POPULATION GEOGRAPHY

Volume 5 Numbers 1 and 2 June-December, 1983

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GUEST EDITORIAL PREFACE

MARIA LUISA GENTILESCHI
CAGLIARI, ITALY

This issue of the journal includes a group of communications from A. Soonthorndhada (Bangkok, Thailand), Nora C. Huang (Taipei, Taiwan), S. Nangia and M. J. Samuel (New Delhi, India), Atsushi Otomo (Utsunomiya, Japan), and Prithvish Nag (Calcutta, India), which were read or sent to the symposium on the theme "The Role of Women in Population Redistribution", held in Cagliari, on September 7-9, 1982. The meeting was hosted by the University of Cagliari, Italy. M. L. Gentileschi, M. Zaccagini and G. Sabattini were responsible for the organisation.

The symposium, organized by the Commission on Population Geography of the International Geographical Union, accomplished a research project whose outline was suggested by Commission President Professor J.I. Clarke, during the symposium held at Nagoya, Japan, in 1980. On that occasion, J. I. Clarke observed the lack of studies, including geographical ones, on the female component of population, as a consequence both of the limited availability of specific statistical data and of the very recent development of interest in female problems. In calling for a highly diversified contribution from scholars of all countries and varying scientific backgrounds, he indicated as a theme the investigation of woman's role in population redistribution under the profile both of moves and spatial differences in demographic growth, with the perspective that such a role is not always necessarily passive but could also be active, particularly in more advanced societies. This theme was entirely consonant with the Commission's past endeavours regarding studies on population redistribution.

The call to collaborate on this project was duly answered by the numerous participants at the Cagliari symposium, where 30 papers were included in the programme and four others sent for publication. The participants, the majority women, came mostly from industrialized countries, with only a minority from developing nations. The problem of female migration in developing countries was, however, the prevailing theme in the papers presented. This fact is logical if we consider that those countries currently demonstrate massive development of the forms of mobility, such as urbanization, rural exodus and mass emigration in search of jobs which attract most the attention of scholars. Consequently, the woman's passive role again emerged, as she follows man or is forced to find a job rather than her taking an active role represented by autonomous choices or at least a more determining role in family decisions.

Given the geographical location of the symposium, a preferred theme was that of

population moves in the Mediterranean basin, a consequence of development mechanisms primed by some urban centres as well as the realization of industrial areas in the West-Central Europe.

Then came a group of Asian countries, unified by their consideration of common problems. Of these, four are included in this volume. It was noted that while men predominate in rural-urban migration in Moslem countries as well as in India, this was not strictly so in East and Southeast Asia where young, educated women, form a large part of the inmigrants to cities. A. Soonthorndhada observes this in case of Thailand where, although men migrate more than women in the country as a whole, the female flux is prevalent toward Bangkok and is composed for the most part of unmarried women employed in private services.

Sometimes this prevalence concerns only a particular age group in which work-oriented mobility is added to that caused by marriage. In any case it is accentuated where industrial development relies on the availability of cheap labour and which lends itself, due to socio-family characteristics, to the establishment of a type of 'reserve', as in Korea and Taiwan (Nora C. Huang). If in some countries the shift of working women toward cities is linked to advanced connotations, such as industrial employment, clerical positions, commerce and a relatively high education level, as in Taiwan, in other countries, like the Philippines, the concentration of urbanized female labour engaged in domestic services gives a much more traditional picture, similar to that of South American countries.

In any case, the varying causes and conditions distinguishing regional and national situation require detailed micro-analytic studies for clarification, similar to those carried out on this occasion by Nora C. Huang on a sample of 96 women, who inmigrated to Taipei, and by S. Nangia on about 900 migrants (male and female), who established residence in the industrial city of Salem, Tamilnadu, India.

Above and beyond statistical information on the principal sex-differentials, it is also possible to thus reconstruct the causes and modalities of shifts, emigration channels and vertical mobility in social status and employment. The great differences emerging between flow from the country and inter-urban flow, for example are typical of a rapidly evolving society, one where urbanization is seen as an important means of economic and social promotion.

A different picture emerges from the contribution of Atsushi Otomo, who analyses the mobility of Japanese women based on the census data and then examines the causes on the basis of a 1981 report. The national situation regarding female mobility is examined for short and long distances, not only urbanization. Although in a more mature socio-economic phase, which has witnessed a decreased urbanization flux for several years and a general fall in mobility, a certain disparity between the two sexes is still evident; in fact mobility among women is predominantly less intense, especially if limited in range. The varying incidence according to age as compared to men tends to attenuate, but the causes of shift are still to be principally found in non-economic factors. Also in Japan the

masculine component is predominant in mobility related to major urban centres.

Finally, a paper by Prithvish Nag examines the female role in internal migration in Zambia. Here too the influx of prevalently young and relatively educated women towards the city is repeated, in connection with the phase of intense urban growth experienced by this country, particularly in the seventies.

In conclusion, the papers collected here illuminate the relationships between development and migratory models as referred to the female component, demonstrating that if migratory selectivity is on the one hand still linked to the typical constraints of a traditional culture, on the other hand the implementation of governmental and other policies is gradually changing the pattern.

Cagliari, July 1983.

