

ETHNIC RESIDENTIAL SEGREGATION: THE CASE OF ASIAN INDIANS IN
CHICAGO, 1980.

by

James Kilgannon

B.Sc.(Hons), University of Glasgow, 1986

A Thesis

submitted in partial fulfillment of the

requirements for the degree

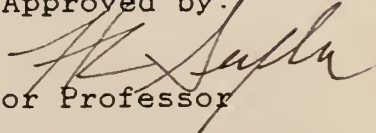
MASTER OF ARTS

Geography

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1988

Approved by:


Major Professor

ACKNOWLEDGMENTS

I wish to thank Prof Seyler for his guidance and constructive criticism throughout the writing of this thesis. Also, the help of Profs White and Roncek is greatly appreciated.

My stay at Kansas State has been both enjoyable and fruitful, I wish to thank the faculty and staff, as well as my fellow students, of the geography department for making it so. Especially I wish to thank Prof Seyler, Prof White and Prof Nellis for their friendliness and willingness to help throughout my sojourn.

TABLE OF CONTENTS

Introduction	1
Ethnicity and Segregation	9
Ethnicity	11
Spatial Segregation	13
Models of Explanation	16
History of Asian Indian Immigration	21
Asian Indians as an Ethnic Group	30
Assimilation, Acculturation and Adaptation	34
The Old and New Communities	34
Asian Indian Experience in the U.K.	37
U.S. Experience	41
Method of Study	44
Problem Statement	44
Area of Study	44
Data Sources	45
Methodology	48
Measurement of Segregation	48
Discussion of Results	59
Ethnic Composition of Chicago	59
Interpretation of Segregation	62
Residential Dissimilarity	62
Spatial Isolation	69
Spatial Pattern	75
Explanation of Pattern	77
Implications of Suburbanization	81
Methodological Issues	95
Sampling Error	95
Scale of Analysis	97
Conclusions	99
Bibliography	103

LIST OF TABLES

Table 1	The Asian American Population: 1980 Census, Estimates for 1985.	8
Table 2	Immigrant Arrivals in the U.S. of Persons Reporting India as a Nation of Last Permanent Residence.	28
Table 3	Race and Ethnic Composition of the Chicago Population, 1980.	84
Table 4	Race and Ethnic Composition of the United States, 1980.	85
Table 5	Race and Ethnic Composition of the Chicago SMSA, Chicago City and Percent Suburban.	86
Table 6	Indices of Dissimilarity for Block Groups in Chicago, 1980.	87
Table 7	Indices of Dissimilarity and Isolation for Whites, Blacks, Asians, and Hispanics for Block Groups, Chicago, 1980.	88
Table 8	Indices of Isolation and Exposure for Block Groups, Chicago, 1980.	89
Table 9	Socio-economic Characteristics of Ethnic Groups, City of Chicago.	90
Table 10	Socio-economic Characteristics of Ethnic Groups, Chicago SMSA.	91

LIST OF DIAGRAMS AND MAPS

Diagram 1	A Model Of Ethnic Association	20
Map 1	The Chicago-Gary-Kenosha Consolidated Statistical Area, and study area.	92
Map 2	Distribution Of Asian Indians In Chicago, 1980. Location Quotient > 1.	93

INTRODUCTION

Competition for space and resources is an integral component of everyday life, resources being interpreted as social services, economic opportunity and general means of support available within the wider society. One's ability to compete within a contemporary urban environment is largely determined by experience, plus physical, social and economic characteristics. Competition, or ability to compete, is enhanced when individuals are organized into interest groups, such as class or ethnic groups. Such competition is complicated by the inter-relations of individual interest groups acting within a system, that is, the political, social and economic system, as a whole. This study emphasizes the importance of ethnicity as a focal point in the competition for resources.

In order to fully discuss the role of ethnicity in present day U.S. society it is instructive to analyze the experience of a contemporary ethnic group, in this case the emerging Asian Indian community. The degree to which the Asian Indian community are residentially segregated will be analyzed, using the city of Chicago as a case study. The Asian Indian experience will be compared and contrasted to that of other ethnic groups present in the city. A small scale (block group) of analysis will be used to achieve greatest detail. The following sections attempt to place the

Asian Indian community within an appropriate intellectual framework of study. Therefore, a context to the study must be provided. This context is essential to properly analyze and discuss an ethnic group's experience in the U.S. to date.

The United States is often considered as a nation of immigrants, its indigenous people, the American Indians comprising only a minor proportion of the present day population. The first immigrants to arrive and settle, Northern Europeans, represent the core of the charter or dominant group today. Though it can be argued that there is no real "core" or mainstream in U.S. society, in terms of religion, culture etc. There is a dominant ethnic makeup, which is mainly white and of European origin.

The conflict and competition for resources and territory is ongoing, whether it is between more recent immigrant groups and the host society, or between existing class, racial or ethnic factions (and often a conglomeration of all of these). The process and pattern of immigration (and of immigration itself) is strongly influenced by social, economic and psychological factors. Attitudes toward immigration and the immigrants are reflected through various experiences of segregation and assimilation. These attitudes and outlooks are constantly changing in relation to the various characteristics of immigrants, as well as in relation to developments within the host society itself.

Immigration plays an integral role in the development of

ethnic communities, especially in the formative stages of community development. This was true of the major European immigrations to the U.S., and is true of Asian and Hispanic immigrations occurring at present. In this study Asian immigrants will be the main focus of concern. Asians are chosen as a focus of study due to the recency of entry into American society, and due to the atypical characteristics of Asians as an immigrant group. Although the emphasis in this case will be upon the Asian Indian community, this will hopefully be instructive in relation to the other newer Asian immigrant groups with similar characteristics.

Asian immigration has increased rapidly since the 1965 changes in immigration laws, which replaced racial criteria of the former legislation with law which promoted equal opportunity for all prospective immigrants. The longer established Asian groups, the Chinese and the Japanese, have been joined by Filipino, Korean, Asian Indian and Vietnamese immigrants (in approximate chronological order) in increasingly large numbers. This has led to the development of fairly substantial Asian communities in the U.S., though Asians as a total group still only represented 1.5% of the total U.S. population as of the 1980 census. Table 1 (see page 8) shows the relative sizes of individual groups for 1980, and estimates for 1985. From this table the increasing numerical importance of Asians in American society can be seen, as can the high proportions of foreign born population,

evidence of the recent arrival of a large proportion of the population within each group.

Asian immigrants not only reflect the orientation of current immigration legislation, but also reflect a greater diversity of immigrant, socially, culturally and economically than in past waves of immigration. This diversity is also represented within the Asians as a whole, different national and ethnic groupings having different experiences and attributes, as well as vastly different cultures and historical experience.

Asian Americans follow some traditional patterns of immigration by being regionally concentrated, largely in the Western states and in the Northeast, and also being concentrated in the large metropolitan areas such as Los Angeles, New York and Chicago. Where Asian immigrants differ markedly from past waves of migrants is in terms of education and economic status. The classical pattern of migration which involves poor, uneducated manual laborers moving in search of employment does not really apply for Asian migrants. The migration of large numbers of professional and highly qualified persons reflects a desire to improve individual occupational and financial status, in comparison to similar occupational positions in the native country of most of the migrants. The type of migrant entering in recent years has also been strongly influenced by immigration law, which favors those with professional skills and high educational

attainment.

The generally high occupational status, and subsequent high income, has led to a popular impression that Asians are very successful within American society in terms of adaptation, acculturation and overall prosperity. In reality this generalized picture masks one of greater diversity. There are many Asian Americans, argues Thompson (1986) who are not economically successful, and who have not adapted to U.S. society very easily. Even those with professional training have been forced to accept positions below their qualifications, which leads to feelings of under-achievement and lack of social mobility. More recently, a high proportion of those immigrants entering the U.S. have been refugees, such as the Vietnamese, who do not possess strong educational or economic characteristics, and are in a disadvantageous position as a result of being refugees in the first place. This variety within the Asian population is reflected in differing patterns of fertility, income and educational achievement (Gardner, Robey and Smith, 1985). Asian Americans are not the "model minority" as has been argued, nor do they really fit into a "colonized status" as Kuo (1981) suggests. Obviously, there has been a variety of experiences for Asian immigrants within U.S. society, the diversity of the Asian category makes generalized statements regarding their experience difficult.

Much of the literature regarding Asian Americans

discusses "Asians" as a single group, when analyzing gains in socio-economic levels with whites for example, Nee and Sanders (1985) and Wong and Hirschman (1983). A widespread picture of success is not depicted though, the reliance upon "ethnically controlled avenues" (Nee and Sanders, 1985 pg.91) is emphasized, also the existence of subtle forms of racial exclusion are recognized against Asians (Hirschman and Wong, 1984). The above studies discuss "Asians" while only actually considering specific groups within the Asian category, mainly the Chinese, Japanese and Filipinos. Although included within the census categorization of Asians, Asian Indians are generally not considered within literature discussing Asian Americans. This exclusion is generally true of those more recent Asian immigrants such as the Koreans, Vietnamese and Laotians, for example. This may be one reason "Asians" are considered as a "successful minority", due to the fact that many of the more disadvantaged members within the wider collective are omitted from most studies. Specific studies have been undertaken upon individual Asian national groups such as Montero (1979) on Vietnamese Americans, and Hurh and Kim (1984) on the Korean community in the U.S., for example.

Although Asian Indians may, in fact, display similar socio-economic characteristics as the more "successful" Chinese and Japanese immigrants, they have still not been considered when discussing Asian Americans. This is viewed as a serious omission. Therefore, it is seen as important to

analyze the experience of individual Asian national or ethnic groupings in light of their particular social, economic and historical experience . In this case the Asian Indian community of Chicago will be analyzed, this can be considered somewhat as a preliminary analysis to be augmented by future research which will be undertaken as the community grows and develops.

Table 1

The Asian American Populations: 1980 Census, Estimates For
1985, Predictions For The Year 2000

1980 Census		1985 Estimates					
Ethnic Group	Number	%	Foreign Born %	Ethnic Group	Number	%	Increase
Total	3446421	100.0	---	Total	5147900	100.0	49.5
Chinese	812178	23.4	63.3	Chinese	1079400	21.0	32.9
Filipino	781894	22.6	66.3	Filipino	1051600	20.4	34.5
Japanese	716331	20.7	28.4	Japanese	766300	14.9	7.0
Asian Indian	387223	11.2	70.4	Vietnamese	634200	12.3	158.8
Korean	357393	10.3	81.8	Korean	542400	10.5	57.8
Vietnamese	245025	7.1	90.5	Asian Indian	525600	10.2	35.7
Other Asian	166377	4.8		Laotian	218400	4.2	358.0
Laotian	47683	1.4		Kampuchean	160000	3.1	902.2
Thai	45279	1.3		All other	169000	3.3	64.8
Kampuchean	16044	0.5					
Pakistani	15792	0.5					
Indonesian	9618	0.3					
Hmong	5204	0.2					
All others	26757	0.8					
Percent of total U.S. population	= 1.5%			Percent of total U.S. population	(239447000) = 2.1%		
Percent of total U.S. population	(226545805)						

Note: 1985 estimates are based upon immigration and refugee flows along with calculations of natural increase since the 1980 census.

Source: Gardner, Robey and Smith (1985) Population Review Vol. 40 No. 4
pg. 4

ETHNICITY AND SEGREGATION

Formerly, ethnic groups were viewed as "survivals from an earlier age" (Glazer and Moynihan, 1975 pg .4), their existence being considered a stage in the process of assimilation and acculturation (such as in Burgess's and the Chicago school models). This mode of thought was inspired and generally backed by the assimilation and acculturation experienced by early European immigrants (late 19th and early 20th centuries) . More recently, this approach has been challenged as an "ethnic renaissance" has occurred (Saran and Eames, 1980 Introduction) . Not only is the maintenance of ethnic ties accepted, but encouraged. This turn around is a result of the search for identity by the American people in an effort to overcome the homogenization of lifestyles caused by rapid industrialization . There is a recognition that political and economic goals can be attained through the development of ethnic ties and ethnic groups. Ethnicity has been acknowledged as a good basis of organization. Kantrowitz (1981) for example, argues that European ethnic segregation itself has not disappeared and that theories of assimilation and merging of cultures were "academic myths" rather than "social realities".

This "new ethnicity" in the U.S. society is not only the result of rediscovered ethnic ties of European origin, but also due to the new ethnics themselves. That is, those more

recent (post 1965) immigrants largely from Asia and Latin America. The general nature of ethnicity has changed. The image of the poor, uneducated, working classes of Europe fleeing war, famine and persecution has been somewhat replaced by immigrants from different source regions who possess a different range of occupational and educational skills than contemporary migrants from Latin and South America, as well as earlier European migrants. This is not to suggest that the U.S. does not still act as a haven for refugees. More recent Indochinese refugees, over 170,000 having entered the U.S. by 1978 (Montero, 1979), are cited as being evidence of the U.S. continuing to be a haven. By 1980 there were substantial Indochinese populations in the U.S., Vietnamese (245,000), Laotian (47,000) and Kampuchean (16,000), largely a result of being accepted as refugees.

Immigration is still an important factor in American society. The U.S. is viewed (at the global scale) as a desirable place to settle, mainly due to its favorable economic position and the constitutional, though not necessarily practiced, rights of freedom of speech and justice for all. The freedom (or disorderliness) of the U.S. in terms of its open economy and relative lack of planning restrictions, as compared to Europe, for example, gives ethnic groups entering the U.S. a greater opportunity to maintain their ethnic identity than in many other countries, though this occurs both involuntarily as well as voluntarily.

The changes in the source of immigrants to the U.S. has been largely determined by U.S. foreign policy. Immigration regulates the ethnic composition of the American electorate. In theory, foreign policy responds to that ethnic composition (Glazer and Moynihan, 1975). The anti-communist orientation of the U.S. foreign policy has strongly influenced which immigrants have been allowed to enter and which have not. The location of U.S. spheres of economic and military influence have also been important in controlling immigration.

Ethnicity

In discussing ethnicity, ethnic groups and their wider meaning and position within society as a whole, it is instructive to define what is meant by ethnicity and ethnic groups. Milton Yinger defines an ethnic group as "a segment of a larger society, whose members are thought, by themselves and/or others, to have a common culture and who in addition, participate in shared activities in which the common origin and culture are significant ingredients" (quoted in Saran 1985 pg.5). Boal (1987) makes a clear distinction between group and category, an ethnic group possesses a shared identity, whereas a category is an externally imposed criteria. For example, Asian Indians are an ethnic group in the U.S., whilst Asians per se is a classification used by the U.S. census bureau which has no real social meaning. Therefore, care has to be taken when analyzing population

categories that have little meaning beyond their criterion of categorization. Ethnicity, like class, is a variable rather than an inherent attribute, "urban ethnicity not only varies from one situational context to another, but ebbs and flows in individual experience, through the phases of individual life cycles, and in the collective realities of social and economic relations" (Darroch and Marston, 1984 quoted in Boal, 1987 pg.93).

The maintenance and preservation of an ethnic group as a distinctive social and spatial entity is dependent upon the degree to which the group is segregated from the host society (Boal, 1978). Gordon (1964) distinguishes between behavioral and structural assimilation. Behavioral assimilation can be considered as acculturation where the cultures of the host and immigrant ethnic group merge to become one. Therefore, similar memories, experience and history are alluded to. Structural assimilation refers to assimilation into groups and social systems of the society including occupation, education etc. According to Gordon acculturation is more likely to occur before structural assimilation.

The 'melting pot' theory of U.S. society has long passed as fiction. Assimilation is no longer viewed as the ultimate goal or success story of an ethnic group. On the other hand, if segregation of an ethnic group is not considered a desirable scenario, obviously some form of compromise is required. The question of choice is often

crucial. Functionally, segregation acts to preserve ethnic ties, especially when combined with indigenous ethnic institutions which, in turn, require some form of clustering of population to be functional. In this sense, the melting pot theory has given way to one of cultural pluralism where maintenance of ethnic group diversity is accepted, what Mookherjee (1984, pg.71) calls the 'salad bowl' perspective. A more recent approach to ethnic experience is the labor market or political economy approach, in line with the rise of the radical paradigm within the social sciences, which focuses upon ethnic and class relations. Lui and Cheng (1982) review this type of analysis in relation to Asian American studies.

Spatial Segregation

Segregation, separation of social and physical space, can be viewed as a means of defending an ethnic group's territory from a perceived hostile outside society, and as a way of best competing for resources, for example Chadney's (1984) view of the Sikh community in Vancouver. Segregation also acts as a nucleus facilitating the self perpetuation of the ethnic group itself by increasing the chance of inter-marriage within the group and continuing customs, celebrating cultural events, and the like. The ethnic group is not always powerful enough politically or economically to have a great deal of choice in the residential and occupational markets.

Hence segregation is often forced as a result of outside pressures. Involuntary segregation can have adverse effects on the ethnic group, reducing political and economic leverage within society.

