes upon which a respondent evaluates cities. These higher order attributes are fewer in number, more permanent, and less subject to alteration than the lower order characteristics identified through the triadic process. As a result they are of more value for practical educational planning purposes.

Results from graduate student sample

A full presentation of the complete analysis of each individual student is neither necessary nor appropriate here. An example, however, of the higher order attribute identification process through the interpretation of loadings on factors with eigenvalues of 1 or greater is provided in Table I.

TABLE I

Example of Higher Order Attribute Identification through Interpretation of Primary Factor Loadings

Preferred Characteristics	Factor 1 Dynamic cosmopolitan center	Factor 2 Educational opportunities in traditional interior city	Factor 3 Industrial center
International center	0.9203	− 0.1140	0.2796
Expanding	0.5804	− 0.3349	0.5790
Culture	0.9818	0.1135	0.0059
National center	0.9406	0.0775	0.1501
Regional center	0.9823	0.1352	− 0.1233
Educational opportunities	0.0095	0.9482	0.1051
Satellite city	− 0.3767	− 0.5531	− 0.2644
Medium size	− 0.4318	0.6311	0.5855
Industrial center	0.1122	0.2457	0.7823
Tradition	0.0432	0.9214	− 0.0015
% of total variance explained by three factors	89.5		

Graduate Student Number 23.

In this case the respondent had identified ten preferred characteristics of cities through the triadic process. By factor-analyzing his repertory grid, the number was reduced to three higher order attributes of cities with little loss of information (10.5% of total variance unaccounted for). Each individual factor was subjectively labelled by examining, as a group, the characteristics whose primary loading was on the same factor. Thus, for example, the characteristics: international center, expanding, culture, national center,

and regional center were interpreted as being elements which, in common, define a desirable higher order attribute entitled dynamic cosmopolitan center. Similar analyses were performed on each individual repertory grid.

Table II provides a summary of higher order constructs identified through the individual analysis of five of the seventy-eight respondents. The benefits achieved through factor-analysis are readily manifest by the reduction of the forty-eight lower order characteristics to twelve higher order attributes. At the same time a high level of information is retained within the higher order constructs as noted by the consistently high percent of variance explained in each case.

TABLE II

Examples of Desirable Higher Order Attributes of Cities Identified through Factor Analysis

Graduate student	Number of lower order characteristics	Higher order attributes (1)	Higher order attributes (2)	Higher order attributes (3)	% of total variance explained
44	9	Capital with diversified population	Industrial center		81.6
23	10	Dynamic cosmopolitan center	Educational opportunities in traditional interior city	Industrial center	89.5
32	7	Large city with education opportunities	Capital port city		78.5
38	8	Pleasant climate	Employment		70.3
69	14	Dynamic cosmopolitan center	Tranquil university town	Ethnic similarity	88.1

The examples shown in Table II are typical results of the sample as a whole. Although diversity exists among the several identifications, there is also a certain amount of communality among the individuals as indicated by the repetition of some attributes such as dynamic cosmopolitan center and industrial center. When the entire sample was compared various communalities of this type became readily apparent among the total of 175 attributes.

A summary classification of all attributes employed by graduate students to differentiate among and evaluate cities in Brazil is provided in Table III. As may be seen six broad categories of attributes have been identified and related to city size [4]. Two-dimensional characteristics which included a size dimension were placed along the first two rows with the appropriate city type. A solely size attribute which was identified only for medium size cities has been assigned to the row of that city type. Single dimension characteristics not related to size have been situated in the third row.

Columns were ordered by the relative importance of the attribute contained therein. Economic attributes were cited slightly more often than any other, representing 24% of the total indications. Cultural attributes which fell into second place (22.8%) are followed respectively by physical (18.9%), population (13.8%), climatic (11.4%) and size (9.1%) attributes. Owing to the impracticality of modifying or controlling city size and climatic condition in a given region, these attributes offer little possibility for planned change. Thus, although they make up 20.5% of the total number of identifications, for the purpose of this study these attributes were treated as constants. Also, as the objective here is to suggest ways of attracting qualified professionals to interior cities those characteristics expressly associated with large cities have little relevance and are not emphasized in the discussion.

The salient characteristics upon which the public sector may act to attract qualified university professors to interior cities in Rio Grande do Sul are those economic, cultural, physical, and population attributes related either directly to medium size cities or not dependent upon city size. Hence, population attributes appeared to be slightly more important than the others. Respondents preferred cities with a warm, friendly environment inhabited by people much like themselves. There was a strong tendency to identify as favorable a predominance of one's own ethnic group. In a region which includes a large number of ethnic enclaves, as does Southern Brazil, such a tendency might be taken advantage of to attract professionals of a given ethnicity to a specific city or region.

Economically the sample does not seem to consider high salaries as a key characteristic but is more interested in an open job market with an advanced, well developed technological base. Although employment opportunities in general were seen as a predominantely large city attribute, when joined with technology and development either in industry or agriculture, the city size distinction is diminished.