THE DETERMINANTS AND CONSEQUENCES OF FEMALE MIGRATION IN THAILAND

A. SOONTHORNDHADA
BANGKOK, THAILAND

Female migration in Thailand, especially from rural areas to the Bangkok Metropolis, is an important migratory phenomenon which leads to an unfavourable population distribution. Generally the migration level in Thailand is low but many women from the rural areas, especially from the Northeast Region, move to Bangkok Metropolis to seek work. Findings reveal that the majority of migrants are young, single women. Economic hardship in their hometown is the main reason for movement. Women migrants find it relatively easy to participate in the Bangkok labour market. Service work is the main source of employment. For the temporary migrants, it was found that those from the Northeast Region tend to return to their hometown in higher proportion than those from other regions. This was particularly so among young women migrants.

This paper is an attempt to examine the determinants and consequences of female migration in Thailand. Evidently, the overall level of migration in Thailand is low. Data from the 1970 census indicated that only 6 per cent of the total population changed their residence in the preceding 10 years. For the whole country during the 1955-1960 period, male migrants exceeded female migrants by 31 per cent. During the 1965-70 period, the excess of males over females had dropped to only 15 per cent. This indicates that female migration is playing an increasingly important role in population distribution. The most important characteristic of population change is the influx of migrants into Bangkok Metropolis in which females always out number males. This paper will cover the process of female migration, as well as its consequences for the growth of population in urban areas. Some effects of migration on the female migrants themselves will be examined.

Sources of Migration Data

There are three main sources of data for investigating migratory trends. These are censuses, population registration and surveys. Since 1960, questions on migration have been added to the census, asking the people about their migration history during intercensal time and five years prior to the census. From these questions, five year migrants and lifetime migrants can be structured.

Though we can obtain some information on various attributes of migration, such as volume, migration streams and the characteristics of migrants, from the censuses yet there are some limitations to migration data. We do not know the characteristics of the lifetime migrants at the time of their moves,

nor do we know the frequencies of movement. However, some of these details can be obtained from population surveys.

The second source of data is population registration. In Thailand, the Registration Act requires that all residents register their residence with their respective registration unit in the district office or the municipality. However, there are some discrepancies in data from this source because people sometimes do not bother to report to the officials, and sometimes they delay in informing about their movement. Findings from several surveys revealed that migrants found it hard to make decisions about the duration of their residence. If they found it possible to stay longer at the place of destination, then they would let their families stay with them. Only then would registration have been effected.

The third data source is population surveys. Even though the study of internal migration is new, some surveys on migration have given considerable information, such as the characteristics of migrants, migration patterns, and the antecedents and consequences affecting population distribution. The major source of information about internal migration, especially to Bangkok Metropolis, can be derived from the Survey of Migration in Bangkok Metropolis carried out annually since 1974 by the National Statistical Office. The characteristics of migrants are recorded in tables according to age, sex, marital status, occupation and participation in the labour force, reasons for migration, methods of seeking work, educational attainment and duration of residence. The other surveys on which this report is based are : *Survey of Migration in Bangkok Metropolis* (National Statistical Office, 1981), *Urban-rural Migration Differentials in Thailand, Female Migrants in Bangkok Metropolis* (Piampiti, 1977), and *Recent Migrants in Bangkok Metropolis : A Follow-Up Study of Migrants' Adjustment, Assimilation and Integration* (Chamratrithirong, 1979).

Characteristics of Female Migrants

Because migration is a selective process, we can assume that female migrants originally possess some different characteristics than the female non-migrants. Evidently, it was found that those who are between the late teens and early twenties have a greater tendency to move than those who are in other age groups. According to Lee (1969), men tend to migrate much more than women especially over longer distances. This has occurred with the internal migration patterns in Thailand, except for migration to Bangkok Metropolis for which female migrants outnumber male migrants. This is due to the demand of the labour market for service workers and the figures show that the number of women moving to Bangkok Metropolis to work as maids, waitresses and masseuses is increasing yearly. For the marital status of the female migrants, the figures indicate that approximately 72.9 per cent are single while 22.9 per cent are married.

Female Labour Force Participation

Based on the reasons for migration, economic objectives are outstanding among both male and female migrants. Seeking a job in the primate city represents the most significant reason for moving there, compared with other stated reasons like wanting to see the capital city, familial affiliation or furthering education. We will discuss the relevant factors which facilitate labour force

Table I

Number of Female In-Migrants Aged 15 and Above by Marital Status

Marital status	Total	Age group 15-19	20-24	25-29	30-39	40-49	50-59	60+
Single	46451	29308	12492	3229	1152	256	14	—
Married	14567	1593	5051	3343	2945	1052	498	85
Do not stay with spouse	469	43	85	14	185	114	14	14
Widow	1038	28	14	43	185	114	228	426
Divorced	313	—	14	71	100	57	43	28
Separated	850	28	170	185	242	155	56	14
Total	63688	31000	17826	6885	4809	1748	853	567

Source : National Statistical Organisation, Thailand : *The Survey of Migration in Bangkok Metropolis*, 1981.

participation among those who moved to the big city, particularly the autonomous. The factors which are important in labour force participation of women migrants can be classified in two categories : constraints and facilitating factors.

Constraints are those factors concerned with cultural definitions of role and occupations, norm, status, education and job availability. All societies view certain roles as being right for the majority of its women. This concept is a common limitation for the type of job women are able to do. Job availability also varies with the educational level of individuals, as women who are better educated have more chances of getting a better job, and being educated may act as a positive force in motivating women to move. Evidently, lifetime migrants who move to Bangkok Metropolis to further their education have a tendency to seek work in Bangkok Metropolis instead of going back to their place of origin after they finish their education. Facilitating factors are concerned with the anonymity of female migrants who take part-time or unskilled work. In most urban centres in developing countries, there is a huge demand for unskilled work like domestic service. Anonymity can be particularly helpful for women who might have some kind of stigma attached to their status; therefore it facilitates women to participate in the labour market. The figures in Table 2 show that most female migrants who move to Bangkok Metropolis are employed in the private sector and

this is a much higher proportion than those women who already live in Bangkok Metropolis. Private employees are those who are involved in services like shop assistants, private domestic workers, maids, waitresses and unskilled labour.

