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Survey Research Design: A Case of Rural-Urban Mobility

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.

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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 preceeding 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 require-
ments. In numerous instances possibly answers to questions should
be indicated and numbered in order to facilitate the transfer of in-
formation 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

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