Parkin (1979) distinguishes between two forms of social closure which result in residential segregation, exclusionary and usurpationary closure. Exclusionary closure implies restricting access to resources and opportunities to a limited circle. Usurpationary closure occurs where strategies are adopted by the excluded themselves as a direct response to their status as outsiders. Both processes occur simultaneously, an ethnic enclave will generally be the result of exclusionary closure by others, plus usurpationary closure by the ethnic group as a means of "forging a common political entity and some measure of collective consciousness" (Parkin, 1979, pg .86). Choice versus constraint can be used as the framework in which to classify patterns of segregation. As Diagram 1 shows (see page 20), physical isolation not only acts to bind the segregated community together, but also provides the necessary environment for creation and preservation of subordinate ethnic group status (Hawley quoted by Lieberman, 1961). Traditionally, segregation and length of residence have been viewed as being indirectly correlated. The evidence regarding European ethnic groups backs this hypothesis to some extent. On the other hand, this traditional outlook points toward

assimilation and dispersal as the ultimate goal for ethnic groups, though more recently this has not been the case. Although residential dispersion is a basic prerequisite for ethnic assimilation, it is not always true that dispersal results in loss of ethnic traits or identity. For example, the Chinese community in the United Kingdom retains a strong ethnic identity via the restaurant business (Watson, 1978).

Segregation is a potentially significant factor in interpreting and predicting differences in social behavior (Lieberson, (1981), even if there is a declining incidence of residential segregation. Segregation or ethnic clustering, increases the visibility of that ethnic group compared to a situation where the group in question is more evenly spread throughout the city (Bryce La Porte, 1977). Ethnic institutions and services provided for and by the ethnic community enhance this visibility. This can work positively and negatively, increasing self-reliance of the ethnic community while promoting exclusionary closure, which in turn, could lead to the maintenance of the subordinate status of the ethnic group.

Spatial isolation acts functionally for defense, avoidance and attack according to the conflict approach. There is a very strong correlation between ethnicity, both as a label and as an interest group and the competition for resources within space. "Ethnic residential concentrations display all the basic characteristics ascribed to territory

providing a source of identity, characterized by substantial degrees of exclusiveness acting to compartmentalize activity spatially" (Boal, 1978 pg.75). R.E. Park observed that "social relations are frequently and . . . inevitably correlated with spatial relations" (quoted in Duncan And Lieberman, 1959 pg .96) . Peach (1975) underlines the importance of patterns of day-time activity in determining social relations as has Hagerstrand through use of time-space budgeting (Robinson, 1984) . Though not directly discussing ethnicity, this literature on everyday activities can be seen as very much applicable in analyzing and understanding inter-ethnic relations.

Ethnicity and class are inter-related and, hence difficult to separate. Segregation is often a combination of ethnic and class factors. Important considerations regarding class and ethnicity have to be analyzed . Are class and ethnicity inter-changeable? Is the class status of an ethnic group reflected spatially? Does the opposite also then apply?

Models Of Explanation

Two basic models to help explain ethnic segregation have been developed, the social class model and the ethnic model (Darroch and Marston, 1972). According to the social class model residential segregation by ethnicity is presumed to result from the socio-economic differences among ethnic groups and differential spatial separation distributions by

socio-economic status . The latter is a function of the voluntary and involuntary forces toward spatial separation within cities by income, education and occupation (Bleda, 1979) . The work of Lieberman (1963) supports this type of hypothesis.

The ethnic model accounts for segregation using non socio-economic differences between groups and the desire to maintain the ethnic group via residential propinquity. If the ethnic model is accepted, then the reduction of socio-economic differences would not significantly reduce levels of segregation, as noted by Taeuber and Taeuber (1965). The work of Bleda (1979), for example, adds support to the ethnic status model where mother tongue was found to account for a much greater proportion of segregation than socio-economic status . In areas where socio-economic differences have been theoretically eradicated to a large extent, such as the USSR, Yugoslavia and Israel, ethnic segregation still occurs lending further support to the ethnic status model (Glazer and Moynihan, 1975).

As noted above, ethnicity and class are inter-twined. Bell has noted: "...ethnicity has become more salient than class because it can combine an interest with an effective tie" (1969, quoted in Glazer and Moynihan 1975, pg.19). Class often is difficult to define (never mind quantify). Questions of class affiliation are not asked in the census, for example, as is ethnic affiliation/identity. "Ethnic and class

solidarity can be seen as mutually exclusive" (Thompson , 1979). Ethnic conflict can also be viewed as class conflict, where a population group has traded its class status for an ethnic status to make the competition for resources more acceptable in the age of ethnic renaissance. Wilson (1979) alludes to similar ideas, though in the opposite direction, where racial conflict/competition has been replaced by class competition.

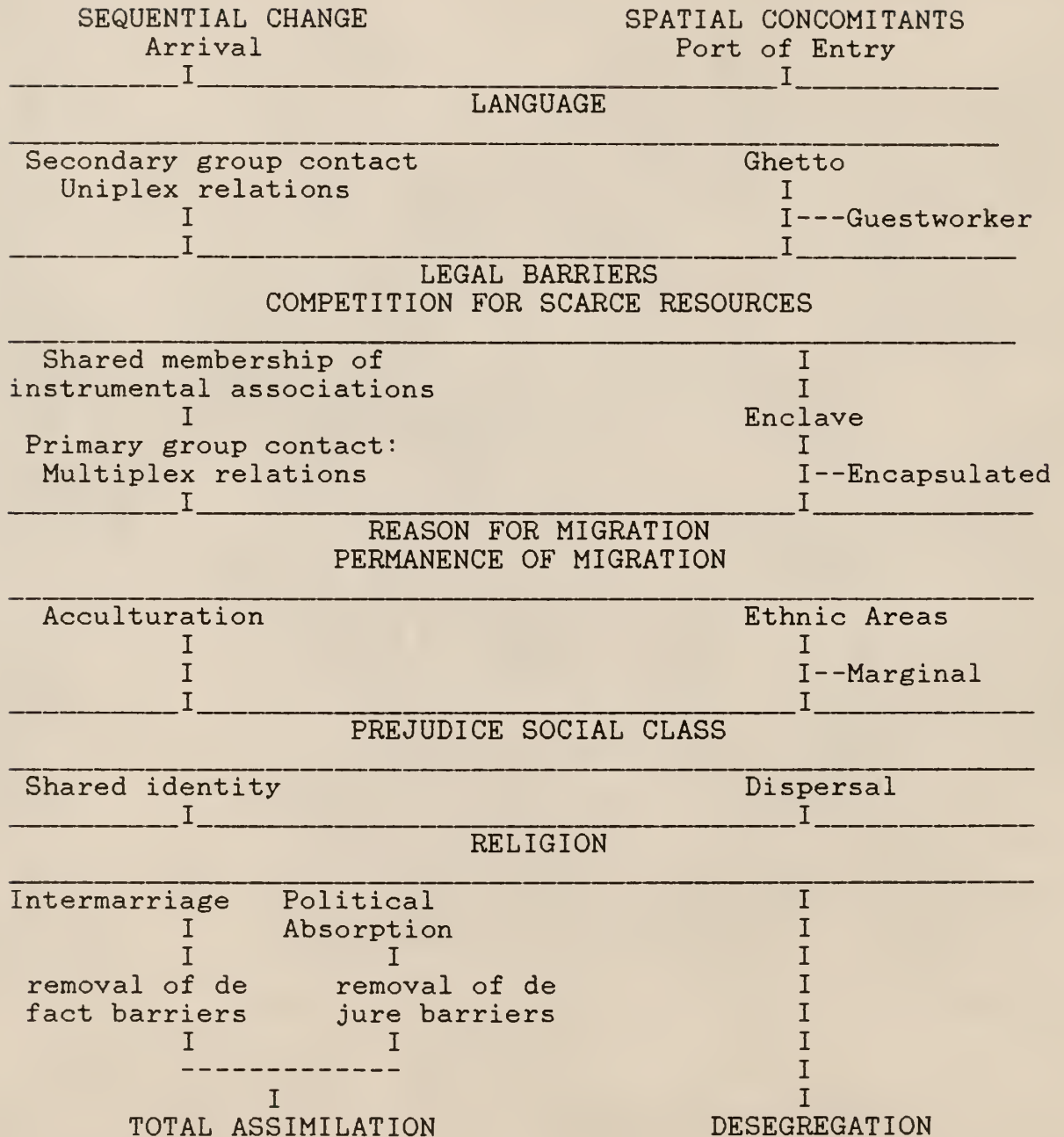
The differences observed between different socio-economic groups in relation to ethnic group competition may be due to segregation being expressed somewhat differently. Higher socio-economic groups live further apart due to greater space between dwelling units, therefore, actual physical competition or conflict is not as common as in lower social class areas. The conflict/competition may be expressed in another way as, for example, the flaunting of material possessions. Despite a revival in ethnicity per se, class differentiation and segregation is still taken for granted to a larger degree than is ethnic segregation (Boal, 1987).

In summary, ethnicity as an identity has direct spatial and geographical impacts and outcomes upon society in terms of competition for resources and services. Ethnicity is a multidimensional trait, expressed socially, economically, psychologically, as well as physically. The separation of physical space, and resources, is reflected through segregation of residence, occupation and everyday life

experience . Evolving patterns are then results of internal group forces of cohesion accompanied by external exclusionary forces, simultaneous processes which produce divergent spatial patterns . Using ethnic groups as an intellectual framework of study masks individual experience, also, as noted ethnicity is a variable which is represented differently throughout a population . Therefore, as each individual lives a different experience, this experience changes through time and space . Segregation, acculturation and assimilation may, in fact, be stages on a continuum . Within this continuum choice and constraint are crucial variables which directly affect the social realities of spatial patterns.

Diagram 1

A Model Of Ethnic Association



The History Of Asian Indian Immigration

Asian Indian immigration into the U.S. is a relatively new phenomenon (see Table 2, page 28), both in terms of the numbers as compared to past immigration of this group and also due to the characteristics of the migrants themselves. To put this immigration in perspective it is important to briefly consider the history of Asian Indian immigration into the U.S., to explain the reasons for the rapid increase in the Asian Indian population, and to highlight the unique characteristics of these immigrants.

The earliest Asian Indian, or East Indian, immigration into the U.S. occurred at the beginning of this century when several thousand "Hindus"¹ entered the U.S. This group became the so-called rural Punjabis of California. The initial Sikh immigrants were a by-product of earlier immigrants to Canada, who, in turn, migrated south to California in search of employment. These early migrants were met with widespread hostility and discrimination fed by fears of a "Hindu" invasion, despite the relatively small numbers actually present, as only about 7,300 immigrants entered between 1890 and 1920 (Hess, 1976 and 1982). There were four major sources of discrimination against the Asian Indians: the Asiatic Exclusion League; contemporary newspapers and magazines which fuelled fear of an "invasion" with such headlines as a "tide of turbans"; efforts of white supremacists who claimed that

Sikhs were somewhat less than human, and; local and state politicians who acted to implement legislation barring immigration of Asian Indians (Gonzales, 1985). The prevalent anti-Asiatic sentiment of that era led to demands for exclusion and for the reduction of their political and economic rights . Ultimately, these pressures resulted in Congressional Legislation, which effectively ended immigration of Asian Indians for the next 30 years. A Supreme court decision² which further denied citizenship for nearly a quarter of a century (Hess, 1982; Chandrasekhar, 1982). As a result, India was included in the "barred zone", which prohibited immigration of laborers from virtually all of Asia except Japan . It was not until 1946 that a bill was passed allowing a small quota of Asian Indians to enter the U.S..

As Chandrasekhar notes, "the legislative history concerning immigration from the Asian point of view can be summed up simply as a classic century-old instance of professed American ideals of democracy and freedom on the one hand, and the practical realities of rank prejudice and flagrant discrimination on the other" (Chandrasekhar, 1982 pg . 11) . Such conditions were in place until the 1965 Immigration Act reversed a century-old policy of discrimination against Asians. There are three main features of the 1965 Act which account for many of the demographic characteristics of the present day Asian Indian population. Firstly, a worldwide annual immigration quota was fixed (as

opposed to the national quota system which was used prior to 1965) for areas outside of the western hemisphere at 170,000, with a maximum of 20,000 visas to be allocated to the people of a single country in a single year . Secondly, special restrictions regarding Asians were eliminated as exclusionary and were prohibited on grounds of race, sex or nationality. Thirdly, the Act established new criteria for the issuing of visas . Essentially, there are now three categories under which a person may apply: familial; financial, and; occupational (Fisher, 1977).

The result of the 1965 Act was to rapidly increase immigration from India, as well as from other Asian countries. As Reimers (1985) notes, this was not forecast or expected to be a result of the law changes . Increased immigration was expected, though different source regions were predicted, those being Eastern and Southern Europe. During the period 1965-70 immigrants born in India showed a higher percentage increase than newcomers from any other country, a 730% increase (Hess, 1976) . During the period 1960-80 the Indian population of New York increased by 1,630%, from 1,243 to 21,500 (Bogen, 1987 pg.38) . Although Asian Indians only represent 0.2% of the U.S. population as of 1980, the increase during the period 1970-80 was 490% (61,194 to 361,544), reflecting a strong desire to emigrate to the U.S. This rapid increase in population, along with some political pressure from the Asian Indian community, led

to the inclusion of a specific "Asian Indian" category in the 1980 census for the first time. A continued increase in the Asian Indian community is predicted and expected in the coming years (Mokherjee, 1984; Gardner, Robey, and Smith, 1986).

There is a strong incentive for the skilled, educated elites of many third world countries to come to the U.S. looking for career positions with much greater financial rewards than those available in their native countries. Social and economic instability acts as a further impetus to this continuing "brain drain" which, in turn, is facilitated by the legislative changes made by the 1965 Immigration Act.

Emigration has both positive and negative aspects for the sending host societies. For example, India gains economically via remittances in the form of foreign earnings and possibly a very small reduction in unemployment. At the same time emigration results in a marked loss of highly skilled, qualified labor as well as potential inflation and social tensions due to the emigration process. In receiving immigrants, the U.S. generally gains, for example by gaining skilled labor. On the negative side, there is a potential for social unrest among the host society if the immigration is very widespread, especially during period of economic recession. The host society is generally more antagonistic toward lower-skilled immigrants than those possessing education for professional jobs. For example, Asian Indians

in Britain and Mexicans in the U.S. have experienced such antagonism in recent years.

The socio-economic composition of the Asian Indian population in the U.S. is largely a result of the visa allocation policy. For example, the Immigration Service in 1975 classified 93% of Asian Indians admitted that year as either "professional or technical workers or their dependents" (Fisher, 1980 pg.11). In the previous year over 7,000 Asian Indian immigrants were employed in the medical profession alone. This trend has continued to some extent and is strongly emphasized in the literature dealing with Asian immigrants (Saran, 1980; Saran, 1986; Leonard-Spark, 1980; Baker, Broe, and Kumar, 1986). In some occupational categories, visa applications by Asian Indians have been oversubscribed in recent years. Associated with this professional status of many Asian Indian immigrants is a general high level of education (many hold Master's qualifications and above) and an above average income which reflects the professional positions occupied.

Most Asian Indians are of urban origin, and emigrate to the U.S. to further their careers, as well as for economic reasons. The nature of the occupations into which Asian Indians have entered in the U.S. has resulted in some regional geographic concentrations due to the clustered nature of certain professions, i.e., most have elected to reside in the main urban concentrations. Asian Indians

emigrating to work in the medical profession are, for example, concentrated in the north-eastern cities of the U.S. (Baker, Broe, and Kumar, 1986). The more recent Asian Indians choice of urban locations differs from the earlier immigrants rural origin and rural choice of residence, both groups being strongly influenced by occupational position . Non-Asian immigrants, such as the Europeans, have shown a tendency to disperse outwardly from initial urban clusters to non-urban areas.

These characteristics of Asian Indians differ greatly from the classical stereotype of the poor uneducated immigrant who comes to America to "make it". This seemingly advantageous position is enhanced by the fact that nearly all have a good command of English, due to the colonial history of India, though it is not usually their first language . Although this general characterization of Asian Indian immigrants is fairly accurate, there has been a slightly different trend noted in more recent years . An increasing number of immigrants of lower socio-economic status have begun to enter the U.S., largely under the auspices of the familial visa classification, being sponsored by Asian Indian professionals who are already settled in the country. This is leading to a greater heterogeneity in terms of socio-economic and demographic characteristics within the Asian Indian community (Leonard-Spark, 1986). Such a trend will probably continue, if not grow, in the next few years and will have

marked consequences upon the community's ability to compete in occupational and residential markets . This will, therefore, have spatial, as well as, social and economic impacts, reflected through changing experiences of the immigrants themselves, and how they are viewed by society as a whole.