Table 2

Number of In-migrants by Current Occupation

Current occupation	Percentage of employed in-migrants
1) Professional, technical and related workers	1.59
2) Administrative, executive and managerial workers	0.40
3) Clerical workers	2.02
4) Sales workers	6.97
5) Farmers, fishermen, hunters, loggers and related workers, miners, quarrymen and related workers	0.47
6) Workers in transport and communication occupation	0.25
7) Craftsmen, production-process workers and labourers	30.24
8) Services, sport and recreation workers	58.06
	100.0

Source : National Statistical Organisation, Thailand, 1981.

Female Migration Process

The migration process describes how and why people decide to move. To answer such questions we have to identify the causes of migration. It is reasonable to classify the patterns of mobility in three main categories: those who move with their whole family, those who move alone and those who move with some family members. These three types of migration vary according to individual purposes for movement. According to Ravenstein (1889), people usually move to an industrial center where employment is available. Besides this reason, distance to the center is also involved in the migration decision, as people prefer moving a short distance. The factors migrants consider before deciding to migrate are important, and certainly they have to estimate what they expect to gain at their destination. Cost of migration would cover the probability of being employed, cost of living and transport costs concerning which better information would be helpful in making their final decision.

Table 3

Sources of Job Information Among Working Migrants by Sex

Source of job information	Per/cent	
	Male	Female
Job agency	5.1	3.3
Relative	35.7	46.4
Friend/people whom migrants knew	21.9	28.8
Self-informed	33.7	20.9
Old job	3.6	0.6
Total	100.0	100.0
N	196	153

Source : A Chamratrithirong : *Recent Migrants in Bangkok Metropolis* 1979.

Table 4

Percent of Migrants with Job or Promise of Job before Move

	Male	Female
Having job waiting	59.4	64.5
Not having job waiting	40.6	35.5
Total	100.0	100.0

Source : A Chamratrithirong : *Recent Migrants in Bangkok, Metropolis*, 1979.

The figures from the two tables above indicate that migration is usually based on certain reliable sources of information which means that employment and financial security in the new environment were confirmed as important factors.

Cost of transport is an intervening obstacle to the migration process. People from rural communities who migrate to search for a job need financial assistance at the very beginning of the move.

Reasons for Migration

Reasons for migration involve both pull and push factors. Push factors include the need for land, shortage of water, land tenure and absence of industrial employment. Pull factors include the seasonal needs for farm labourers, wage differentials and the need to travel for further study. Others include family affiliation like marriage or a move with the head of household or relatives. A major cause of migratory behaviour is economic hardship in the place of origin which pushes people to leave for a better opportunity in the big city. This factor describes not only the migratory stream to Bangkok Metropolis but also those to urban places in different regions. Data from the *Longitudinal Study of Social, Economic and Demographic Change* conducted by Chulalongkorn University also indicated that 56 per cent of migrants in urban places stated an economic reason as the primary one for moving. The combination between land shortage and population density creates the migration decision, especially migration from rural areas to the big city. Infertile soil and lack of land for cultivation motivated rural inhabitants to seek jobs in urban areas where modern technology and economic development provide them with job opportunities and different wages compared with their place of origin.

The migrants who stated educational attainment as their reason for moving were pulled towards the urban centers because of their higher level educational institutions. Findings from one survey show that the individuals who attained higher education found it difficult to get a job in their hometown, and consequently they tended to stay longer or permanently in the capital (Prachuabmoh, 1974). The reasons for in migration by females are in Table 5.

Return Migration

It was discovered that of the inflow of migrants from different provinces to Bangkok Metropolis, those people who moved from the Northeast tended to return to their hometown in higher proportions than those from other regions. This was particularly so among young women migrants who moved alone and worked as private employees.

Table 5

Percentage of Females in Migrants by Reason for Moving

Reason for moving	Male	Female
1. Change of job	6.9	3.4
2. Looking for work during agricultural slack season	57.2	55.6
3. To study	16.2	14.6
4. Official transfer	3.7	1.1
5. Move with head of household	14.5	24.5
6. Other	1.5	0.8
Total	100.0 (48635)	100.0 (74240)

Source : National Statistical Organisation, Thailand : *Survey of Migration in Bangkok Metropolis*, 1981.

Educational status was also a relevant factor to be investigated among return migrants. Return migration rates seemed to be slightly higher for less educated female migrants (Chamratritirong, 1979).

Seasonal migration was also a characteristic of return migration. It was obvious that during the period of the agricultural slack season, a large number of migrants moved to Bangkok Metropolis in order to find a temporary job. The number of in-migrants generally tended to increase from March to May and then decline from July to September.

Another reason for return migration was the problem of social assimilation, or the ability to adjust to a new environment. The ability to assimilate and adjust varies according to many factors, such as the availability of accommodation, presence of relatives, level of education and work status. It was found that male migrants could adjust better than women. Also less educated individuals found it difficult to form friendships with their new neighbours as compared with those from their place of origin.