Ample opportunity for a rich cultural life and the presence of a university are the dominant features of cultural choices. The environment of an institution of higher education often provides various opportunities for cultural enrichment and the historical/artistic characteristics of a city may

TABLE III

Graduate Student Perceptions of Desirable City Attributes

	Economic attributes	Cultural attributes	Physical attributes	Population attributes	Climate attributes	Size	no of id.	%
Large cities	22 Employment opportunities	2 Cosmopolitan 17 Cultural life 1 Educational opportunities	11 Port capital 2 Capital 3 Non-polluted	1 Diversified population	3 Agreeable climate		62	35.4%
	22 12.6%	20 11.4%	16 9.1%	1 0.6%	3 1.7%	0 0 %		
Medium cities	4 Industrial 2 Agricultural	3 Cultural life 1 Educational opportunities	2 Planned city			16 Medium size	28	16 %
	6 3.4%	4 2.3%	2 1.1%	0 0 %	0 0 %	16 9.1%		
Non-size cities	2 Industry 9 Employment opportunities 1 Access to technology 2 Development	1 Artistic life 1 Socio-cultural aspects 4 Culture/ leisure 9 University 1 History	1 Non-industrial 6 Port 1 Border city 1 Mountain leisure 2 Natural beauty 3 Leisure 1 Housing	2 Traditional 8 Friendly people 3 Life style 8 Ethnic composition 2 Close to family	17 Climate		85	48.6%
	14 8 %	16 9.1%	15 8.6%	23 13.2%	17 9.7%	0 0 %		
Total	42 24 %	40 22.8%	33 18.9%	24 13.8%	20 11.4%	16 9.1%	175	100 %

be related to cultural life in the specific sense of leisure. Thus, it would seem possible to wed cultural life to educational opportunities for planning purposes.

Being a port is the most important physical attribute identified. It appears, however, that the importance of water access is associated more with recreational activities than with those of transport and communication. Leisure aspects are reiterated in the other physical attributes named, and natural beauty, mountains and non-polluted air would all appear to have a leisure component.

As a whole it is quite clear that economic considerations such as income and job promotion possibilities are not the only, nor necessarily the most important, factors in evaluating alternative places to work and live. This is especially true in most developing countries, where tradition remains strong and related population, cultural, and physical characteristics maintain importance.

Planning Implications

The richness of the information presented in this study offers a wide range of possible areas in which public agencies could act to attract professors to medium sized university cities in Southern Brazil. It also suggests the importance of similar factor and planning possibilities in other developing areas. The focus here is limited to examples of strategies by which the government, through the consideration of individual perceptions, can make use of the university in professional relocation programmes.

The importance given to cultural and leisure activities by the individuals in this study suggests that qualified professors may be attracted to areas where the university functions as a cultural center. An institution could promote theatre, art, music, and dance on campus and in its curriculum. Through interaction with the community in general it could serve as a catalyst to stimulate the study and exposition of local folklore and history.

A university can provide recreational incentives through the organization of field trips and tours to regional sites of natural beauty or historical significance. Activities such as intramural and amateur sporting events among institutions, which are not common in Brazilian universities, could be promoted and the facilities of the university could be offered to local teams and interested individiduals. Through an active advertising campaign potential professors could be made aware of such opportunities for leisure.

Economically, attributes of infrastructure and planning could be used as incentives to attract professionals away from large cities. To maintain a link between professors and the business community a university could create a technical employment opportunities information center which

would keep businessmen advised of faculty expertise and inform professors of consulting and cooperative research opportunities. At the same time the center could maintain communication with other universities, government agencies, and private research groups for the purpose of high level technical interaction.

Problems of adaptation, which new professors might experience, would seem to be diminished if they went to interior areas inhabited by people similar to themselves. This would suggest that in a region characterized by distinct ethnic clusters, an active recruitment of professionals of a given ethnicity to a particular city may be viable.

Obviously, the examples presented here are tentative and partial, and any governmental solution must be multidimensional. There does appear, however, at least in the Brazilian case, to be a variety of incentives related to desired urban characteristics which would attract qualified professors to interior cities. It is suspected that the factors identified here are also relevant to higher educational planning in the interiors of other developing countries, a suspicion that could be tested and clarified through the application of the culturally versatile methodology presented here. And, as this study suggests, the local university, with public help, could utilize this type of information as a resource in solving its manpower needs.

Notes

1 For a detailed review of Kelly's theory see Bannister and Mair (1963).
2 This procedure had been used earlier by Burnett et. al., (1975) and Tuite (1974) to identify the important attributes of places in relation to transportation systems and neighborhood identification, respectively.
3 A greater number of triads could have been provided, but experience (Burnett et. al., 1975; Tuite, 1974) shows that repetition of characteristics predominates after about fifteen sets.
4 No characteristics were identified directly with small size cities.

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