Table 2
IMMIGRANT ARRIVALS IN THE UNITED STATES OF PERSONS
REPORTING INDIA AS A NATION OF LAST PERMANENT RESIDENCE

<u>Year</u>	<u>Number</u>	<u>Year</u>	<u>Number</u>	<u>Year</u>	<u>Number</u>	<u>Year</u>	<u>Number</u>
1820	1	1860	5	1900	9	1940	3
1821	-	1861	6	1901	20	1941	-
1822	1	1862	5	1902	84	1942	-
1823	-	1863	1	1903	83	1943	1
1824	1	1864	6	1904	258	1944	-
1825	-	1865	5	1905	145	1945	196
1826	1	1866	17	1906	271	1946	550
1827	1	1867	2	1907	1072	1947	318
1828	3	1868	0	1908	1710	1948	198
1829	1	1869	3	1909	337	1949	177
1830	-	1870	24	1910	1782	1950	107
1831	1	1871	14	1911	517	1951	104
1832	4	1872	12	1912	165	1952	130
1833	3	1873	15	1913	188	1953	128
1834	6	1874	17	1914	172	1954	159
1835	8	1875	19	1915	82	1955	187
1836	4	1876	25	1916	80	1956	202
1837	11	1877	17	1917	69	1957	214
1838	1	1878	8	1918	61	1958	379
1839	-	1879	15	1919	68	1959	302
1840	1	1880	21	1920	160	1960	243
1841	1	1881	33	1921	353	1961	352
1842	2	1882	10	1922	223	1962	467
1843	2	1883	9	1923	156	1963	975
1844	1	1884	12	1924	154	1964	425
1845	-	1885	34	1925	45	1965	549
1846	4	1886	17	1926	50	1966	4670
1847	8	1887	32	1927	51	1967	3764
1848	6	1888	20	1928	38	1968	4057
1849	8	1889	59	1929	56	1969	7412
1850	4	1890	43	1930	51	1970	9823
1851	2	1891	42	1931	65	1971	16483
1852	4	1892	-	1932	50	1972	13085
1853	5	1893	0	1933	1	1973	11197
1854	-	1894	0	1934	-	1974	12890
1855	6	1895	0	1935	-	1975	15198
1856	13	1896	0	1936	-	1976	16549
1857	1	1897	0	1937	9	1977	18613
1858	5	1898	0	1938	1		
1859	2	1899	17	1939	2		

SOURCE: From India To America, S. Chadrsekhar Ed. 1982 pg.87

Notes

- 1 All Asian Indians were considered as "Hindus" regardless of their religious preference.
- 2 The 1923 case of U.S. vs. Bhagat Singh Thind (see Hess, 1982 for a discussion of the importance of this decision).

ASIAN INDIANS AS AN ETHNIC GROUP

Earlier, the distinction between a group and category was made explicit. It is important to discuss Asian Indians as an ethnic group. India contains a multiplicity of ethnic layers and identities. Therefore, it is worthwhile to question whether these alternate identities are carried over during the emigration process or whether an overall "Indian" ethnic identity is recognizable within the Asian Indian community in the U.S. Young (1985) argues that "Indian" as a point of reference has an enhanced social meaning as the national identity did for others in the past, the Germans and the Italians, for example. Also, the unifying cultural features of Indian society somewhat override the multifaceted regional and religiously based ethnic organizations. Perhaps most importantly, personal surveys indicate that Asian Indians in the U.S. have a self perception, as well as a societal characterization as an ethnic group (Saran, 1985). This self perception is further enhanced by the fact that Indians are perceived by U.S. society as a whole as a single ethnic group, the myriad of internal differences being masked by the unifying feature of national identity. As noted previously, "Asians" as a category used by the census has little social meaning. There is no common bond or affinity among Asian Indians and other recent immigrants from Indochina or Korea, nor with the older immigrant groups such

as the Japanese, Chinese or Filipinos (Young, 1985).

Fisher (1977 and 1980) discusses the continuing importance of ethno-religious and regional language associations and societies for the Asian Indian community, arguing the case that these are far more important than the Pan-Indian ethnic identity. Retention of localized ethnic identity is a result of the "bi-nationality" of the Indian community, according to Fisher. This is due to the homeward looking orientation of the Indian immigrants, though the desire to return home permanently is expressed, it has not been the reality for many migrants as yet. This homeward orientation is upheld via frequent contacts with India, through the sending of remittances and regular trips to visit relatives. Despite this outlook, there are many unifying Indian groups such as the Association Of Indians in America, and the Indian League of America, which bring together the separate, more local, groupings and attempt to foster an Indian-American identity. There is also an active Indian-American mass media which acts as a Pan-Indian organization in terms of newspapers, television and radio programs. Also, such national organizations have political functions, working for the rights and influence of the whole Asian Indian community in the U.S. . . Organization around an Indian identity, as opposed to a Sikh or Hindu affiliation, for example, is far more advantageous for the community both politically and economically. Being designated a separate

census category, through political lobbying from the Association Of Indians, allows Asian Indians certain privileges in the employment market as they are now legally a minority group.

Adoption of a strong unified ethnic identity can be very useful, acting to mobilize the community politically while creating an economic power base at the same time. Adopting a Pan-Indian orientation will exploit American ideas of ethnicity, what Glazer and Moynihan call "the strategic efficacy of ethnicity in making legitimate claims on the resources of the modern state" (Glazer and Moynihan, 1963, quoted in Fisher, 1980 pg.135). Pan-Indianism will be greatly encouraged if there is a curb in the flow of immigrants, or if there is an increase in discrimination against Asian Indians, during an economic recession, for example. Adoption of a unified national identity by ethnically diverse groups has been successful in both political and economic terms in the past for ethnic groups in the U.S. urban milieu. Fisher (1980) cites the Haitian, Filipino, Italian and Pacific Island/Asian Coalition communities of New York as examples.

Regional and religious organizations act as cultural ties used functionally for worship and maintenance of identity . Also they act as a means of preventing acculturation and introducing ethnic customs and traditions to the first and second generation American-born Indian children, thereby serving to enhance and maintain the ethnic

bond. These organizations will play a crucial role in the future as the children of immigrants reach the age (early and late teens) where the forces to adopt American societal values in the face of peer pressure will be greatest. American attitudes toward religion, sexual behavior and the role of the family will contrast greatly with the traditional Indian value stance. A certain degree of conflict between the generations is occurring and expected in the future, the outcome of which is vital to the maintenance of ethnic and community solidarity.

ASSIMILATION, ADAPTATION AND ACCULTURATION

As Mookherjee (1984) notes, Asian Indians do not easily fit into the spectrum of race and ethnic relations theory. They have become structurally assimilated whilst maintaining a great deal of cultural distinctiveness. Which conflicts with Gordon's (1964) viewpoint in which acculturation occurs before structural assimilation. In areas such as education and occupation, they have been assimilated into existing American patterns, whereas in areas such as religion and family patterns they have remained outside of the mainstream of American life (Saran and Eames, 1980).

The recency of the Asian Indian community has to be recognized. The community may have to be in existence for a longer time period before any discernable pattern can be established. For example, the descendants of the initial immigrants will have a very different experience than the present immigrants. In this sense it is instructive to compare and contrast the experiences of the early Asian Indian community in the U.S. with that of the newer immigrants, and to discuss how the two groups have interacted.

The Old And New Communities

The experience of the new Asian Indian community contrasts with the situation of the earlier Indian immigrants

in many respects . The early immigrants were, and have been, an isolated rural community which has experienced strong discriminatory forces preventing integration into U .S . society . The virtual ban on Indian immigration for thirty years prevented the production of a second generation of immigrants, therefore stagnating the community somewhat. This also resulted in inter-marriage with other groups, largely Mexican-Americans, which is generally discouraged within Indian culture . Hess (1980) argues that inter-marriage and interaction with the Mexican-American community in California provided channels for "circuitous assimilation" into main stream U .S . society, though this viewpoint is refuted by Gonzales (1982) as being unproven. LaBrack and Leonard (1984) note that there has been conflict and tension between those Asian Indians who inter-married with Mexicans and the newer Indian immigrants . Although the early immigrants were an economic success, they did not assimilate well into U .S . society, largely due to the anti-Asian sentiment of the era. This, in turn, led to retention of cultural and especially religious traditions preserving the Indian identity of the community.

It has been proposed that the older Sikh community has assimilated in terms of the cultural pluralism model (Varma, 1980) . In reality there seems little evidence of this (Mookherjee, 1984) . The rural communities have retained an Indian identity in the face of adversity with no real

assimilation into the economic and political power structures of U.S. society.

Approximately 85-90% of the early immigrants were of Punjabi Sikh origin, compared to 2% of the total Indian population which is of Sikh origin. This is in great contrast to the more recent immigrants who are largely urbanite Hindus. The professional status of the post 1965 immigrants also contrasts with the lower status, poorly educated Sikh immigrants. This has resulted in a situation where the newer and older communities have not coalesced into one unified Indian community, but have remained slightly separate due to geographical, religious and economic differences. Those newer immigrants of Sikh origin have become integrated to a larger extent, producing a stronger, more powerful Sikh community in the U.S. Kiawar (1982) points out the reliance of newer Sikh immigrants on the core community as a means of integrating into American life. Interestingly, the use of new Punjabi immigrants as strike-breakers is also noted, labelling the group as "scabs" has fostered a negative image of the population (Kaiwar, 1982). Overall, the newer and older Asian Indian communities experience is totally different. Therefore the resultant pattern in terms of assimilation, acculturation, and segregation can be expected to be different.

As documented by Tinker (1976) there is a very widespread overseas Indian community, estimated at 11 million

persons (Helweg, 1984) throughout the world. Emigration plays a significant role within Indian historical experience resulting in the emigration of "indentured laborers in the 19th century moving to Trinidad, Fiji, and Mauritius" (Fisher, 1980 pg.4), plus traders and those in search of work moving to South and East Africa, and more recently to the U.K. (largely due to colonial ties and history), and now to the U.S. This overseas community has experienced a variety of reactions and perceptions from place to place and as time has passed. Again, a comparative analysis of the Indian immigrant experience in different countries is useful to contrast with that in the U.S. to date, and can possibly point to some future trends within the Indian community in the U.S. For the purposes of this comparison the Asian Indian experience in the U.K. will be considered, due to the breadth of literature written and the similarities between the two host societies, relatively speaking.

Asian Indian Experience In The U.K.

The Asian Indian community in the U.K. differs markedly from the emerging community in the U.S. in many respects. Asian Indians in the U.K. are, in fact part of a wider south-Asian community which includes Pakistanis, Bangladeshes and Sri Lankans. It is estimated that there were approximately 1,054,000 persons of Asian ethnic origin as of 1981 in the U.K. (Robinson, 1987 pg.36). In the U.S. these groups are

categorized by the census as "other races", only Asian Indians are considered and enumerated separately. Most of the immigrants to Britain arrived during the post-WWII economic boom to fill vacant employment positions in the transportation and manual labor sectors. In this sense they meet the classical stereotype of the unskilled immigrant from the "third world" working in the lower strata of the rapidly expanding economy of the "western world". In the U.K. Asian Indians are viewed not only as an ethnic group, but also as a racial group, the importance of skin color being emphasized. This has led to strong pressures in terms of racism and discrimination against Asian Indians. These pressures have resulted in the Indian community becoming a "deliberately excluded and disadvantaged group" (Robinson, 1984). Rex (1973), for example, views Asian Indians in Britain as an underclass. Although strong external forces act to produce segregation in the place of work as well as residence, there is also a strong desire for congregation recognized, where choice as opposed to constraint is dominant. Kearsley and Srivastava (1979) note a strong demand for a particular housing niche which results in Asian Indians living in close geographic proximity. Both exclusionary and usurpationary closure (Parkin, 1979) are evident as social realities for the Asian Indian community in the U.K.

Within British society Asian Indians have, through time, developed a certain amount of self sufficiency in terms of

service provision for their own community, due to trading and entrepreneurial talent. Many Asian Indian families own small shops which has led to a false image of the Indian community as being very successful and prosperous, which is quite often not the case. McEvoy, Jones, Cater and Aldrich (1982 pg.10) argue that "for Asians [in the U.K.] business actually represents a waste of capital, talent and energy, by divesting them into small shops whose number far exceeds the capacity of the market to support, Asian business is more a confirmation of subordinate status than an escape from it".

Despite an initial low educational status, the descendants of the original Asian Indians immigrants have attained high levels of educational achievement, as has occurred in the U.S. Despite this, many are employed in positions below the level of their education or training, a situation which has also been experienced by some Indian immigrants in the U.S. Although different in socio-economic and demographic backgrounds, Asian Indians in the U.K. and U.S. display similar lifestyles and aspirations. A strong desire, whether it is myth or reality, to return home to India remains, a reflection of the wish to maintain their Indian ethnic identity which is facilitated through regional, religious and language societies. The internal ethnic differences of the Indian community are very evident in the U.K. As Robinson (1987 pg.202) notes, the Indian "population is in fact a series of independent and different sub-

communities".

Although changes in British immigration laws has largely stemmed the flow of new migrants from India there has been no obvious gradual acculturation or assimilation process occurring. Asian Indians in the U.K. retain a strong sense of ethnic identity, which is encouraged via economic recession and increasing hostility toward the immigrant group. This may be instructive when considering the U.S. situation, in that it points toward the long term existence of Asian Indian communities even if the flow of immigrants subsides. This in fact may produce a more cohesive ethnic community. Being considered as a racial group by the host society fosters exclusionary tendencies against Asian Indians, whilst the ethnic tie of the sub-communities as well as the ethnic tie of nationality (which also serves as a political organizational focus) acts to bind the group together via usurpationary closure used to preserve ethnic solidarity. In this sense, an ethnic label is a positive asset whilst that as a racial grouping is somewhat of a burden. In the U.S. a similar situation is present where ethnicity acts positively as a surrogate for many interest groups, but race is viewed as a handicap.

Interestingly, Asian Indians still have a favorable view of British society despite discrimination in the job market and segregation in the residential sector. This positive attitude is evident in the U.S., where there is also no

dislike of India itself which is reflected via the "homeward outlook" of many of the immigrants. In the case of Britain, spatial isolation may act to shield Asian Indians from hostility and malevolence of the host society. A form of "stepping stone" migration has occurred among some Asian Indians, first migrating from India to South or East Africa, then to the U.K., and finally to the U.S., lured by the promise of economic gain.

U.S. Experience

Asian Indian immigrants to the U.S. are differentiated from Indians who have migrated to other parts of the world, including the U.K. As Mohapatra (1979) notes, many recent immigrants to the U.S. of Indian origin were westernized before entering the country. They possess language and educational skills which allow easy assimilation into the American economic system. Given these attributes, adaptation and assimilation into U.S. society could be considered fairly easy for Asian Indian immigrants, perhaps color being the only factor preventing inter-marriage into the host society. Therefore, as Leonard-Spark (1980) points out, Asian Indians are facing strong assimilation demands whilst also trying to forge an ethnic community. The current opinion in the literature suggests adoption of the cultural pluralism model by Indians in the U.S. Asian Indians are not "fully acculturated" or nearly assimilated as Chandras (1977)

states. Rather, the bi-nationality viewpoint of Fisher 1980), and a bi-cultural pattern in behavior suggested by Saran (1985), is a more appropriate theoretical framework. This bi-cultural pattern is reflected through full-scale participation in American society in the fields of education, occupation and economically, whilst family and home life remain distinctly Indian. "A society with an emphasis on ancestral ties tends to be a hierarchical society with a gradation of obligations and privileges. Remnants of such a societal order remain long after a hierarchical society proper has disappeared" (Cahnam, 1980 pg.6). Behavioral and structural assimilation appear very distinct in reference to Asian Indian experience.

As noted above, the group and individual experience can be distinct entities, this has been shown to be true in the case of adaptation and assimilation into American society. In surveying the Asian Indian population through personal interviews, both Saran (1980 and 1985) and Dasgupta (1986) support the cultural pluralism model, though they do outline some difficulties immigrants have experienced due to a reliance upon other Indians for a social life as a result of not mixing with Americans. Also, some discrimination has been noted in the work place. Problems of loneliness, especially among housewives, and a strong wish to retain Indian societal values which fosters a homeward looking orientation has also been found.

Overall, Asian Indian ethnic experience in the U.S. has been very positive compared to that of past immigrants and Indians who have emigrated to other parts of the world. As Chadney (1984 pg.181) points out "the concept of adaptation assumes both change and continuity". This is the problem facing the Asian Indian community in the U.S. today. How can it adapt to changes in the host country, in terms of economic, perceptual and societal changes whilst retaining a positive Indian ethnic identity, which itself is undergoing internal change. This is where the residential community has a crucial role to play, both at present and in the future. The Indian ethnic group without a territorial base may function well as a political interest group, but may, in turn, lose the identity for which it actually stands.

METHOD OF STUDY

Problem Statement

The purpose of this study is to determine to what extent Asian Indians¹ are a spatially isolated or segregated ethnic group, in terms of residential location. This will be done using the Index of Dissimilarity and Lieberson's P*, a measure of spatial isolation (both of which will be discussed in more detail later). An attempt will be made to explain this pattern in the light of the distribution of all other ethnic groups in the city.² Findings are compared and contrasted with those findings of other researchers. The patterns of concentration produced, if any, will be further analyzed using regression analysis to determine which variables are most important in influencing residential location.