When individuals were asked about their attitudes towards living in Bangkok Metropolis for different aspects such as income, security, housing, and public facilities, the responses revealed that they were generally dissatisfied with life in Bangkok Metropolis, an attitude common to both male and female migrants. The migrants found it difficult to cover the high expenses for living in Bangkok Metropolis, especially in the case of single female migrants who moved alone and had no relative to help them find accommodation. This finding is supported by data which revealed that return migration was predominant among younger women, particularly those who moved from rural areas (Chamratrithirong, 1979). The proportion of women who returned home was greater than men, with 30.8 per cent of women as compared to only 22.3 per cent of men. It is this dissatisfaction with living conditions in Bangkok Metropolis which ensures that seasonal migrants return home. The major group of women migrants who returned home are 15-24 years of age, similar to male return migrants.

The question of intended duration of residence can represent the probability of return migration. Most informants indicated they could not give an exact duration of stay in Bangkok Metropolis (National Statistical Organisation, 1978), thus implying that their work status was unstable.

Table 6
Number of Female Migrants by Expected Duration of Residence and Age group

Age group	Total	Less than 3 months	3-5 months	6-8 months	9-11 months	More than 1 year	For ever	Cannot fix	Unknown
0-9	4281	1.80	2.51	2.46	—	9.35	42.49	45.95	0.72
10-19	27308	2.61	6.09	4.33	0.11	6.27	24.69	52.67	3.28
20-29	18423	2.37	5.01	3.24	0.17	6.38	29.24	51.24	1.63
30-39	3355	2.74	2.50	2.95	0.23	4.44	41.19	45.24	0.68
40-49	1224	3.10	1.23	4.41	—	2.84	44.44	41.09	1.87
50-59	611	1.31	1.31	2.45	—	3.76	43.20	44.18	3.76
60+	638	6.11	3.60	1.25	—	3.60	50.63	3.45	—
Total	55840	2.51	5.05	3.79	0.13	6.02	29.02	50.74	2.30

Source : National Statistical Organisation, Thailand : *The Survey of Migration in Bangkok Metropolis*, 1978.

Conclusion

The dramatic increase in the volume and rate of female migration in Thailand, especially Bangkok Metropolis, is a crucial issue creating economic and social problems. What the Government plans to do is to delay and stop the inflow stream of rural migration, even though it will be a difficult task. As long as economic pressure plays an important role, Bangkok Metropolis will remain attractive to rural people who find it difficult to earn their living because of a lack of job opportunities at their place of origin. Every year during the agricultural slack season, huge numbers of migrants flock to the Metropolis in order to take temporary work and some stay in Bangkok Metropolis if their job search is successful. It was found that the proportion of the population who were born outside the Metropolis is as high as 35 per cent. Among social factors, the desire for further education and family reasons acts as migratory motives. Individuals who move to continue their education tend to reside in the city after they complete their education and some findings revealed that nearly 10 per cent move for this reason. Regarding family reasons, people move either to follow the head of the household or for marriage. The redistribution of population between rural and urban areas caused by migration results in the labour force at the place of origin becoming disproportionately old because only the young, active population, especially women, move into the big cities. This leads to the problems of overcrowding, housing shortages and pollution, which are found in all developing cities today.

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FEMALE MIGRATION TO TAIPEI PROCESS AND ADAPTATION

NORA L.H. CHIANG HUANG
TAIPEI, TAIWAN

Women form an increasing proportion of migrants and of the non-agricultural labour force in Taiwan. However, many questions regarding female migration in Taiwan have remained unanswered since the focus of the migration literature in the past has been on male migration. This study attempts to redress this imbalance. This paper examines the decision process of rural-urban migration and adaptation of rural female migrants to the Taipei Metropolis. The analysis is based on interviews of ninety-six female migrants from villages who have moved to Taipei.

The reasons for migration are severalfold. With rapid expansion of employment in the manufacturing and urban service sectors, women are attracted to urban occupations, most of which require unskilled labour. Migrants are also motivated by psycho-social reasons. The "glamour" and "convenience" of city life and greater chances for further education through work-study programs are all perceived by migrants to provide alternatives to hard and unrewarding farm lives.

Though the initiative and final decision to move come from the migrants themselves, most only do so, however, with the consent and advice of their parents. The choice of moving to Taipei, rather than some other city, is mainly influenced by friends or relatives who are already there. Their initial jobs and accommodations are arranged by friends and relatives. The majority of women take up unskilled or semi-skilled occupations. Even though they change jobs frequently in order to find better terms of jobs and pay, they experience limited upward mobility.

Homesickness, unfamiliarity with the city environment, limited resources, and social lives are major problems for the rural female. Frequent home visits are made in between jobs to relieve themselves of homesickness and the pressures of city life. Once settled, they do not segregate themselves by village origins in their occupations or places of residence in the city, but they have a tendency to interact socially with other migrants of rural origins rather than city people.

In spite of the large number of studies on rural-urban migration in Taiwan, there has not been any studies devoted to the migration of women to cities in Taiwan. Several studies in the past have been devoted solely to male migrants (Huang, 1971; Parish, 1972; Speare, 1969; Gallin and Gallin, 1974). The objective of this research

is therefore to redress this imbalance.

The background of female migration in Taiwan would be understood by the changing structure of the economy and the growth of the female labour force. Since the late 1950s and early 1960s, traditional industry has been transferred from import to export substitution (Galenson, 1979). From 1952 to 1976, the share of the agricultural net domestic product decreased from 36 per cent to 13 per cent while that of industry increased from 13 per cent to 30 per cent (Council for Economic Planning and Development, Republic of China, 1978).

