Internal migration accounts for major increases in the population of most Latin American cities. To investigate this phenomenon as it relates to Guatemala City, a study was initiated whose explicit objectives were to 1) determine the extent of internal migration 2) identify those areas that supply the migrants, and 3) to analyze and explain the spatial variations in out-migration. After a review of migration literature and regional publications pertaining to Guatemala, several hypotheses were formulated. Specifically stated these postulates suggest that 1) as distance from Guatemala City increases, the number of migrants will decrease (a function of distance decay), 2) as the population of the generating center increases, the number of migrants that population supplies to Guatemala City will increase, 3) the impoverished state of rural areas acts to "push" population toward Guatemala City, and, 4) a typical migrant moves from his birthplace to Guatemala City by a series of steps or stages (step-wise migration).

**Sampling procedure**

Migration information collected during the 1964 Guatemalan census does not provide sufficient data to answer the specific questions put forth in the research proposal. To understand the process of internal migration to Guatemala City, therefore, and to make comparisons between the migrant and non-migrant population in the capital, it was necessary to gather data concerning the total population of the city. The information was obtained by administering a questionnaire (see Appendix A) to 2500 family heads representing 2.5% of the total family heads in Guatemala City. The selection of the address of each family head was determined by employing a stratified, random sample. The sample was stratified by zones and random within each zone. To illustrate the process of stratification, since Zone 2 contains 4.23% of the total families in the capital, 4.23% of the 2500 samples, or 106 interviews, were conducted in Zone 2 (see Appendix B).

Within each zone the specific household unit to be contacted was selected at random. The most accurate list of the addresses of the family units in Guatemala City was provided by the 1964 official Guatemalan census questionnaires. These
questionnaires were filed by city zones in the IBM division of The Bureau of Census. After access to these questionnaires was granted, it was necessary to insure that any given family address have an equal opportunity to be selected. To this end a list of random numbers was used (Rand Corporation, 1955). Each time a random number was selected, it was placed in the upper right-hand corner of a 3x5 card while the order in which the number was chosen was placed in the upper lefthand corner. The card was then filed in numerical order according to the random number, thereby assuring that a random number would not be duplicated. After some 2700 random numbers had been chosen, the file was checked to be certain that each zone contained the required minimum number of family addresses. By this process some zones received a surplus of random numbers; the extra numbers were eliminated by rearranging the 3x5 cards according to the order in which they were selected, discarding those cards with the higher numbers.

As each census questionnaire was chosen, the address of the family head was placed on the top front of the 3x5 card along with the following information: age, sex, and migration data, i.e., place of birth and last residence. The number of family members born in and outside the capital was placed in the lower left-hand corner while the same information concerning the household servants was noted in the lower-right. This family information, other than the address of the family head, was not utilized in the study under discussion.

After obtaining the list of addresses, each location was plotted on a large scale map of its respective city zone, then grouped into compact units in preparation for interviewing. During the migration census when a non-respondent was encountered that would have necessitated a repeat visit, the nearest physically similar dwelling unit was chosen.

When the migration census was completed, all data were coded, classified numerically, and transferred to IBM cards. Subsequently, a list was prepared that indicated the department and municipio of residence for each migrant prior to his move to the city. Additional field work was then initiated. The next two months were spent traveling throughout the republic visiting the leading municipios of out-migration. In each of these areas numerous persons from a variety of socio-economic levels were interviewed in order to obtain information concerning the migration scheme. Included in the group were department governors, mayors, local priests, businessmen, and the general public. Both Indians and non-Indians
were contacted.

**Gravity Model**

Previous migration studies have used the gravity model in an attempt to explain human migrations (Carrothers, 1956; Isard and Bramhall, 1960; Lowry, 1964; Olsson, 1965; Stephens, 1970). The model indicates that a positive relationship exists between the population of a given place and the number of migrants that place will generate. The model also considers the spatial concept of distance stating that as distance from a receiving center increases, the number of migrants should decrease. Incorporating a distance factor into the model along with demographic, economic, and social characteristics from the sample population and the 1964 census of population, approximately 70% of the regional variation in out-migration was explained. Residuals from the regression model were calculated and mapped. Additional research was initiated with specific reference to those areas exhibiting noticeable negative deviation (high negative residuals) in an attempt to explain why these specific locations (areas of intervening opportunities) supply fewer migrants than expected.

**Conclusion**

This particular research design proved practical where the limits of the population to be sampled were known. In many investigations, however, this is not the ease, and other sampling procedures should be employed (Turk and Smith, 1968; King, 1969). Regardless of the specific sampling technique used, it is important to remember the cardinal rule of sampling procedure, - that each member of a population have an equal opportunity to be selected as any other member, and that the selection of each member in no way influences the selection of another.