Area Of Study

The City of Chicago³ (Map 1) was chosen as a study area for two main reasons. Firstly, it is a large metropolitan area with relatively large concentrations of Asian Americans. It is a well established city with a stable housing stock, and a history of immigration. Chicago has long been used as a study area for analyzing racial and ethnic group assimilation and segregation. More recently it has been a focus of attention in terms of black/white residential and

occupational competition, (Duncan and Duncan, 1957 ; Taeuber and Taeuber, 1964) . Secondly, the data were made easily available.

Data Sources

The 1980 U .S . census will be utilized, more specifically, STF3A⁴ will be used. This will allow the data to be prepared in a format suitable for manipulation using SPSS.⁵ Data will be collected at the block group⁶ scale. Block groups were chosen as smaller units of analysis are considered more detailed and accurate, for example as compared to the larger scale of census tract. 1980 was chosen as it was the last national census, and also the first time that Asian Indians were enumerated separately.

NOTES

- 1 The 1980 census defines Asian Indians as follows:
"Persons who indicate their race as Asian Indian, as well as persons who did not classify themselves in one of the specific race categories, but reported entries such as Bengali, Bharati, Dravidian, East Indian, Goanese, Hindu Indic, Kashmiri, or South Asian" (STF3A Technical Documentation, 1982 pg.282). Interestingly, Pakistanis are included in the "other Asian" category.

2. The following ethnic groups will be used to compare to the situation of the Asian Indians, in order to provide context for the analysis: whites, blacks, American Indians, Japanese, Chinese, Filipinos, Koreans, Vietnamese, Mexican, Puerto Ricans, and Cubans. Other groups recorded by the census were omitted from comparison due to their small numbers: Eskimos, Alutians, Hawaiians, Samoans, and Guamanians.

3. Three census tracts (3201, 5104, and 5202) with the tract suffix '99' were omitted from the study area as they contained naval installations and waterways. Therefore, the population totals for the city, study area, and those listed in the census books do not exactly match.

4. Summary Tape File 3A provides sample data which records numbers of ethnic groups, which is never suppressed, and socio-economic data for various levels of geography.
5. SPSS is a statistical package for the social sciences, this was chosen due to its ease of useage and reciprocity with other statistical packages.
6. Block groups are defined as follows: "A combination of numbered census blocks that is a subdivision of a census tract or block numbering area (BNA) and is defined in all areas for which block statistics are prepared" (STF3A Technical Documentation, 1982 pg .219) . Census tracts range between 2,500 and 8,000 residents.

METHODOLOGY

In order to determine the degree to which Asian Indians in Chicago are a segregated or congregated group some measure of concentration of residence must be used. In this case the Index of Dissimilarity and an exposure index, P^* , will be used. To properly utilize and understand the indices calculated it is important to discuss segregation indices in general, why the indices to be used were chosen, and how these indices are calculated from the data.

The Measurement Of Segregation

There has been, and there remains, much debate regarding the measurement of segregation¹ (Duncan and Duncan, 1955; Massey and Denton, 1987; White, 1987; James and Taeuber, 1985; Stearns and Logan, 1986). Therefore, in a study of residential segregation of a particular ethnic group it is important to discuss relevant measures of segregation to be used, the weaknesses and strengths of such measures in relation to this particular study, as well as the calculation and interpretation of such measures. The ongoing debate regarding measures of segregation is a result of a lack of consensus regarding existing measures. Much discussion centers around which measure is the most suitable, a result of an inability to develop a universally acceptable alternative. Most current debate involves refinements and

modifications of existing measurements in an attempt to improve their applicability and accuracy.²

When measuring segregation it is important to define what one is seeking to measure. In other words, what is the segregation measurement that one is seeking to obtain? White (1986, p.199) defines a segregation statistic as "a single number that characterizes the two dimensional distribution of the population's subgroups across units" of observation. This statistical conceptualization of residential segregation is essentially the same as referring to residential segregation per se as the overall degree of unevenness, or dissimilarity, in the distributions of specified groups or categories of persons (Taeuber, 1964). Such a definition is generally implicit within the mathematical formulation of a segregation index.³

An 'index war' raged within sociological literature during the 1940's and early 1950's. This prompted Duncan and Duncan (1955) to examine the currently available indexes of segregation to attempt to quell, if not solve, the debate regarding the most appropriate usage and interpretation of segregation indexes. They concluded that "there is little information in any of the indexes beyond that contained in the Index of Dissimilarity" (Peach 1975, p.41). This seminal paper produced a partial consensus and can be seen as directly responsible for the dominance of the Index of Dissimilarity (ID) as a measure of residential segregation.

The ID has been widely utilized (Taeuber and Taeuber, 1965; Duncan and Duncan, 1964; Massey and Denton, 1987; Lieberman, 1980; Robinson, 1987; Lam, 1986; Farley, 1986; Kan, 1983a, 1983b) largely due to its ease of computation and interpretation, as well as the fact that no other suitable index has been formulated and as widely accepted as the ID, as yet. This widespread usage does not represent uncritical acceptance of the ID as a measure of residential segregation. There are major criticisms about and, therefore, weaknesses in the ID which must be addressed if it is to be properly understood. Firstly, it is important to briefly discuss its computation and interpretation to place the criticism of the index in its proper context. The model takes the form:

$$D_{xy} = 1/2 \sum | (x_i / X) - (y_i / Y) |$$

Where, x_i and y_i are the number of X and Y in subunit i , and X and Y are the city-wide population totals. Theoretically, the index varies along a scale of 0 (total spatial integration, or evenness) to 100 (total segregation). The index can be interpreted as the percentage of a population group which would have to shift its residence in order to reproduce a spatial distribution identical with that of the group with which it is being compared (Massey and Denton, 1987). The percentage of the population that would have to change residence to produce spatial integration can

also be calculated, this is called the replacement index. The computational simplicity of the index produces an easily interpreted measure of segregation (Boal, 1987).

There are basic assumptions within the index which have been much criticized. It can be argued that the minimum value of dissimilarity is not zero, but a value above zero (Morgan and Norbury, 1981; Winship, 1977; White, 1983; Cortese, 1976). This viewpoint is based on the fact that a random distribution of population groups is more realistic than a pattern of complete desegregation, or evenness, as a baseline for the ID. In reply to such criticism Massey (1978, p.588) argues that both "randomness and evenness are a priori assumptions and neither is inherently more correct as an absolute base of comparison". The ID attempts to measure the amount of unevenness there is in a groups distribution. This is the crucial issue at stake, not how close this distribution is to random. Even though perfect evenness may never occur in reality, it is the departure from this evenness which has an impact upon society in socioeconomic and behavioral terms. Although the concept of randomness as a baseline for the ID is generally accepted, those adaptations of the index which have been developed are either unsuitable or very complex to compute.⁴ Despite this, there are times when the use of a random baseline may be instructive. For example, Winship (1977) argues that randomness should be used when considering causes of

segregation, evenness when its effects are of concern.

The ID is further criticized due to the influence of the size of the areal unit, the smaller the unit the larger the ID.⁵ Despite this, it is generally accepted that the smaller the unit of analysis (a smaller spatial mesh) the more reliable the index is (Jones and McEvoy, 1978). Also, the smaller the proportion of the minority to the total population, the larger the expected value of the index, due to the use of relative percentages within the calculation of the index. Obviously, these features of the index have to be noted, especially when comparing different areas at different points through time. Cortese (1976) point out that the use of D as a comparative index is both inappropriate and misleading. Therefore the results produced by studies which use D as a comparative index may be misleading. No methodological objections are raised to the use of D to measure segregation in a single city at a single point in time.

The ID is independent of the relative sizes of the groups being compared. Henceforth, if the proportion of a specific group declines by a uniform amount in each unit the ID will remain unaffected. Similarly, doubling the number of persons in group x_i in all units of observation will leave the index unchanged (White, 1983; Lieberman, 1981). However, for this to occur in reality is highly unlikely. The ID is symmetric and can only handle dichotomies. To handle more

than two groups 'pairwise dissimilarity' is undertaken.⁶

The 'checkerboard problem' also applies to the ID due to the assumption that there are no relationships among the parcels in which the data are tabulated (Duncan and Duncan, 1955; Taeuber and Taeuber 1965; White, 1986). In other words, changing the distribution of the units of observation will not affect the index. White (1983) attempted to overcome this problem through usage of a measure of social proximity (P), though he concluded that P is both complicated and expensive to compute.

As Taeuber and Taeuber (1976, p.888) note, "the quest for the perfect index is an impossible dream". Attempted modifications and refinements of the ID have produced much valid criticism, but have not produced a refined index which is both easy to compute and interpret. For these reasons, and the fact that the present study is at a small scale of analysis (block group), in one city (Chicago), at one point in time (1980), goes some way in reducing criticisms regarding the applicability of the ID as an accurate measure of residential segregation. The ID calculated will be compared to other indices, but at the same point in time and within the same city.⁷ The scale of analysis will differ, the comparison being of segregation at different spatial scales whilst noting the impact of scale upon the level of ID calculated. Other comparisons of a more general nature will be undertaken, though these will be descriptive and not used

for inferential purposes. At all times, where possible, the scale of analysis will be noted. The above points should be kept in mind when such comparisons are made. Following convention (Taeuber and Taeuber, 1955; Kan, 1983a) D shall be referred to as 'dissimilarity' when the comparison is between any two groups, but is 'segregation' when describing one group versus all others.

To account for the symmetrical nature and scale invariance of the ID, and P^* (Lieberman, 1981), an exposure or interaction index will be calculated. Exposure indices measure the extent to which minority and majority members must physically come into contact with one another by virtue of sharing a common block group or tract of residence. The degree of minority exposure may be conceptualized as the likelihood that minority and majority share a common neighborhood (Massey and Denton, 1987). Most indexes, such as the ID, attempt to eliminate the effect of population composition, while the exposure index does not, due to the fact that this directly influences the overall probability of contacts between two or more groups and will be reflected in the index.

$${}_xP^*_y = \sum (x_i / X) (y_i / t_i)$$

Where, ${}_xP^*_y$ refers to the probability that for a randomly selected member of group X, someone else from the

same residential subarea will be a member of group Y. xP^*x refers to the isolation experienced by members of group X in the city, that is, a member of group X randomly selected from the same residential subarea will also be a member of group X. x is the total number of group X in the city, x_i is the number of group X in a given subarea, y_i is the number of group Y in the subarea, and t_i is the total population of the subarea (Lieberson, 1981, p.67). It is not only possible to calculate the isolation of one group from another, but the total isolation of one group from all the others. P^* is an asymmetrical index, therefore, xP^*y is not equal to yP^*x , due to the dependence upon population composition in the calculation of the index. Again, following general practice, xP^*x and yP^*y are called isolation indices and xP^*y and yP^*x are called interaction indices (Massey and Denton, 1987). P^* is not only complementary to ID in that it aids in the measurement of segregation, it also requires the same data inputs as ID to be computed (Boal, 1987). Robinson (1980, pg.307) comments that "when both measures [ID and P^*] are employed a much more complete description and analysis" of segregation patterns is possible.

For the purposes of this study the ID and P^* are considered adequate measures of residential segregation. Massey and Denton (1987) statistically analyzed the relationship of ID to other available measures of unevenness. All measures were found to be inter-correlated with one

another, all loading under the same axis in factor analysis. P* was also found to be statistically correlated with other similar measures of population exposure. White (1986) also found similar correlations between various measures of segregation, though the correlation scores were lower than those found by Massey and Denton. These studies reinforce the results found by Duncan and Duncan (1955). In summary, it can be noted that although the ID and P* do not definitively describe segregation, they can be interpreted as adequate measures of residential segregation, whilst the search for the illusive perfect index continues.

NOTES

- 1 The main focus of segregation has been in relation to school desegregation and residential segregation, although occupation and income differentials have also been analyzed in this way . Discussions of the measurement of segregation have also been specifically orientated toward certain types of segregation . For example, James and Taeuber (1985) discuss measurements of school segregation only.
- 2 For example, Cortese (1976), Morgan and Norbury (1981).
- 3 Such as within the Index of Dissimilarity, to be discussed later.
- 4 Massey (1978) notes that attempts to refine the ID by Cortese (1976) fall into this category.
- 5 Due to the fact that percentages are used in the calculation of the index. The smaller the areal unit the higher the proportion a certain group may be the total subunit population in percent terms, even though this may only be 6 out of 12 persons total.

- 6 A separate calculation for each pair of subgroups is made, i.e., there are $K(K-1)/2$ values of the index, where K is the number of groups (White, 1986).
- 7 ID at the block group scale calculated in this study will be compared to those calculated by Kan (1983).

DISCUSSION OF RESULTS

Ethnic Composition Of Chicago

As with most large metropolitan areas in the U.S. Chicago has a strong history of immigration, a legacy which is reflected in distinct patterns of residential ethnic concentration and the presence of "ethnic areas". Chicago, like many cities in the northeastern U.S., grew rapidly in the late 1800's and early 1900's, both in population and economic terms. One being a product of the other. This growth was fuelled by a rapidly expanding national economy and large scale immigration from Europe as well as the migration of blacks from the South. The industrial orientation of the city and the thriving stockyards demanded low cost manual labor which was supplied via these migrations from troubled Europe and the impoverished South. Much has been written regarding black-white¹ residential patterns (Taueber and Taueber, 1965) and the history and distribution of European ethnic groups has been well traced (Jones and Holli, 1981). The pattern of Asian immigration is still unfolding, inter-mingling with black, European and Hispanic groups already resident in the city.

The metropolitan and cosmopolitan nature, as well as the historical experience, of Chicago is reflected in its ethnic make-up (Table 3, see page 84). The high proportion of the population who are black (39.51%) is well above the national

share of the population who are black (11.52%), as Table 4 (see page 85) shows. As in most large cities, there is also a general over-representation of all other ethnic groups when compared to the national share of their populations. For example, the Asian Indian and Chinese populations comprise 0.17 and 0.36%, respectively, of the national population. Whereas, they comprise 0.40 and 0.47% of Chicago's population (Tables 3 and 4, see pages 84 and 85). The national proportions include rural and interior areas which are largely homogeneous ethnically and racially, being white and of European ethnic origin. Cities act as ports of entry for immigrants coming into the U.S. Economies of scale and the actual size of urban centres provide opportunities for employment and are more open to ethnic group clustering than are smaller places. Larger size also allows ethnic-orientated services and institutions to develop due to the existence of a spatially concentrated market. Chain migration is often a feature of immigration, a process which naturally leads to some concentration or ethnic clustering around the point of original entry into the country. In the U.S. places such as Chicago, New York and Los Angeles have been ports of entry.

When the City population is compared to that of the SMSA (Table 5, see page 86) distinct differences can be distinguished. The white population is predominantly suburban (75%), whilst the City of Chicago is the domain of

the black population, in which 84% of the total black population reside . This pattern is a result of the suburbanization of the American populace which took place at a rapid pace in the 1950's and 1960's. The process, which is generally termed "white flight" involved mainly white middle-class, upwardly mobile persons (plus a reflection of family status) moving away from the city centre . In Chicago the movement of whites out of the city reflected not only a choice of residential location and housing type, but a definite movement away from black neighborhoods. Blacks were largely unable to participate in this migration as they were, and still are today, of a much lower socio-economic and social class strata than are whites.

Within the city itself there is a distinct separation of black and white residential space . "Today more than two-thirds of the black families in the [Chicago] metropolitan area live in census tracts that are more than 95% black" (Squires, Bennett, McCourt and Nyden, 1987 pg.95) . There were, as of 1980, 143 block groups that were exclusively black and 141 that were exclusively white. Although racial segregation is not the main issue here (black-white segregation has been well documented and researched), it will inevitably play a role in the spatial distribution of Asian Indians and Asians as a whole.

Asians as a whole also display tendencies toward suburbanization, especially the Asian Indians who at 66.6%

suburban are ranked second to whites. Though not part of the "white flight", suburban residential choice has occurred largely for the same reasons, a reflection of the professional status and life-cycle stage of the population. The Hispanic groups (Mexicans, Puerto Ricans, and Cubans) display low suburban proportions, probably due to a generally low socio-economic status, similar to the black population.

Interpretation Of Segregation

There are no definitive cut off points which distinguish high from low levels of segregation. When using the index of dissimilarity (ID) a relative perspective has to be adopted, keeping in mind the influence of scale of analysis, as noted earlier. Therefore, the expected value of indices calculated at the block group scale would be higher than those expected for census tracts. It should also be noted that Chicago has traditionally recorded high levels of segregation, when compared to other cities. This may partly be the product of a physical structure conducive to segregation: an old, stable housing stock containing many multiple dwelling units clustered around former industrial centres.