Against this background of the changing structure of the economy, the proportion of women in the labour force engaged in agriculture dropped from 64 per cent in 1956 to 39 per cent in 1976, while the proportion in manufacturing and commerce rose from 16 per cent to 41 per cent. The manufacturing industry accounted for 37 per cent of the total national product and employed 779,000 females, or 41 per cent of the female labour force in 1978.

The availability of female workers has been an important factor in the development of light industries, led by textiles, electronics and plastics. Involvement of the island economy in the international market creates a demand for unskilled and relatively cheap labour. Since a sizable portion of Taiwan's manufacturing sector is export oriented, wages must be kept competitively low. Taiwan is one of the major countries in Asia which is favoured as an "offshore sourcing" site by the multinational corporations, partly because of the low wages paid to females (Lim, 1978).

Since the onset of industrial growth, the female labour force has become indispensable to Taiwan's economic development (Hwa, 1976; Chang, 1978; Wilbur, 1981). Its growth rate has doubled in the last twenty years. This increase was associated with a rise in the educational level of females, technological improvements that lessen the burden of household work, changing traditional roles of women, and the demand of industrialization for labour. In the 1960s, females tended to drop out of the labour force permanently when they married and began to have children. In the 1970s, women re-entered the labour force when family responsibility lessened, leading to a second peak in the participation profile between ages 40 and 45 (Chang, 1978, p. 280). The labour participation rate of females, however, is low compared to that of developed countries such as Japan and the United States, but the gap has shrunk in recent years (Chang, 1978, p. 281). The labour force participation rate tends to fluctuate more for females than for males. For example, in 1971, the female labour participation rate was 35 per cent, in 1973 it increased to 42 per cent, in 1977 it dropped to 37 per cent and in 1979 it rose again to 39 per cent (Wu, 1979). The participation rate did not return to its previous high level since women who left the labour force in 1973 did not return to the job market (Huang, 1978). The female labour force is thus regarded as a labour reserve ready to meet the demands of future

industrial growth, depending upon prevailing conditions.[1]

The extent of work-related female migration from rural to urban areas is not known. It is not possible to decide from the statistics which women move independently and which move as associated migrants accompanying or joining husbands or parents. The rate of migration is higher for females than for males, as demonstrated by the total movement rates.[2]

Information on migrant women who join the labour force can nevertheless be obtained from the Agricultural Census of 1975 which showed that among 264,192 persons who left their farms to work during 1973-1975, 40 per cent were women. Surveys have shown that the proportion of women leaving villages for the cities has increased over recent years. In 1975, the ratio of male to female migrants was 2 to 1 in a sample of 1,500 households taken from western Taiwan (Liao, 1977). Several studies of factory women suggested that over 50 per cent of the female factory workers are from villages (Huang, 1977; Kung, 1978; Diamond, 1979).

A village study by Wolf (1972) in the 1950s found that factory employment had virtually become an automatic step for girls after primary school. Commuting to a nearby industrial town or migrating to a city are common methods of joining the labour force. More recently, as the urban service sector has grown, the number of girls who are employed in urban services has also increased. Opportunities available in the city include commercial activities and services of various kinds, some of which require skills beyond primary school education, particularly vocational training.

The presence of manufacturing industries and services in cities has resulted in a concentration of rural female migrants in the cities of the western coastal plain. In the past, when the location of industries was not guided through planned industrial estates, factories were located in or near large cities, where facilities and services are most readily available. As a result, the three nuclei of industrialization—Taipei, Taichung and Kaohsiung—developed into metropolitan areas. The rapid growth of these cities is due to the large number of migrants who moved from the countryside. Three-fifths of the population added to the Taipei Metropolitan Area per year, for instance, is of rural origin.[3]

1. Monthly Bulletin of Labour Statistics, Republic of China : *Special Report on the Relationship between Female Fertility and Employment in Taiwan Area, 1979.*

2. As described in the *Demographic Fact Book* (Ministry of Interior, Taiwan), there are three migration streams : (1) Between *hsiens* (Counties) or *shihs* (cities) in Taiwan area; (2) between *hsiangs* (rural townships) and (3) between *chens* (urban townships), *shihs* or *ch'us* in the Taiwan area. The total number of movements is the sum of in-migrants and out-migrants who move between *hsiangs*, *chens*, *shihs* or *ch'us* in the Taiwan area plus two times those who change residences within the same *hsiangs*, *chens*, *shihs* or *ch'us*. The total movement rate is the total number of movements per 1,000 midyear population.

3. Council for Economic Planning and Development, Urban Development Division, Taiwan : *A Research on the Development of the Taipei Metropolitan Area, 1979* (in Chinese). A more conservative estimate of the proportion of migrants to Taipei is 51 per cent of the total populatian in C.L. Tsai (1982) : "Migration and population growth in Taipei Municipality", *Industry of Free China*, March, pp. 9-25.

The Research Problem and Propositions

This paper discusses female migrants who moved from villages to the Taipei Metropolis. The two major stages in the migrants's experience, the decision-making process and adaptation in the city, form the focus of this study. As a guideline for inquiry, five questions were asked at the beginning of the research :

1. What are the factors in the urban system that act as "pull" factors, and how are these perceived by migrants ?

2. What are the motivations for migration and to what extent are these goals achieved ?

3. What factors affect the individual female migrants' decisions to move and where to move ?

4. What are the means of social support for migrants as they seek to secure jobs and housing ? How do individuals adapt to their working and living environments ?

5. What kinds of problems are faced by the female migrants in the city ? In what regard does the rural background pose problems of adaptation, and to what extent does the urban system pose dificulties for the migrant ?