**REFERENCES CITED**


Appendix A

Zone, district, etc.  
Questionnaire number  
Address  

Head of Family  

How long have you lived at this address  
How long have you lived in this city  

Sex ____ Age ____ Race ____ Marital Status ________  
Education (Number of years) ________  

Place of Birth  

department  
municipality  
urban-rural (definition may vary) ____  
zone of city  

Occupation  

Employed: Yes ____ No ____  
If employed, permanent ____ temporary ____  
If unemployed, are you looking for work (economically active) ____  
If not employed, and not looking for work are you  
housewife ____ student ____ retired ____  

* Place of work  
mode of transportation  
Income  

Spouse  

Same information as head of family  

Family  

**Total number children ever born to spouse (include all previous "marriages")  
Number of children who died before first birthday ________  
place of death:  
in this city ____  
outside city ____  
urban ____ rural ____  
birthplace of children  
in this city ____  
outside city ____  
urban ____ rural ____  

+Age and sex of surviving children, i.e. M2, F5  
Number and age of other persons residing with this family unit and  
their relationship to head of family  

**Migration History - Head of Family  

Indicate conditions as they existed before leaving your place of  
birth or subsequent residence.  
How long did you live at this location  
Age ____ Marital status ____ Education ____  
Children ____ Dependents ____
Occupation

Employed: Yes ___ No ___
If employed, permanent ___ temporary ___
If unemployed, are you looking for work (economically active) ___
If not employed and not looking for work are you housewife ___ student ___ retired ___

Income __________________________

Date you left your place of birth or subsequent residence ______
Why did you leave __________________________
To where did you move:
district __________________________
municipality ______ urban ___ rural ___
zone ______

Decision to Migrate

Why did you move to your new location __________________________
If the reason is economic did any other condition influence your decision __________
Was it nearer your place of work __________________________
How many times in the preceding year did you visit the new area before you moved ______
How did you come to know of the new area __________________________

Future Mobility

Do you expect to move in the near future __________________________
If so, where __________________________
Why there __________________________
Would you prefer to live in another locality if you had an equal job opportunity ______
If so, where __________________________
Why there __________________________

*journey to work information
**fertility and infant mortality information
+permits construction of age-sex pyramid
++this page would be repeated for each place of residence

1 This questionnaire has been abbreviated to comply with space requirements. In numerous instances possibly answers to questions should be indicated and numbered in order to facilitate the transfer of information to IBM cards. For information concerning answers, coding, spacing, etc. see - Thomas, Robert Nelson. "Internal Migration to Guatemala City, Guatemala, C. A." Unpublished doctoral thesis. The Pennsylvania State University, 1968 (microfilmed).
## Appendix B

### POPULATION OF GUATEMALA CITY

<table>
<thead>
<tr>
<th>Zone</th>
<th>No. of Families</th>
<th>% of Families</th>
<th>No. of Questionnaires Administered</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16,407</td>
<td>16.50</td>
<td>412</td>
</tr>
<tr>
<td>2</td>
<td>4,213</td>
<td>4.23</td>
<td>106</td>
</tr>
<tr>
<td>3</td>
<td>10,869</td>
<td>10.93</td>
<td>273</td>
</tr>
<tr>
<td>4</td>
<td>1,379</td>
<td>1.38</td>
<td>35</td>
</tr>
<tr>
<td>5</td>
<td>12,117</td>
<td>12.18</td>
<td>305</td>
</tr>
<tr>
<td>6</td>
<td>11,852</td>
<td>11.92</td>
<td>298</td>
</tr>
<tr>
<td>7</td>
<td>13,191</td>
<td>13.26</td>
<td>332</td>
</tr>
<tr>
<td>8</td>
<td>4,779</td>
<td>4.80</td>
<td>120</td>
</tr>
<tr>
<td>9</td>
<td>1,354</td>
<td>1.36</td>
<td>34</td>
</tr>
<tr>
<td>10</td>
<td>2,610</td>
<td>2.62</td>
<td>66</td>
</tr>
<tr>
<td>11</td>
<td>6,122</td>
<td>6.15</td>
<td>154</td>
</tr>
<tr>
<td>12</td>
<td>6,930</td>
<td>6.97</td>
<td>174</td>
</tr>
<tr>
<td>13</td>
<td>1,777</td>
<td>1.78</td>
<td>44</td>
</tr>
<tr>
<td>14</td>
<td>1,541</td>
<td>1.55</td>
<td>39</td>
</tr>
<tr>
<td>15</td>
<td>715</td>
<td>.71</td>
<td>18</td>
</tr>
<tr>
<td>16</td>
<td>640</td>
<td>.64</td>
<td>16</td>
</tr>
<tr>
<td>17</td>
<td>1,259</td>
<td>1.26</td>
<td>32</td>
</tr>
<tr>
<td>18</td>
<td>1,659</td>
<td>1.66</td>
<td>42</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>99,414</strong></td>
<td><strong>100.00</strong></td>
<td><strong>2,500</strong></td>
</tr>
</tbody>
</table>