Residential Dissimilarity

As expected, the highest indices of dissimilarity recorded for any group is that for blacks, the average ID between blacks and all other groups being 93.64 (Table 6, see

page 87) . Surprisingly, the Vietnamese have the highest index of segregation (95.01), which measures the residential dissimilarity of the Vietnamese population versus the non-Vietnamese population in the city . Such a high score may reflect the relatively small proportion of the total population which is Vietnamese and the small scale of analysis.

There are distinct patterns between the Asian Indian population and the other ethnic groups considered . There appears to be three categories of dissimilarity . Firstly, high levels of segregation from blacks. Secondly, fairly high levels of dissimilarity from the Mexican and Puerto Ricans. Thirdly, moderate levels of separation from the remaining Asian groups, the whites and American Indians . This third "band" is fairly wide, ranging from an ID of 79.73 with the Vietnamese to 58.68 with the Koreans. The Asian Indian versus Korean ID is the lowest index recorded for any inter-group comparison, including whites. Considered within the framework of resource competition this may be a logical expression of social processes . Both groups are of similar size, socio-economic status and length of stay in the U.S., therefore they will have been offered similar housing and occupational opportunities within the same market. This may have resulted in comparable residential distributions throughout the city.

Although Asian Indian dissimilarity with whites is not extremely high (74.1), it is higher than expected, in that it

is higher than that of five other groups considered . An overall index of segregation of 81.90 was calculated for Asian Indians, which ranked fifth out of the twelve considered. This index of segregation, plus the ID's recorded against all other groups indicates that the Asian Indians are moderately segregated residentially . Not to the extreme levels of the blacks or Vietnamese, but they are not spread evenly throughout the block groups of the city, indicating moderately high levels of spatial concentration.

The other Asian groups considered in this study display roughly similar patterns of dissimilarity as the Asian Indians, with the exception of the Vietnamese who are by far the most segregated of the Asian groups. The Vietnamese are so highly segregated as a result of their recent arrival into the U.S. urban system, as well as being a function of their refugee status . Ethnic clustering for security and institutional functions was noted earlier, and this seems to be occurring among the Vietnamese population . A general aversion to the proximity of black areas is clear for all Asian groups . Similarly, moderately high levels of ID are noted when the individual Asian groups are compared to the Mexican and Puerto Ricans . This may be partly a function of the inter-racial composition of the Hispanic groups which includes white and black persons, as well as a result of socio-economic differences . Noteworthy is the generally low levels of dissimilarity of the Cuban population versus

Asians, ranging from 68.49 (Japanese) to 78.31 (Chinese), again excluding the Vietnamese. In fact, the ID for Cuban versus Mexican is higher than that of Cuban versus the individual Asian groups. There seems to be no apparent reason for the low scores recorded for the Cuban population, a point which may warrant further investigation.

Despite the fact that there are general trends which apply to most of the individual Asian groups, it has to be noted that they are in no way homogeneous. In fact, levels of segregation between separate Asian groups are similar to, if not higher than Asian-white ID's. Overall Asian-white-black and Spanish dissimilarity scores are given in Table 7 (see page 88). Though, as discussed earlier, the more general categories of "Spanish" or "Asian" may not have any real social meaning.

Perhaps more surprising than the Vietnamese segregation index being higher than that of the blacks is that the Mexican (68.42) segregation index is lower than that for whites (74.49), hence the lowest of all. This is probably due to the fact that the Mexican community in Chicago has been present for a long period of time and has inter-married with other ethnic groups, particularly east Europeans, which generally results in greater degrees of assimilation. Each of the individual Asian groups actually has higher segregation scores than the Hispanic groups, which rank 8th (Cuban), 10th (Puerto Rican), and 12th (Mexican). This not only further

backs the case for separate study of the individual Asian groups, but contrasts with the indices calculated when Asians (total) are used as a basis for calculation (Table 7, see page 88). An Asian-white ID of 58.91 masks great variety within the Asian community as a whole. In fact, it indicates that there is not really an "Asian" community as defined by the census. The different national groupings have to be recognized and considered individually for analysis if the results produced are to have any real meaning. Each group is unique and has its own residential spatial pattern. This pattern may compare to that of another, such as the Asian Indians and the Koreans, but this in no way means that they should be considered as one.

The replacement index (Table 6, see page 87) measures the percent of persons who would have to exchange residence with other persons, not of the same ethnic group, in order to produce an even pattern of residence. In terms of rankings (highest score=1) the replacement index is similar to that of the segregation index, except that the black and white scores are the lowest due to the high relative proportions of their populations compared to the total city population. Asian Indians have a fairly high index, indicating that 81.75% of the Asian Indian population would have to exchange their block group residence with non-Asian Indians to replicate the residential spatial distribution of the population as a whole.

Although a strong ethnic community is recognized in all of the literature on Asian Indians in the U.S., this community is not described as a geographically clustered one, but one with a tendency toward dispersal, including suburbanization (Saran and Eames, 1980; Saran, 1986; Fisher, 1980). These claims are not based on statistical analyzes, but on personal contact with the actual communities. Those studies which have focused upon statistical analysis have produced results which point slightly in the other direction, that there is some residential clustering of the Asian Indian community (Kan, 1983; Kan and Lui, 1983; Langberg and Farley, 1985).

The results produced here also indicate a tendency towards suburbanization, but also point toward the existence of a somewhat geographically concentrated community. The ID's and index of segregation calculated in this case were much higher than those recorded for Asian Indians in other cities and those calculated at the census tract level for Chicago. Langberg and Farley (1985, Table 2 pg .74) for example, calculated an average segregation index of 57 for Asian Indians at the census tract level for the major metropolitan areas of the U.S., New York producing the highest score of 67 (Chicago recorded an index of 59). Kan (1983; Table 3 pgs.16-20; Kan and Lui, 1983) has calculated indices of segregation in five metropolitan areas as well as a more detailed analysis of Chicago, both studies used census tracts as a

unit of analysis . The indices of segregation for Asian Indians were as follows: New York 51.6; Chicago 67.8; San Francisco 35.6; Los Angeles 39.9, and; Honolulu 47.6. In all of the above studies it was concluded that Asian and Asian Indian segregation was low, though it was recognized as being present. For example, Langberg and Farley (1985) found that Asian-white segregation persisted even when income was controlled for. The results of this analysis indicate much higher levels of segregation at a smaller spatial scale. Clay White (1986) provides support for the findings reported here in that individual Asian groups also displayed fairly high levels of segregation in his study of Asians at the census tract scale in Long Beach.

In general terms, similar patterns are displayed in various cities with regard to the Asian Indian community: very high ID's with blacks, the lowest ID's with Koreans and fairly low segregation from Filipinos. The major difference in content being that the indices calculated at the block group scale are much higher, in relative terms. Major differences seem to appear when the Asian Indian ID's with other Asian groups are considered, inter-Asian segregation being more evident at the block group level in Chicago. The overall indices of segregation for the individual Asian groups are much higher in this study than in those using census tracts. The changes recorded for Asians as scale of analysis changed were higher than those for whites, blacks,

Mexicans and Puerto Ricans. The importance in change of scale is difficult to determine, though not all of the change occurring is "scale dependent". The use of a "fine spatial mesh" (McEvoy, 1982) perhaps reveals more detailed patterns of segregation which are masked at the aggregate level of census tracts. Block groups may also have greater everyday importance to individuals than the externally defined, for census purposes, census tracts. Throughout the social sciences small scale study is generally regarded as being more accurate, for example Roncek (1979), though this is not to disregard larger scales of analysis.

The large proportion of the Asian Indian population in the Chicago SMSA who reside in the suburbs leads one to question the comparative levels of ethnic segregation in suburban areas as compared to the city centre. Lam (1986) indicates that along with a decrease in black-white segregation in the suburbs, Asian-white ID's would be expected to decrease as well (a census tract study of Chinese and Japanese populations in major metropolitan areas of the U.S.). This would lead to a conclusion of a more concentrated Asian Indian population in the city of Chicago as compared to the SMSA as a whole, though this is not really backed by statistical evidence.

Spatial Isolation

In order to analyze a different measure of segregation

than residential dissimilarity P^* was calculated. This may aid in answering questions which the index of dissimilarity could not, or which arose in the preceding discussion.

In reality, people are influenced by, and much more aware of, the ethnic composition of their own local neighborhood or block group than the distribution of ethnic groups throughout the city as a whole (Lieberson, 1981). P^* measures the probability of interaction between individual members of different ethnic groups, as well as the overall spatial isolation of the average group member, in contrast to the ethnic group as a whole. This measure will, therefore, indicate the degree to which each group is exposed to members of other groups, which may have greater meaning in everyday life.

To put the isolation index (xP^*x) into context it must be considered in relation to the expected values that would occur if no segregation was evident, which is the proportion x is of the total population. Exposure and isolation indices, and their expected values are given in Table 8 (see page 89). Not surprisingly, given the large proportions black and white in the city, the highest indices calculated were for blacks (0.9128) and for whites (0.7913). This can be interpreted as follows: for each randomly selected black person there is a 0.9128 probability that another randomly selected person from the same area will also be black. In Chicago blacks are spatially very isolated. In all cases the indices of

isolation were higher than the expected values, the higher the groups proportion of the city population total the greater the difference between the expected and actual value, with the exception of blacks which showed the greatest difference. This could have been predicted as P^* is a function of the relative size of the population group. The Asian Indians recorded an isolation index of 0.0499, a fairly low level of spatial isolation.

Perhaps more interesting than the spatial isolation of each group is the exposure indices between different groups, Table 8 (see page 89). The exposure index for Asian Indians in relation to whites ($ASI P^* WHT$) is 0.6935. Hence, the probability that for a randomly selected member of the Asian Indian community someone else from the same block group will be white is 0.6935. As noted these indices are asymmetrical, therefore, $ASI P^* WHT$ is not equal to $WHT P^* ASI$, in this case $WHT P^* ASI = 0.0057$. The probability of an Asian Indian being exposed to a member of the white community is obviously much higher than the opposite occurring. Despite the fairly large percent black, Asian Indian exposure to the black population is very low (0.0845).

As compared to other individual Asian groups, Asian Indians have the highest exposure, or interaction, indices with the Koreans ($ASI P^* KRN = 0.0219$) and the Filipinos ($ASI P^* FLP = 0.0290$). This does suggest some mild form of an Asian enclave including the Asian Indians and the Koreans, in

light of the relatively low ID's which were also recorded between these groups. The reciprocal exposure index between these two groups ($KRNP*ASI$) was of similar magnitude (0.0258), indicating mutually significant levels of exposure. Filipino exposure to Asian Indians and Koreans was lower (0.0154 and 0.0103 respectively) casting some doubt upon their inclusion in a mini Asian enclave. This similar geographical distribution of Asian Indians and Koreans has to be considered further. The recency of both immigrant groups may be a controlling factor in the proximity of residential location, as recent arrivals often have a limited choice within a tight housing market. Though both groups are similar in some respects, such as professional and educational status, they are very different culturally and in terms of historical experience. Kan and Liu (1983) characterize the Koreans of Chicago as a very homogeneous group of businessmen of specific social strata. Hurh, Kim and Kim (1978), and Hurh and Kim (1984) outline the low prestige of Korean immigrants plus language difficulties as major barrier of adaptation, problems which are not present in the Indian community. Asian Indians do display some traits as minority businessmen, such as the Patels of the hotel trade (Mookherjee, 1982). Many Indians are involved in the newspaper trade of New York, and the well documented Gujaratis of the retail trade in the U.K., though it is doubtful that this would lead to a concerted effort to group together with other business

orientated groups. The similar residential patterns observed is more likely a reflection of length of sojourn in the U.S., socio-economic status, life-cycle stage and choice of housing type and location. Both groups are competing for the same available resources within the urban milieu.

The probabilities of Asian Indians interacting with the Hispanic groups are relatively high, though the reciprocal indices are low with the exception of the Cubans whose reciprocal index is exactly the same as $ASI P * CUB$. This may have resulted as both population sizes are the same, though this still indicates relatively high likelihoods of interaction given the ethnic group sizes in relation to the population total. Again, the Cuban population indices are somewhat of an anomaly, being fairly high when compared to all groups. Combined with the results of the ID calculation, it can be proposed that the Cubans are not only fairly evenly distributed throughout the city, but they are also quite likely to interact with most sections of the population, they are not spatially isolated. This may be a reflection of a varied racial mix and wide social class distribution. Also, many Cubans entered the U.S. as pre-revolution refugees in the 1950's, the majority of whom were of high socio-economic status.

Following the general pattern of segregation, white-black exposure indices are very low relative to their large populations. All the individual Asian groups have high

interaction indices with whites and low scores with blacks, though the Vietnamese are a slight exception ($VETP*BLK=0.1475$). Isolation and exposure indices for whites, blacks, Asians and Hispanics are given in Table 7 (see page 88). Again, these have to be treated with care due to points noted earlier, though they can be compared to other relevant research. Massey and Denton (1987) calculated P^* values for census tracts in 50 SMSA's in the U.S. for 1970 and 1980. The average Asian exposure to whites in 1980 was 0.749, to blacks 0.099, and to Hispanics 0.107, with an isolation index for Asians of 0.047 (Massey and Denton, 1987 Table 1 pg.812). These indices are comparable to those calculated at the block group for Chicago to a certain degree, though the Hispanic and Asian isolation indices were much higher at the smaller scale. This, once more, may be a result of scale dependency, and the relative sizes of the Asian and Hispanic groups, but it also does indicate higher spatial isolation and lower probabilities for interaction for Asians in Chicago.

" P^* measures the probability of opportunity for interaction and not the probability of interaction itself" (Robinson, 1980 pg.309). Even though different ethnic group live in close proximity to each other, this does not necessarily mean that they will interact with each other. Robinson (1980) cites the work of Richmond (1973) and C.R.C. (1977) which suggest that groups will more than likely avoid one another even when their residential geographical

locations are similar . Therefore, although indices of segregation may accurately measure the spatial pattern of ethnic groups it must be remembered that "proximity is necessary, but insufficient to produce positive interaction" (Peach, 1975 pg.12) . Interaction which does occur can often be negative in nature, for example Asians in Britain have been faced with increasing hostility and discrimination even though interaction has increased, and rivalry for territory between blacks and whites in the U.S. is perhaps most intense when they live in adjoining blocks.

Spatial Pattern

The use of statistical indices of segregation does measure the proximity of different ethnic groups, which has obvious implications for social contact between individuals, hence influences future trends. One major omission from these indices is the relationship in space between the units of observation (the "checkerboard problem"). In other words, the actual geographical distribution of the different ethnic groups is not really considered when such techniques are employed . Therefore, to more fully describe and analyze the Asian Indians of Chicago the geographical pattern of their residence must be looked at. This will be achieved by mapping the residential distribution of Asian Indians in the city . Such a cartographical representation will provide a visual measure of concentration which is quick and easy to

interpret.

Mapping of raw numbers or percentage values of Asian Indians would be misleading considering the relatively small proportion the Asian Indian community comprises in relation to the city population total. Therefore, a location quotient² will be used, which is actually a spatial representation of the ID. The location quotient measures the extent to which a block group's Asian Indian population differs from the city wide average. A quotient of 1 indicates equal distribution. Therefore, only those areas where L.Q. was greater than 1 were mapped. Sixty-four block groups produced a L.Q. which was greater than 1, which contained 7,148 Asian Indians (60% of the total group population). The total population of all 64 was 168,723 (5.6% of the city population), Asian Indians comprising 4.2% of those 64 block group's population. From Map 2 (see page 93) definite areas of concentration stand out, especially in the area north of the Chicago River. This area is a traditional immigrant area, an area of European ethnic group recession (Kan, 1983).

A simple verbal description of the spatial distribution of Asian Indians can also be useful. The total ethnic group population is contained within 330 block groups (total number = 2477), ranging from a minimum of 3 persons to a maximum of 578 in one block group. If only areas with "large" (defined as >1% of the total ethnic group population) numbers of Asian Indians are considered, then over 32% of the population are

concentrated within 19 block groups across the city. Briefly analyzing the social and economic characteristics of these "concentrated" block groups may lead to some explanation of the distribution. For example, within these 19 block groups there is not only a relatively large proportion of Asian Indians, but also an over-representation of all Asian groups. Following earlier findings, there is some clustering of Asians, especially the Koreans and to some extent Filipinos, with the Asian Indians. In terms of education, income, percent foreign born and, numbers abroad in 1975, there appears to be differences between those areas containing relatively large numbers of Asian Indians as compared to the city as a whole. On the basis of this cursory analysis a multiple regression analysis was carried out in order to more fully explain the pattern of Asian Indian residence.

Explanation Of Pattern

Multiple regression analysis attempts to explain the variation in a dependent variable, in this case the number of Asian Indians per block group, via the variations in explanatory or independent variables. The choice of independent variables was determined firstly by the above comparison of social and economic variables for those areas containing Asian Indians and the city as a whole, and secondly by classical social ecology. Therefore, as well as education, income, foreign born and numbers abroad 1975,

variables describing ethnic composition (percent black and percent white), family status, employment status and neighborhood stability were used to attempt to explain the dependent variable.