My overriding assumption is that migration behavior and patterns are best understood in relation to the continuing ties between people at the points of origin and destination. This study will determine the extent to which kinship and friendship ties play a role in the migration experiences, i.e., the decision-making process and the adaptation of female migrants.

There are three propositions to be examined. First, it is assumed that the migration experiences of rural females are based upon the interaction between the origin and destination prior to and after migration. Autonomous decisions made by females are subject to parental approval and often depend on knowledge of, or prior experience in, the city. Information about jobs and housing, for instance, may be obtained from friends and relatives who are already in the city. Decisions about where to move and how to move, as well as subsequent adaptation, may be explained by the links of potential migrants to friends or relatives already there. Upon arrival in the city, the female migrants depend on an informal network of friends and relatives for housing, introduction to jobs, and solace during an initial state of bewilderment. It is assumed that, later on, continuing ties between former migrants and the village ease the anxiety for potential movers. As a result, previous migrants generate a channelized migration pattern which amplifies the attraction of the city.

Second, social and economic conditions in Taiwan may have created an urban system which is receptive to migrant adaptation. Industrial growth that has accompanied urbanization may have enabled migrants to obtain jobs easily. Occupational change is proposed here as a strategy used by migrants to cope with adaptation difficulties. This will be in contrast to other Third World countries, where women usually are engaged in the traditional, informal sector of the urban economy, mainly in small scale trade and services, such as in India (Singh, 1978), Columbia (Whiteford, 1978), Latin America (Jelin,

1977) and Africa (Sukarkasa, 1977).

Third, as the migrants belong to two different dialect groups, it is assumed that they may depend on *t'ung hsiang* or "people of common origin" (of the same county, or the same dialect) for their job procurement and in forming their new social network. This is true of male migrants who came from rural areas, as Gallin and Gallin (1974) and Yin (1975) reported. Whether these traits can be generalized to female migrants will need to be demonstrated.

Types of Female Migrants

This study is based on interviews of 96 female migrants in the Taipei Metropolis in 1979.[4] Sixty per cent (58 out of 96) of female migrants interviewed lived in Taipei County. Fewer migrants lived in the city proper because it was more costly. The satellite town of Chungho, Yungho, Sanchung, Hsinchuang, and Panchiao not only had lower living costs, but also had many factories, retail shops and urban services enabling women to find employment.

The subjects who were interviewed for this research formed a cross section of migrant women. Included were both single and married women between the ages of fifteen and forty-four who had lived in Taipei from a few months to nineteen years. The largest proportion was in the age group 20-24. The mean and median were 25.7 and 25 respectively, indicating a normal distribution of age groups. At the time of their arrival in Taipei, the majority (46 per cent or 44 out of 96) was nineteen or younger. Fifty-three of the ninety-six women respondents were married. The rest of the sample consisted of forty-one single women, one divorced woman and one widow.

Ten per cent of the women were illiterate or had two to three years of primary school education. Thirty-four per cent had completed primary school, 29 per cent had completed junior high school, 20 per cent had finished senior high school and 6 per cent were currently in college.

Their present occupations in the city were diverse (Table 1). One-fourth of the respondents were working in factories. Fifteen per cent worked in semi-skilled occupations such as waitressing, dressmaking, hairdressing and sales. Fourteen per cent were engaged in office work as clerks, typists, accountants, nurses and telephone operators. Eight per cent were managers of shops, grocery stores and factories. A small number (4 per cent) of the employed population were in unskilled manual work such as janitors, domestic servants, and construction workers. The largest proportion (31 per cent) were housewives and students. However, a large majority 92, or 96 per cent, of the migrants had working experience in the city even though some quit their work after marriage.

Among the forty-one single women, only one came to the city just to study.

4. Interviews of rural households were first conducted in the villages. Women who were reported to have moved to Taipei from these households were sought after for interviews. A much smaller number than expected was interviewed mainly because the women could not be located by addresses given by their parents. Results of the village study were reported elsewhere (Huang, 1982).

There were six women who worked and studied at the same time and thirty-four who worked only. Among the fifty-three married women, twenty-nine were working, twenty-one worked before marriage, and only three never worked before or after marriage. There was one divorced woman and one widowed woman, both of whom had been working since they were married. A large majority of women therefore had working experience in the city.

Table 1

Occupation of Female Migrants

	No.	%
Factory workers	24	25.0
Services	14	14.6
Office workers	13	13.5
Managers of own shops or factories	7	7.3
Manual workers	4	4.2
Working and studying	4	4.2
House wives, students	30	31.2
	96	100.0

The respondents can be divided into two groups according to whether they moved to the city by themselves (autonomous moves) or whether they moved with their husbands or parents (marriage and associational moves). Eighty-three of the women were autonomous movers, twelve moved with their husbands, and only one moved with parents. Table 2 presents a profile of women who are classified according to their marital status, length of stay and their working experience with regard to marital status. There are in general nine types of migrants. Recent migrants indicate residence of less than one year; while long-term migrants indicate more than one year.

Type 1 is the single woman who came to the city for an education. The fact that there is only one person in this category shows that it is rarely the case that the villagers can afford to or want to send a daughter to study in the city.

Both Types 2 and 3 are single women who came to the city after finishing primary school. Since they were limited by their education and skills, both recent and long-time arrivals had taken unskilled and semi-skilled jobs, such as factory work, dressmaking, beauty parlour work, sales, waitressing, and manual work. The long-term migrants had gone through a number of job changes that did not result in upward mobility. This comprises the largest group (33) in the sample.

Type 4 are single women who attended school while working. The completion of high school and beyond enable them to find office work later on. They are also long-term migrants.