The use of stepwise regression results in the independent variable that accounts for the greatest variance in the dependent variable being entered into the regression equation first. In this case the variable entered first was 'percent abroad in 1975', resulting in an R^2 value of 0.2494. The second variable entered was 'percent of the housing stock built before 1939', which only produced an R^2 change of 0.0135. The other 17 variables used produced very little change in the R^2 value, overall $R^2=0.3007$, or 30% explanation in the variation of the dependent variable. This level of explanation can be seen as fairly significant given the number of observation units used ($n=330$). Given the nature of the two variables which produced the majority of the explanation, it could be suggested that concentration of Asian Indians is a reflection of their recent arrival, many being post-1975 immigrants. This clustering may be a result of chain migration causing concentration around a point of contact or family connections. The age of housing variable may reflect available openings in the housing market, though given the large number of structures built before 1939 in Chicago this may just be conjecture.

Perhaps more instructive than the R^2 value, or which

variables were entered first, is an analysis of the correlation coefficients. This will not only show the relationship between dependent and independent variables, but also the inter-relationships between the independent variables themselves. For example, "percent abroad 1975" had the highest correlation with the dependent variable (0.4994), and though "percent foreign born" was also correlated (0.3764), the inter-correlation of both variables (0.7179) resulted in only one of them being entered into the regression equation.

The link with recent arrivals and number of Asian Indians is backed by a negative correlation (-0.2979) with measures of neighborhood stability ('percent living in the same house 1975'), which would be expected in areas with many new immigrants. The numbers of Asian Indians show a small positive correlation with "percent of persons with four or more years of college" (0.1280), though this is smaller than would have resulted if most new immigrants were entering as professionals. This may reflect persons entering the U.S. under the familial visa classification, of lower educational status than the first generation immigrants. Although the age of housing variable had low correlations with the dependent variable, the interrelationship observed with other variables displays some interesting patterns. It is negatively correlated with "median household income" (-0.3246), slightly so with "percent black" (-0.1970), with small positive

correlations with "male headed household" and "percent foreign." Hence, some indications of being a surrogate for a particular socio-economic status; lower income, particular family status and an over representation of blacks, possibly a negative loading on an overall "wealth" factor.

A second regression analysis was run using similar variables, though instead of variables classified by total population, "Asian"³ variables were utilized. Also, more detailed income category variables were added to the analysis. The use of these extra measure drastically changed the results produced. The first four variables to enter the regression equation being different income levels, the first variable "Asian Income between \$15,000 and \$19,999" accounting for an R^2 of 0.4888. The first four variables included income values between \$10,000 to \$49,000 per annum range, ommitting the \$25,000 to \$34,999 range which entered the equation much later. The first non-income variable entering was a measure of over-crowding ("percent Asians with greater than 1 person per room, with plumbing facilities for exclusive use") which only produced an R^2 change of 0.0227. An overall R^2 value of 0.7280 was recorded, a high level of prediction (number of units of analysis=253). Again it is informative to look at the correlation coefficients.

Although "percent abroad 1975" has a high correlation with the number of Asian Indians as before, it is also correlated with nearly all other variables due to the use of

"Asian" variables as most Asians are recent arrivals. This fact may be evident throughout most of the variables used, resulting in autocorrelation among the independent variables. This will be even more likely as the dependent variable is a large inclusion within the numbers which constitute the independent variables. Therefore, these results have to be treated with caution.

Overall, these results point towards a classical interpretation of ethnic group experience, initial clustering being a function of available housing stock, possibly relative to specific income levels and life-cycle stage. Recency of arrival seems the most dominant variable to emerge from this analysis, which is backed by the over-representation of other recent immigrants such as the Koreans and Vietnamese in the study area. Also, Asian Indians in the U.K. have shown a tendency to choose a specific housing type which meets their family status and preference for savings. This may be the case here too, a reflection of initial financial instability or conservatism.

The Implications Of Suburbanization

In the light of the preceding discussion it is appropriate to briefly analyze the differences in socio-economic characteristics of the individual Asian groups between the SMSA and city of Chicago, using data which are available at the aggregate level. The high degree of

suburbanization of some of the Asian groups, such as the Asian Indians and Koreans, was noted earlier (Table 5, see page 85). Tables 9 and 10 (see pages 89 and 90) show the general housing characteristics for individual ethnic groups at city and SMSA level.

Marked differences can be seen between the two scales of analysis, the SMSA (which includes the city plus all suburban areas, see Map 1 page 92) has a generally higher income and overall measures of wealth than the city, reflected via higher housing value and rent, less over-crowding, and a higher percentage of single dwelling, owner occupied housing units. This would be expected given the stereotype of suburbanites as being middle class, educated with moderate to high incomes. These general characteristics hold true for individual Asian groups. Perhaps the most obvious difference between Asians and the other groups considered is the high housing value for both the city and the SMSA. This is accompanied by fairly moderate levels of over-crowding (with the exception of the Japanese) possibly reflecting presence of the extended family within the same housing unit.

Asian Indians show a large difference in unit size between the city and SMSA, from a preference for older multiple-dwelling units (>9) in the city (34.7%) to a concentration in single dwelling units in the SMSA (52%), which are presumably fairly new. This may be an indication of a dichotomy in the Asian Indian community between suburb and

city . Initial clustering of newer arrivals in particular housing types in the city could be a stage in the adaptation and integration of the group into U .S . society . Suburbanization can be seen as a phase in a continuum. On the other hand, there may be two, or a multitude of, subgroups within the Asian Indian community, separated by caste, religion, language, as well as income, education and length of stay in the U.S . From the data gathered here it is impossible to prove any of these arguments, but it does point to avenues of future research . It is important to analyze patterns of segregation in the suburbs as well as in the city, this is a new area of study even in terms of black-white segregation, never mind Asian segregation . Lam (1986) suggests that Asian segregation will decrease with suburbanization, though the point is still moot regarding black-white residential patterns. The suburbs warrant further research in terms of ethnic group residential patterns, as well as comparison with tradition city orientated studies.

Table 3

Race And Ethnic Composition Of The Chicago Population, 1980

Race	Percent	Number
-----	-----	-----
White, non-Spanish	43.65	1311677
White, Spanish	6.68	200603
Black, non-Spanish	39.51	1187145
Black, Spanish	0.33	10006
American Indian	0.22	6623
Eskimo	<0.01	151
Aluet	<0.01	30
Japanese	0.26	7751
Chinese	0.47	14002
Filipino	0.75	22537
Korean	0.34	10107
Asian Indian	0.40	11947
Vietnamese	0.08	2530
Hawaiian	0.02	563
Guamanian	<0.01	179
Samoan	<0.01	33
Others	7.29	219029
-----	-----	-----
Total	100.00	3004913

Spanish-Origin	Percent	Number
-----	-----	-----
Non-Spanish	85.91	2581567
Mexican	8.47	254656
Puerto Rican	3.79	133888
Cuban	0.40	11948
Other Spanish-origin	1.43	42854
-----	-----	-----
Total	100.00	3004913

Race and Spanish Origin	Percent	Number
-----	-----	-----
Non-Spanish	85.91	2581567
Spanish-White	6.68	200603
Spanish-Black	0.33	10006
Spanish-American	0.13	4034
Indian, Asian and Pacific Islanders		
Spanish Other Races	6.95	208714
-----	-----	-----
Total	100.00	3004913

Source: Census of Population and Housing: Summary Tape File 3A Illinois [machine-readable data file] / prepared by the Bureau of the Census. -- Washington: The Bureau [producer and distributor], 1982.

Table 4

Race And Ethnic Composition Of The United States, 1980.

Race	Percent	Number
White, non-Spanish	79.72	180,602,838
White, Spanish	3.72	8,432,174
Black, non-Spanish	11.52	26,091,857
Black, Spanish	0.17	390,492
American Indian	0.65	1,478,523
Eskimo	0.02	42,098
Aluet	<0.01	13,715
Japanese	0.32	716,331
Chinese	0.36	812,178
Filipino	0.34	781,894
Korean	0.16	357,393
Asian Indian	0.17	387,223
Vietnamese	0.12	245,025
Hawaiian	0.08	172,346
Guamanian	0.01	30,695
Samoan	0.02	39,520
Others	2.63	5,951,503
Total	100.00	226,545,805

Spanish-Origin	Percent	Number
Non-Spanish	93.55	211,942,122
Mexican	3.83	8,678,632
Puerto Rican	0.89	2,004,961
Cuban	0.36	806,223
Other Spanish-origin	1.37	3,113,867
Total	100.00	226,545,805

Race and Spanish Origin	Percent	Number
Non-Spanish	93.55	211,942,122
Spanish-White	3.72	8,678,632
Spanish-Black	0.17	390,492
Spanish-American	0.12	277,364
Indian, Asian and Pacific Islanders		
Spanish Other Races	2.43	5,503,653
Total	100.00	226,545,805

Source: General Social and Economic Characteristics, PC80-1-C1 U.S. Summary, 1980. Table 74, Race by Sex 1980.

Table 5

Race And Ethnic Composition Of The Chicago SMSA, Chicago City
And Percent Suburban

<u>Race</u>	<u>SMSA</u>	<u>City of Chicago</u>	<u>% Suburban</u>
White, non-Spanish	4,943,208	1,229,557	75.12
White, Spanish	297,604	190,659	35.94
Black, non-Spanish	1,414,814	1,187,905	16.03
Black, Spanish	12,586	9,095	27.74
American Indian	11,843	5,938	49.86
Japanese	16,042	8,307	48.22
Chinese	24,980	13,638	45.40
Filipino	41,511	22,305	46.27
Korean	21,336	10,165	52.36
Asian Indian	33,541	11,209	66.58
Vietnamese	4,411	2,723	38.27
Hawaiian	788	424	46.19
Others	280,376	242,593	13.48
-----	-----	-----	-----
Total	7,103,624	3,005,072	57.70

<u>Spanish-Origin</u>	<u>SMSA</u>	<u>City Of Chicago</u>	<u>% Suburban</u>
Non-Spanish	6,523,710	2,583,009	60.41
Mexican	365,330	255,802	29.98
Puerto Rican	129,612	112,074	13.53
Cuban	18,468	11,513	37.66
Other Spanish- Origin	66,504	42,674	35.83
-----	-----	-----	-----
Total	7,103,624	3,005,072	57.70

<u>Race and Spanish- Origin</u>	<u>SMSA</u>	<u>City Of Chicago</u>	<u>% Suburban</u>
Non-Spanish	6,523,710	2,583,009	60.41
Spanish-White	297,604	190,656	35.94
Spanish-Black	12,586	9,095	27.74
Spanish Other Races	269,724	222,309	17.58
-----	-----	-----	-----
Total	7,103,624	3,005,072	57.70

Source: U.S. Bureau of the Census Report, 1980. General
Population Characteristics, part 15, Illinois. PC 80-
1-B15 Tables 15 and 16.

Table 6

INDEX OF DISSIMILARITY FOR BLOCK GROUPS IN CHICAGO, 1980

	WHT	BLK	AMR	JAP	CHN	FLP	KOR	ASI	VET	MEX	PRT	CUB
White		91.53	81.63	74.68	78.90	67.65	76.78	74.10	93.95	67.52	74.62	72.19
non-Spanish												
Black			87.94	92.60	95.38	94.32	97.03	95.27	97.94	90.44	93.02	94.53
non-Spanish												
American				78.69	86.22	81.05	80.56	79.56	87.01	78.52	80.35	78.91
Indian												
Japanese					74.66	73.91	72.80	69.49	83.41	88.43	86.56	68.49
Chinese						80.54	76.92	73.13	87.03	89.63	90.56	78.31
Filipino							72.02	67.30	85.88	82.47	76.04	69.86
Korean								58.68	84.13	91.22	91.46	71.52
Asian									79.73	89.12	88.12	71.44
Indian												
Vietnamese										95.08	93.05	85.37
Mexican											63.26	81.58
Puerto Rican												71.99
Segregation Index	74.49	90.29	80.84	80.97	84.38	76.18	84.96	81.90	95.01	68.42	75.25	78.37
Replacement Index	41.98	54.62	80.66	80.76	83.98	75.61	84.67	81.57	94.93	62.62	72.40	78.06

Table 7

INDEXES OF DISSIMILARITY FOR BLOCK GROUPS
IN CHICAGO, 1980.

	<u>White</u>	<u>Black</u>	<u>Asian</u>	<u>Spanish</u>
White, non-Spanish		91.53	58.91	63.54
Black, non-Spanish			93.27	89.87
Asian, non-Spanish				74.08
Index of Segregation	74.49	90.29	69.47	68.84
Replacement Index	41.98	54.62	69.29	59.14

INDEXES OF ISOLATION

	<u>White</u>	<u>Black</u>	<u>Asian</u>	<u>Spanish</u>
White, non-Spanish	.7931	.0488	.0304	.1247
Black, non-Spanish	.0539	.9128	.0050	.0311
Asian, non-Spanish	.6080	.0900	.1501	.0497
Spanish	.3374	.0779	.0171	.3184
Expected Values	.3374	.0779	.0171	.3184

Number of block groups=2477, average population=1213

Table 8
INDICES OF ISOLATION AND EXPOSURE, BLOCK GROUPS CHICAGO, 1980.

	1 WHT	2 BLK	3 AMR	4 JAP	5 CHN	6 FLP	7 KOR	8 ASI	9 VET	10 MEX	11 PRI	12 CUB
A. White	.7931	.0488	.0022	.0037	.0053	.0106	.0053	.0057	.0010	.0693	.0329	.0054
B. Black	.0539	.9128	.0012	.0008	.0010	.0016	.0004	.0009	.0003	.0180	.0084	.0007
C. American Indian	.4384	.2118	.0261	.0061	.0049	.0138	.0085	.0085	.0039	.1692	.0687	.0075
D. Japanese	.6430	.1167	.0052	.0296	.0134	.0171	.0101	.0136	.0036	.0603	.0428	.0134
E. Chinese	.5009	.0841	.0023	.0074	.2613	.0105	.0075	.0119	.0026	.0574	.0240	.0082
F. Filipino	.6148	.0875	.0040	.0059	.0065	.0596	.0103	.0154	.0039	.0755	.0691	.0131
G. Korean	.6935	.0483	.0056	.0078	.0103	.0229	.0491	.0258	.0040	.0541	.0275	.0131
H. Asian Indian	.6276	.0845	.0047	.0088	.0140	.0290	.0219	.0499	.0059	.0599	.0375	.0116
I. Vietnamese	.4950	.1475	.0102	.0109	.0146	.0345	.0162	.0277	.0332	.0872	.0589	.0123
J. Mexican	.3568	.0839	.0044	.0018	.0032	.0069	.0021	.0028	.0009	.4326	.0799	.0045
K. Puerto Rican	.3794	.0878	.0040	.0029	.0029	.0137	.0024	.0039	.0013	.1787	.2800	.0105
L. Cuban	.5951	.0666	.0041	.0087	.0096	.0194	.0111	.0116	.0026	.0968	.0998	.0399
Expected Values	.4365	.3951	.0022	.0026	.0047	.0075	.0034	.0040	.0008	.0847	.0379	.0040

xPxy applies, where x = 1 to 17, and y = A to L.

Number of block groups=2477, average population=1213

Table 9
SOCIO-ECONOMIC CHARACTERISTICS, CITY OF CHICAGO, 1980.

	Median Persons per unit	TENURE		UNIT SIZE		Median Rooms	Median Persons	% Over- crowding	Housing Value \$	Contract Rent \$
		% Owner	% Renter	% 1	% >9					
White	2.23	47.7	52.3	34.1	19.6	4.7	1.88	2.5	\$53,100	\$212
Black	3.10	30.8	69.2	29.8	20.2	4.8	2.63	11.3	\$36,400	\$178
American Indian	2.88	18.5	81.5	18.9	24.1	4.2	2.34	13.5	\$38,600	\$182
Japanese	2.22	36.6	63.8	22.0	25.4	4.7	1.94	2.7	\$60,000	\$214
Chinese	3.09	36.2	63.8	24.2	21.1	4.2	2.71	18.7	\$62,700	\$188
Filipino	3.34	39.7	60.3	35.4	21.5	4.3	3.05	20.9	\$58,200	\$216
Korean	3.28	25.8	74.2	24.6	21.0	3.8	3.29	24.2	\$78,300	\$223
Asian Indian	2.91	23.4	76.6	23.2	34.7	3.6	2.74	20.1	\$64,700	\$222
Vietnamese	4.22	7.7	92.3	21.7	30.8	3.4	3.85	49.0	\$53,800	\$216
Mexican	3.95	26.2	73.8	15.1	7.7	4.4	3.75	27.2	\$36,400	\$157
Puerto Rican	3.49	20.1	79.9	12.7	7.3	4.7	3.34	14.6	\$35,700	\$171
Cuban	2.88	29.0	71.0	18.2	15.3	4.7	2.62	7.5	\$54,800	\$207

Source: U.S. Bureau of the Census Report, 1980. General Housing Characteristics, part 15, Illinois. HC 80-1-A15, Tables 27 and 28.

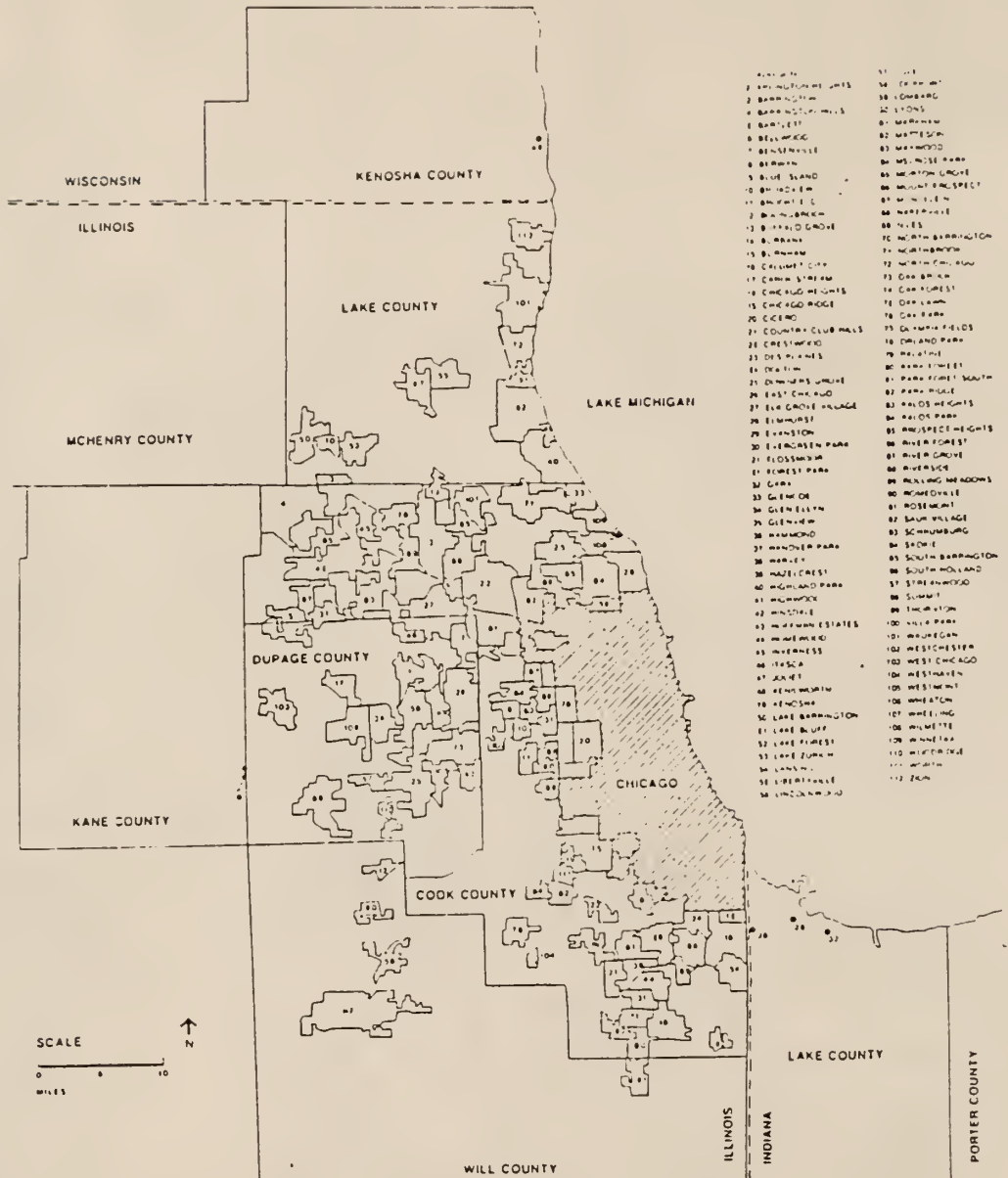
Table 10

SOCIO-ECONOMIC CHARACTERISTICS, CHICAGO SMSA, 1980.

	Median Persons per unit	TENURE % Owner	% Renter	UNIT SIZE % 1	% >9	Median Rooms	Median Persons	% Over- crowding	Housing Value \$	Contrac Rent \$
White	2.64	65.6	34.4	61.3	13.2	5.3	2.28	1.9	\$68,100	\$244
Black	3.13	33.6	66.4	33.7	19.5	4.8	2.70	11.1	\$38,000	\$182
American Indian	2.98	31.6	68.4	35.1	19.8	4.5	2.54	11.2	\$54,400	\$199
Japanese	2.50	43.0	57.0	39.2	23.5	4.9	2.25	3.1	\$74,000	\$258
Chinese	3.22	54.0	46.0	47.6	15.9	5.0	3.01	13.7	\$84,600	\$208
Filipino	3.67	53.5	46.5	51.1	16.3	4.9	3.55	18.7	\$76,300	\$225
Korean	3.59	46.1	53.9	46.0	16.7	4.4	3.70	21.3	\$87,500	\$239
Asian Indian	3.28	51.4	48.6	52.0	22.3	4.6	3.22	14.3	\$80,200	\$245
Vietnamese	4.31	15.2	84.8	33.0	25.7	3.8	3.94	45.3	\$62,800	\$232
Mexican	3.96	32.9	67.1	25.9	9.1	4.5	3.76	27.2	\$46,500	\$166
Puerto Rican	3.51	23.2	76.8	16.8	7.9	4.8	3.35	14.7	\$43,100	\$173
Cuban	3.01	39.6	60.4	31.5	14.1	4.9	2.80	6.8	\$68,500	\$214

Source: U.S. Bureau of the Census Report, 1980. General Housing Characteristics, part 15, Illinois. HC 80-1-A15, Tables 27 and 28.

MAP 1
The Chicago-Gary-Kenosha Consolidated Statistical Area

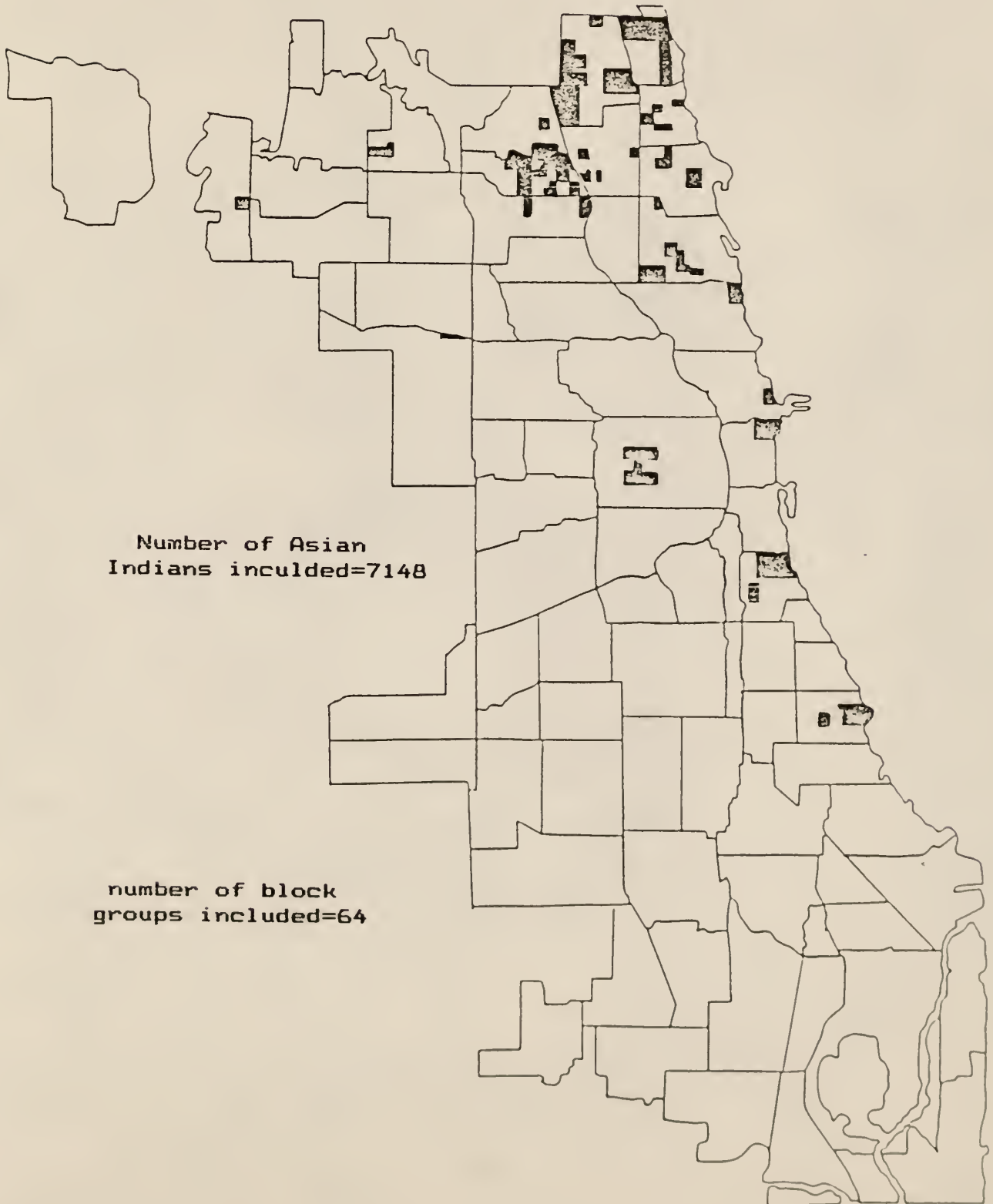


The shaded area represents the city of Chicago, study area.

Source: Squires, Gregory D., Bennett, Larry, McCourt, Kathleen, and Nyden, Philip 1987. Chicago: Race, Class and the Response to Urban Decline (Temple University Press: Philadelphia) pg. 32.

MAP 2

Distribution Of Asian Indians In Chicago, 1980.
Location Quotient > 1



NOTES

1. Throughout this discussion, black, white and Asian refer to persons of non-Hispanic origin.

2. The following location quotient was used:

$$L.Q.= ((X_i/X)/(Y_i/Y))$$

where, X_i = the number of Asian Indians in the block
group

X = the total number of Asian Indians in the city

Y_i = the total number of people in the block group

and Y = the total number of people in the city.

(Shaw, Gareth and Wheeler, Dennis 1985 pg.304).

3. Social and economic variables are not tabulated for individual Asian groups such as Asian Indians or Japanese, but are tabulated for all groups included under the Asian category. Therefore, this includes Chinese, Japanese, Filipino, Koreans, Vietnamese and Asian Indians as well as the smaller groups such as the Hawaiians, Samoans, Guamanians, Eskimo and Aluetians.

METHODOLOGICAL ISSUES

Sampling Error

As noted, STF3A is derived from sample data (a 17% sample for areas with greater than 2,500 population, 19% for the nation as a whole). Therefore, the data are estimates of the actual figures that would result from a complete enumeration. Two basic types of error are present within estimates, sampling and nonsampling error. The sampling error occurs as a result of choice of persons and housing units to be included in the sample. Nonsampling error exists in all census data, both sample and full count, and is a result of under-reporting, exaggeration, and collecting and processing errors which take place as the data are tabulated (STF3 Technical Documentation, Bureau of the Census, 1982 pg. 189-194).

The data utilized for this study are susceptible to the errors mentioned above. Although the total population of each block group is taken from 100% count data, the population totals for the individual ethnic groups are estimates, hence the totals do not match perfectly. This will cause the printed census reports to differ from those released on computer tape. For example, when analyzing areas which were exclusively black or exclusively white, block groups were found which were more than 100% black or >100% white. This was a result of sampling error. Obviously, when considering

percentage values the smaller the population total the greater the percentage error will be, no matter how accurate the estimates are (calculations of unadjusted sampling error support this). This was found to be true in this case, those block groups with small populations (generally less than 100) displayed the highest discrepancies when percentages of black or whites were considered. The reverse was therefore true, the larger the population totals, the less likely that the percentage figures produced were much greater than 100. The significance of these sampling errors cannot be tested at present as the table listing adjustment factors for the state of Illinois is not available.

The fact that larger percentage errors were found in block groups with smaller populations is important in the context of this study, as both the index of dissimilarity and Lieberson's P^* are computed from percentage distributions. Errors at the small scale level could seriously affect the overall indices calculated. In order to test the impact of the errors in block groups with small populations upon the indices of segregation, these indices were recalculated omitting block groups with less than 500 persons. This preliminary analysis found a decrease in the indices recorded, though the basic pattern and trends were very similar. To test this "similarity" both sets of segregation indexes were ranked and a Spearman rank correlation was computed. An R_s of 0.972 was obtained which is significant at

the 0.01 level. Therefore, although omitting block groups with less than 500 persons did reduce the indices calculated, by an average of 1.6 (standard deviation=0.34), the overall inferences remain very similar. Hence, those indices calculated using all block groups are used in the discussion of results. Also, block groups with small populations which are dominated by one ethnic group or another should not really be totally ignored as this pattern of residence will influence ethnic relations and should be reflected in the analysis. Scale dependency is an acknowledged flaw in the ID and P^* measures of segregation, as discussed in the methodology.

Scale Of Analysis

The use of administrative, or statistical, areas such as census tracts or congressional districts for data analysis can often be misleading, as these have no real social meaning in everyday life to most ordinary people. Hence, the case is made for the use of smaller units of analysis such as blocks, block groups (though it could be argued that block groups are fairly arbitrary in nature). Perhaps adjacent streets, as Roncek (1979) suggests, or local neighborhood areas (as defined by daily activity movements) would be better as units of analysis, though smaller units will encounter greater problems of suppression and possibly larger sampling errors. All census data is flawed, due to the method of data

collection . Such errors and inherent flaws have to be recognized and addressed in relation to the specific analysis being carried out, as has been attempted here.

CONCLUSIONS

Asian Indians are consolidating a niche within the historical context of immigrant experience in the U.S. which, in turn, provides a base in the overall competition for resources within an urban environment. The place of Asian Indians in U.S. society is a little ambiguous. Although adapting along the lines of the cultural pluralism model, there is still a definite homeward orientation in existence, the "myth of return" persists. The results of this study casts some doubt on the viewpoint of Asians Indians, and Asians in general, in general as a successful minority. Viewing Asian Indians, or any ethnic group, as a "successful minority" may in fact be patronizing, reflecting the obvious biases and attitudes of the host society. There is a certain degree of segregation or congregation of ethnic groups members, though it is difficult to determine whether this is caused by choice or constraint.

A higher degree of segregation was found than was expected, especially between individual Asian groups. A strong case is made for study of these individual groups. In other words, study of meaningful collectives not administrative categories is required for greater insight. Given the spatial isolation indices and indices of dissimilarity recorded in this study, it can be argued that Asian ethnic group enclaves are beginning to form, which will

result in slightly higher segregation and isolation in the future . The comparison of measures of isolation and interaction with actual interaction and exposure rates would be very useful for future research on segregation, as this would give much greater meaning to the indices calculated. Therefore, allowing more positive predictions to be made than the inferences which are possible from the indices presented here. It should be noted that this "snapshot" study may have analyzed a transition point in Asian Indians experience. Therefore, there is a need for longitudinal studies, which will only really be possible when the 1990 census is published.

A strong desire to avoid residential proximity with blacks is noted . Interestingly, race is not seen as a negative aspect of Asian immigrants in the eyes of the predominantly white host society . "It is not race that matters, but black race" (Massey and Denton, 1987 pg.823). For Asian Indians, who are generally dark skinned (but include much variety), this is important. As noted, in the U .K . Asians are discriminated against due to racial prejudice . The situation in the U .S . is different . Discrimination is more likely to be subtle and subliminal than outright racist. As numbers of Asian immigrants increase color and race may be a feature of future conflict .

Residential clustering was found to be associated with newer immigrants filling a certain space within the housing

market . "The spatial structure of the Chicago Metropolitan region is not a spontaneous expression of natural forces.....
... is a decision made by key institutional actors"

(Squires, Bennett, and McCourt, 1987 pg.93) . The role of urban gatekeepers is crucial in shaping the ethnic geography of any large city . Initial clustering may be greatly influenced by the housing opportunities offered through the system, as well as being a function of chain migration and ethnic solidarity.

The differences between city and suburb ethnic group population clearly deserves much greater analysis. The causes of these differences may be a result of family status, income, and length of stay in the U.S., but there may also be a more fundamental cleavage with the Asian Indian group. For example, Robinson (1987) found higher levels of dissimilarity between different ethno-religious groups, covered under the Asian Indian heading, than between those individual groups and whites.