Type 5 are women who had left work since they were married. In most cases, they were unskilled or semi-skilled workers who had little commitment to their work. Only small numbers of women were in office work, married into middle-class families, and left work after marriage.

Type 6 are married women who continued to work after marriage. Larger number of women worked after marriage than those

Table 2
Profile of Female Migrants

Types	Marital status	Frequency	Description
Autonomous moves (83)			
1	Single woman	1	Came to Taipei for further education
2	Single woman	9	Blue collar worker; recent migrant
3	Single woman	24	Blue collar worker; long-term migrant
4	Single woman	6	White collar worker; long-term migrant work-studied in Taipei
5	Married women	17	Left work after marriage
6	Married women	25	Continued to work after marriage
8	Divorced woman	1	Worked before and after marriage; white collar worker; recent migrant
Marriage moves (12)			
6	Married women	4	Continue to work after marriage
5	Married women	4	Left work after marriage
7	Married women	3	Never worked
9	Widowed woman	1	Worked after widowhood
Associational moves (1)			
4	Single woman	1	White collar worker; long-term migrant; work-studied in Taipei

who did not. Besides the need to support or supplement family income, these women wanted to keep a lucrative job or remain self-employed, particulary if they owned factories or shops that were attached to their homes. Some had gone through upward mobility during their long years of stay.

Type 7 are women who migrated with their husbands. They had never worked.

Type 8 is the special case of an autonomous move whereby the women left the village because she was divorced, had worked before and after marriage, had sufficient education to be independent, and had a good job. The single sample, however, is not representative of divorced migrant women in general.

Type 9 is the case of a widowed woman. She came to the city with her husband before he died. Afterward, she continued to work to support her family.

Reasons for Leaving the Village

The question of "Why did you leave the village ?" yielded a variety of answers. Often several reasons for moving were given in combination, reflecting "push" and "pull" forces operating at the same time. Fifty-five per cent of respondents gave reasons that are related to finding employment. Opportunities for work are very limited at the village level. With a high school education, one can find work in the local township office or Farmer's Association as clerks. Otherwise the alternative to leaving the village is to stay in farmwork, a harder occupation involving intensive labour in the fields.

After economic reasons, education is the second most popular reason for autonomous migration (12 per cent). The decision to go to the city generally is made when a woman completed primary school (age 12) or junior high school (age 15). In Taiwan since 1968, education has been free up to junior high school, and girl's attendance at all levels of school has risen. However, this is not to say that average statistics apply to village women. Given their roles in farmwork and the lack of encouragement for parents for daughters to receive education as much as sons, village women mostly stopped going to school at the completion of primary school education. Many women said that their parents or grandparents had prevented them from obtaining higher education, if they wanted to, because only sons in the family were supported. After junior high school, the only way to continue free education was to be admitted to a five-year teacher's training college after passing a competitive college entrance examination.

Given approval and financial support by parents, women still had to sit for entrance examinations to get into senior high schools, usually located in the nearest town, and join a college in the city afterwards. However, because of the lower educational standard in the village, students had difficulty in getting into the standard high schools in town. They may apply to one of the numerous high schools in Taipei, or as an alternative, a vocational school that gives professional training in bookkeeping, typing and the abacus.

Coming to Taipei for a high school education has an additional advantage. One can support oneself by full-time work and attend school in the evening. One woman informed me that she had to work in the vicinity of her school, so that she could easily commute to school. Six women had supported themselves this way since their parents did not approve of further education for their daughters.

Aside from employment and education, the third largest category of migrants were the "passive" movers, those who moved with husbands or to join husbands in the city (10 per cent) or to move with parents (6 per cent). Helping relatives in business, which is largely a parental decision, comprised 3 per cent of the respondents.

About 7 per cent of migrants wanted to leave the village because of its difficult life, and one person wanted to be free from the control of her parents. These also constitute the "push" factors that led to migration decisions. As a whole, the reasons for leaving the village reflected the practical considerations of village women; they were attracted by opportunities of work and

education, but rarely by false hopes. Only 3 per cent of the respondents felt that being curious about city life was the major reason for moving.

Although women who moved on their own are known as "autonomous" movers, the decision rarely is independent of parental supervision. Most of the parents (87.5 per cent) agreed to their daughters' migration, but it also depended on certain conditions. A brother, sister, or cousin living in the city may succeed in persuading the parents to allow the woman to move to the city. Approval is also given by parents provided that the daughter moved with a friend or relative or had previous contacts in the city. The rest of the parents objected to a desire to move because these women were thought to be too young to leave home. Two women were so ambitious that they decided on their own about going to Taipei and they left home secretly.

Reasons for Moving to Taipei

One-third of the migrants had actually lived in another city before moving to Taipei. As migrants were asked about the images of city life that they had before they moved, only two-thirds had an idea of what the city life was. Of these, the majority (28 per cent) thought that the city is a place of prosperity and glamour.

It was described as "busy", "prosperous," "full of rich people," and "extravagant," "progressive," and "colourful". Twelve per cent felt that the city is comfortable and convenient for travelling and shopping. A small number (4 per cent) thought that it is easy to obtain work.

Other than these, 15 per cent of the respondents felt negative about the city because to them the city is an unsafe place with high crime rates, an environment where human relationships are impersonal, and where one suffers from tension.

These perceptions were based on hearsay, actual experiences, impressions from news media, and especially from former migrants returning for visits. About two-thirds of the migrants had been to Taipei before they left the village, visiting relatives and friends or participating in organized graduation trips at the end of their primary school education. A superficial knowledge of Taipei often was gained by visiting relatives who took them to see a glamorous part of town or something quite different from the village.