Asian Indians and Asians as a whole are adding much diversity to the ethnic composition of the urban environment in the U.S . The conflict between the second and third generations of Asians and the immigrant generation will be crucial in determining future ethnic residential patterns. Such conflict between generations is more evident in the longer established groups, for example the Japanese, who have almost fully assimilated into U.S. life via inter-marriage

and rapid social mobility (Jones and Holli, 1981). This is especially true in areas such as Chicago where the Japanese population base is not really large enough to have any great political clout.

The retention of ethnicity, language and culture versus assimilation, acculturation and full participation in U.S. society will be the turning point for many ethnic groups. Asian Indians, though recent immigrants, have begun to build a fairly extensive network of ethnic institutions and organizations which will function to preserve group identity.

Through time some loss of cultural and ethnic identity will occur in the Asian Indian community, though probably not to the extent of the Japanese. The fact that Asian Indians are still being supplemented by immigration will aid in the retention of ethnic identity. Given the history of immigration and experience in other parts of the world, especially the British experience, Asian Indians will more than likely form permanent ethnic clusters in the U.S., whilst attempting to retain their ethnic identity and participate fully in occupational and educational fields. Whether they will be able, or be permitted to do this, is questionable.

BIBLIOGRAPHY

- Baker, Stephen R., Broe, Daniel M., and Kumar, Vimal. 1984. 'Characteristics of the Distribution of Emigrant Indian Radiologists, Pathologists and Anesthesiologists in the United States'. Social Science and Medicine Vol.19 No.8 pp.885-891.
- Bleda, Sharon Estee. 1979. 'Socioeconomic, Demographic, and Cultural Bases of Ethnic Residential Segregation'. Ethnicity Vol.6 No.2 pp.147-167.
- Boal, F.W. 1978. 'Ethnic Residential Segregation' Chapter 2 pp.57-97 in Social Areas In Cities- Processes, Patterns And Problems. Edited by D.T. Herbert and R.J. Johnson (Wiley: Chichester).
- Boal, F.W. 1987. 'Segregation' Chapter 4 pp.90-128 in Social Geography: Progress And Prospect. Edited by Michael Pacione (Croom Helm: London).
- Bogen, Elizabeth 1987. Immigration In New York (Praeger: New York).
- Bryce-Laporte, Roy S. (Editor) 1980. Sourcebook On The New Immigration: Implications For The United States And The International Community. (Transaction Books: New Brunswick, N.J.).
- Cahnam, Werner J. 1980. 'Nature and Varieties of Ethnicity' Chapter 1 pp.5-29 in The New Ethnics. Edited by Parmatma Saran and Edwin Eames (Praeger: New York).
- Census of Population and Housing: Summary Tape File 3A Illinois [machine-readable data file] / prepared by the Bureau of the Census. -- Washington: The Bureau [producer and distributor], 1982.
- Census of Population and Housing: Summary Tape File 3 Technical Documentation / prepared by the Data User Services Division, Bureau of the Census. --Washington: The Bureau, 1982.
- Chadney, James G. 1984. The Sikhs Of Vancouver (AMS Press: New York).
- Chandras, Kananur V. (Editor) 1978. Racial Discrimination Against Neither White Nor-Black American Minorities (R and E Research Associates: San Francisco).
- Chandrasekhar, S. (Editor) 1982. From India To America: A Brief History Of Immigration, Problems Of Discrimination,

Admission And Assimilation (Population Review Book: La Jolla, CA).

Coelho, George V. 1958. Changing Images Of America: A Study Of Indian Students' Perceptions (Free Press: Glencoe, Illinois).

Cortese, Charles F.; Falk R.F. and Cohen J.K. 1976. 'Further consideration on the methodological analysis of segregation indices'. American Sociological Review Vol.41 No.4 pp.630-637.

C.R.C. 1977. Housing Choice And Race Relations In An English City: A Study In Bristol (London).

Dasgupta, Sathi 1986. 'Asian Indian Community in the U.S.: a Case of Cultural Reaffirmation Within an Ethnic Enclave'. International Sociological Association = personal communication.

Duncan, O.D. and Duncan, B. 1955. 'A methodological analysis of segregation indexes'. American Sociological Review Vol.20 No.2 pp.210-217.

Duncan, O.D. and Duncan, B. 1957. The Negro Population Of Chicago: A Study Of Residential Succession (University of Chicago Press: Chicago).

Fisher, Maxine P. 1978. 'Creating Ethnic Identity: Asian Indians in the New York City Area'. Urban Anthropology Vol.7 No.3 pp.271-285.

Fisher, Maxine P. 1980. The Indians Of New York City (South Asian Books: Columbia, MO).

Fornaro, Robert J. 1984. 'Asian-Indians in America: Acculturation and Minority Status'. Migration Today Vol.XII No.3 pp.28-32.

Fugita, Stephen S. and O'Brien, David J. 1985. 'Structural Assimilation, Ethnic Group Membership, and Political Participation Among Japanese Americans: A Research Note'. Social Forces Vol.63 No.4 pp.986-995.

Gardner, Robert W., Robey, Bryant and Smith, Peter C. 1985. "Asian Americans: Growth Change and Diversity". Population Bulletin Vol.40 No.4 pp.1-44.

Glazer, Nathan (Editor) 1985. Clamor At The Gates - The New American Immigration (ISC Press: San Francisco, CA).

Glazer, Nathan and Moynihann, D.P. (Editors) 1975. Ethnicity:

- Theory And Experience (Harvard University Press: Cambridge, Mass.)
- Gonzales, Juan L. 1986. 'Asian Indian Immigration Patterns: The Origins of the Sikh Community in California' International Migration Review Vol.20 Spring pp.40-54.
- Helweg, Arthur W. 1984. 'Emigration and Return: Ramifications for India'. Population Review Vol.28 Nos.1 and 2 pp.45-57.
- Hess, Gary R. 1976. 'The Forgotten Asian American: The East Indian Community in the U.S.' Chapter 10 in The Asian American Edited by Norris Hundley Jr. (Santa Barbara, California).
- Hess, Gary R. 1982. 'The Asian Indian Immigrants in the U.S., the Early Phase 1900-1965'. Chapter 2 pp.29- in From India To America Edited by S. Chandrasekhar (Population Review Book: La Jolla, CA).
- Hirschman, Charles and Wong, Morrison G. 1984. 'Socioeconomic Gains of Asian Americans, Blacks and Hispanics: 1960-1976'. American Journal Of Sociology Vol.90 No.3 pp.584-607.
- Hurh, Won Moo and Kim, Kwang Chung 1984. Korean Immigrants In America: A Structural Analysis Of Ethnic Confinement And Adhesive Adaptation. (Associated University Presses: London and Toronto).
- Hurh, Won Moo, Kim Kwange Chung and Kim Hei Chu 1978. Assimilation Patterns Of Immigrants In The United States: A Case Study Of Korean Immigrants In The Chicago Area (University Press Of America: Washington D.C.).
- Iriye, Akira 1976. Introduction to The American Asian Edited by Norris Hundley Jr. (Santa Barbara, California).
- James, David R. and Taeuber, Karl E. 1985. 'Measures of Segregation' Chapter 1 pp.1-32 in Sociological Methodology edited by Nancy Tuma (San Francisco: Jossey-Bass).
- Jones, T.P. and McEvoy, D.M. 1978. 'Race and space in cloud cuckoo land' AREA Vol.10 pp.162-166.
- Kaiwar, Vasant 1982. 'Some Reflections On Capitalism, Race and Class' South Asia Bulletin Vol.II No.I, Spring.
- Kan, Stephen H. and Liu, William T. 1983. 'Residential segregation and concentration of Asian Americans in Chicago, 1980'. Paper Presented at the 14th Annual Meeting of the Southern Regional Demographic Group, October 19-21, 1983 at Chattanooga, Tennessee.

- Kan, Stephen H. 1983. 'Residential Segregation of Asian Americans in Five Central Cities, 1980'. Census and National Data Project Working Paper No.103.
- Kantrowitz, Nathan 1981. 'Ethnic Segregation: Social Reality and Academic Myth' Chapter2 pp.43-57 in Ethnic Segregation In Cities. Edited by Ceri Peach, Vaughan Robinson and Susan Smith (Croom Helm: London).
- Kearsley, G. and Srivastava, S. 1974. 'The Spatial Evolution of Glasgow's Asian Community'. Scottish Geographical Magazine Vol.90 pp.110-124.
- Kuo, Wen H. 1981. 'Colonized Status of Asian Americans'. Ethnic Groups Vol.3 No.3 pp.227-251.
- LaBrack, Bruce and Leonard, Karen 1984. 'Conflict and Compatibility in Punjabi-Mexican Immigrant Families in Rural California, 1915-1965'. Journal Of Marriage And The Family Vol.46 No.3 pp.527-537.
- Lam, Frankie 1986. 'Suburban Residential Segregation of Chinese and Japanese Americans: 1960, 1970, and 1980'. Sociology And Social Research Vol.70 No.4 pp,263-265.
- Langberg, Mark and Farley, Reynolds 1985. 'Residential Segregation of Asian Americans in 1980'. Sociology And Social Research Vol.70 No.1 pp.71-75.
- Lieberson, Stanley. 1981. 'An asymmetrical approach to Segregation' pp.61-82 in Ethnic Segregation In Cities edited by Ceri Peach, Vaughn Robinson, and Susan Smith. (Croom Helm: London).
- Liu, John and Cheng, Lucie 1982. 'A Dialogue On Race and Class: Asian American Studies and Marxism'. Chapter5 pp.139-63 in The Left Academy: Marxist Scholarship On American Campuses Vol.3. Edited by Bertell Ollman and Edward Vernoff (Praeger: Westport, CT).
- Lyon, Michael 1973. 'Ethnic Minority Problems: An Overview of Some Recent Research'. New Community Autumn pp.347.
- Massey, Douglas. 1978. 'Comment on Cortese, Falk and Cohen ASR Aug 1976, on the measurement of segregation as a random variable'. American Sociological Review Vol.43 No.4 pp.587-590.
- Massey, Douglas S. 1984. 'Ethnic Residential Segregation: A Theoretical Synthesis and Empirical Review'. Sociology And Social Research Vol.69 No.3 pp.315-350.

- Massey, Douglas S. and Denton, Nancy A. 1987. 'Trends in the residential segregation of Blacks, Hispanics, and Asians: 1970-1980'. American Sociological Review Vol.52 Dec. pp.802-825.
- Melendy, H. Brett 1977. *Asians In America: Filipinos, Koreans and East Indians* (Twayne Publishers: Boston, MA).
- Mohapatra, Manindra Kumar 1979. 'Overseas Indians in Urban America: A Study of their Attitudes and Experiences Involving Discrimination in American Society'. Nagarlok Vol.11 No.1 pp.120-141.
- Mookherjee, Harsha N. 1984. 'Some Observations of the Assimilation of Asian Indians in the United States'. Population Review Vol.28 Nos.1 and 2 pp.68-79.
- Morgan, Barrie S. and Norbury, John 1981. 'Some Further Observations on the Index of Residential Differentiation'. Demography Vol.18 No.2 May pp.251-256.
- Montero, Darrel 1979. *Vietnamese Americans: Patterns Of Resettlement And Socioeconomic Adaptation In The United States* (Westview Press: Boulder, Colorado).
- Reimers, David M. 1985. *Still The Golden Door: The Third World Comes To America* (Columbia University Press: New York).
- Rex, J.A. 1973 *Race, Colonialism and the City* (London: Routledge and Kegan Paul).
- Robinson, V. 1980. 'Lieberson's Isolation Index' AREA Vol.12 No.4 pg.307-312.
- Robinson, V. 1984. 'Asians in Britain: A Study in Encapsulation and Marginality'. Chapter 10 pp.231 in *Geography And Ethnic Pluralism*. Edited by Colin Clarke, David Ley, and Ceri Peach.
- Robinson, V. 1986. *Transients, Settlers, And Refugees: Asians In Britain* (Claredon Press: Oxford).
- Roncek, Dennis W. 1979. *Blocks, Tracts, and Crimes: Methodological Issues In Analyzing Urban Crime Patterns*. Unpublished.
- Sanders, Jimmy and Nee, Victor 1985. 'The Road to Parity: Determinants of the Socioeconomic Achievement of Asian Americans'. Ethnic And Racial Studies Vol.8 No.1 pp.75-93.

Saran, Parmatma 1977. 'Cosmopolitan From India'. Society Vol.14 No.6 pp.65-69.

Saran, Parmatma 1985. The Asian Indian Experience In The United States (Schenkman Publishing Co. Inc.: Cambridge, MA).

Saran, Parmatma and Eames, Edwin 1980. The New Ethnics: Asian Indians In The United States (Praeger: New York).

Shaw, Gareth and Wheeler, Dennis 1985. Statistical Techniques In Geographical Analysis (John Wiley and Sons: Chichester).

Squires, Gregory D., Bennett, Larry, McCourt, Kathleen, and Nyden, Philip 1987. Chicago: Race, Class and the Response to Urban Decline (Temple University Press: Philadelphia).

Stearns, Linda B. and Logan, John R. 1986. 'Measuring Trends in segregation: three dimensions, three measures' Urban Affairs Quarterly Vol.22 pp.124-140.

Taeuber, Karl E. and Taeuber, Alma F. 1964. 'The Negro As An Immigrant Group' American Journal Of Sociology Vol.69 No.4 pp.374-382.

Taeuber, Karl E. and Taeuber, Alma F. 1976. 'A practioner's perspective on the index of dissimilarity' American Sociological Review Vol.41 No.5 pp.884-889.

Thompson, Mark 1986. 'The Elusive Promise: New Immigrants Have Trouble Adjusting to American Life'. Far Eastern Economic Review Vol.134 Oct.16th. pp.46-51.

Thompson, Richard H. 1979. 'Ethnicity Versus Class: An Analysis of Conflict in a North American Chinese Community'. Ethnicity Vol.6 No.4 pp.306-326.

Tinker, H. 1977. The Bayan Tree (Oxford University Press: New York, Karachi, Delhi)

Varma, Baidya Nath 1980. 'Indians As New Ethnics: A Theoretical Note'. Chapter 2 pp.29-38 in The New Ethnics. Edited By Parmatma Saran and Edwin Eames (Praeger: New York).

Watson, J.L. 1977. 'The Chinese: Hong Kong Villagers In The British Catering Trade' pg.181-213 in J.L. Watson (ed) Between Two Cultures (Blackwell: Oxford)

White, Clay 1986. 'Residential Segregation Among Asians in Long Beach: Japanese, Chinese, Filipino, Korean, Indian, Vietnamese, Hawaiian, Guamanian and Samoan'. Sociology And Social Research Vol.70 No.4 pp.266-67.

White, Michael J. 1983. 'The measurement of spatial segregation' American Journal Of Sociology Vol.88 No.5 pp.1008-1018.

White, Michael J. 1986. 'Segregation and diversity measures in population distribution'. Population Index Vol.52 No.2 pp.198-221.

Winship, C. 1977. 'A re-evaluation of indexes of residential segregation'. Social Forces Vol.55 No.4 pp.1058-1066.

Wong, Morrison G. and Hirschman, Charles 1983. 'Labor Force Participation of Asian American Women'. Sociological Perspectives Vol.26 No.4 pp.423-446.

ETHNIC RESIDENTIAL SEGREGATION: THE CASE OF ASIAN INDIANS IN
CHICAGO, 1980.

by

James Kilgannon

B.Sc.(Hons), University of Glasgow, 1986

AN ABSTRACT OF A THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF ARTS

Geography

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1988

ABSTRACT

In the light of recent increases in Asian immigration into the U.S., the residential pattern of Asian Indians as an ethnic group in Chicago is analyzed. Using STF3A as a data source indices of segregation, the index of dissimilarity and Lieberman's P^* , are calculated and analyzed in the context of spatial assimilation of a recent immigrant group. Calculations are made at the block group level, a smaller spatial mesh being considered more accurate than the most commonly used census tract. The indices of segregation calculated for Asian Indians is compared and contrasted to the following ethnic groups: whites, blacks, American Indians, Japanese, Chinese, Filipinos, Koreans, Vietnamese, Mexicans, Puerto Ricans, and Cubans.

In order to attempt to explain the residential pattern of Asian Indians their distribution is mapped (using location quotients), and a regression analysis is carried out to identify salient socio-economic variables associated with clustering of the ethnic group.

Asian Indians are found to be somewhat residentially clustered, higher indices of segregation are found than were expected. A spatial separation from blacks is noted. Segregation between individual Asian groups is fairly high, higher than Asian-white segregation in some cases. Asian Indians are least segregated from Koreans. Tentative

indications of small Asian clusters are found. Analysis at the block group scale points to greater degrees of segregation than are noted at the cruder census tract level.

Clustering of Asian Indians is found to be associated with recency of arrival, and available positions in the urban housing market. A very high degree of suburbanization is noted among Asian Indians. Differences between the socio-economic characteristics of those in the city and those in the suburb are recognized.

Based on the results of this study and Asian Indian experience in other countries the formation of Asian Indian enclaves is suggested. The need for study of individual Asian groups over time is called for, as is the study of suburban ethnic residential segregation patterns.