Among the cities known to villagers, Taipei appears to be the best known, mainly through friends and relatives who had already moved to Taipei and through the mass media. Ten per cent of migrants had lived in another small town or had commuted to work before coming to Taipei. The 90 per cent that moved to Taipei directly said that they had not even considered other cities. It came as a surprise to some that the question was even raised because they had assumed that Taipei was the only city to which village people moved.

Upto 21 per cent of migrants replied that they could think of no reason for going to Taipei, except that their friends were also doing the same thing. Some 38 per cent felt that they were following the footsteps of former migrants whom they would join or depend upon after arrival. Five per cent indicated as their friends in the villages were also going. The remaining 30 per cent

gave reasons related to work or study.

This suggested that the reasons for going to Taipei were not confined to opportunities for work and education but also included the pull of friends and relatives who had set up a "movement chain." This phenomenon is by no means unusual in cityward migration. Numerous studies, both in developed and developing countries, have found that migrants tend to follow members of their family or village (Choldin, 1973; Mac Donald and MacDonald, 1959; Litwak, 1960). Since most of the migrants already had friends or relatives before moving to Taipei, their locational decisions and adjustment processes in Taipei were largely related to this extended social network from the village community.

Accommodation

Upon arrival in Taipei, 41 per cent (39 out of 96) of the female migrants I studied settled down with friends or relatives. An almost equal proportion lived in the dormitory or housing provided at the place of work. Less than one-fifth of migrants (19 per cent) lived in houses they owned.

Living with friends and relatives ensured

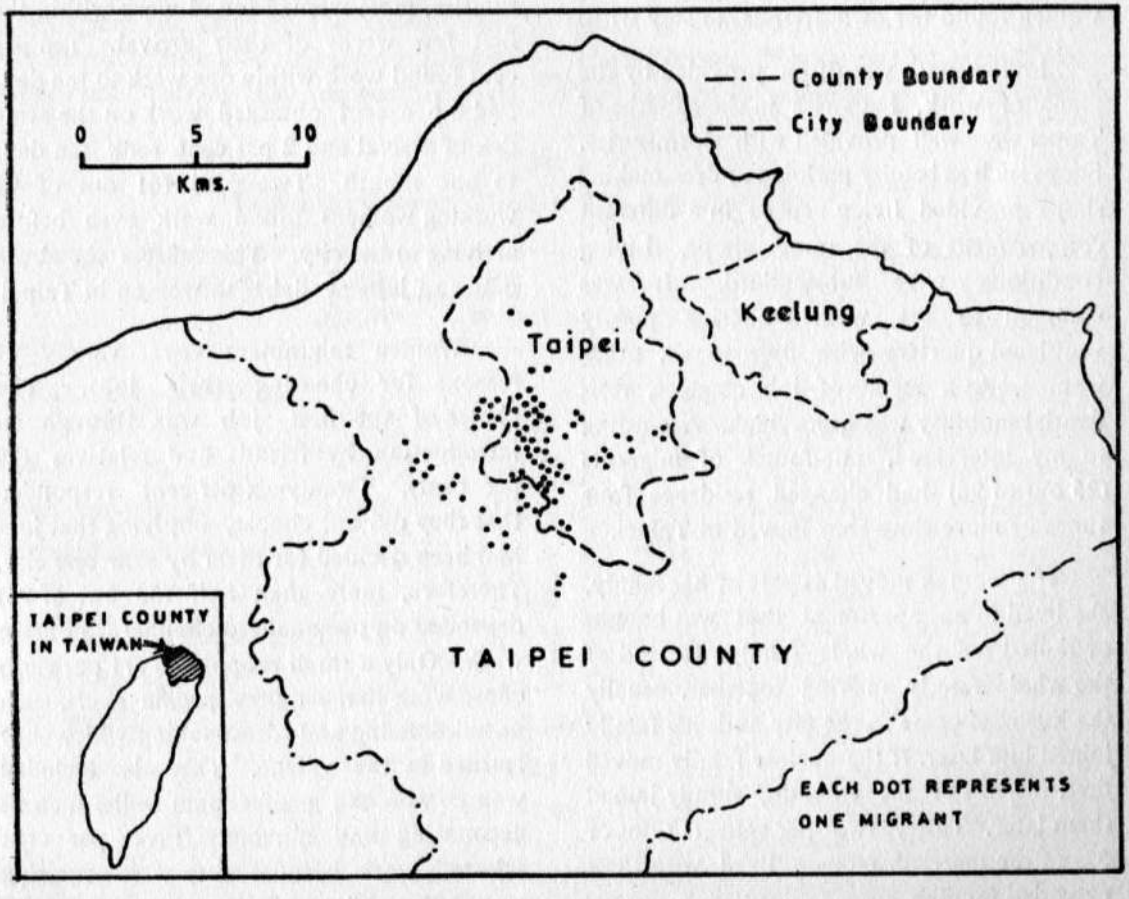

Figure 1 : Distribution of a sample of female migrants from villages in Taipei

the safety of a female migrant and gave her parents peace of mind. The most popular arrangement was to live with a nuclear family formed by a brother or a sister who migrated to the city earlier. The newcomer would either rent or help with housework, childcare or business in return for free accommodation. For the care that their daughters received, parents often brought gifts, such as fruit and vegetables from the villages.

If a good relationship was maintained with the host family, the migrant stayed on. Movement from the host family often occurred with a change of job, or after the women found her own friends to stay with.

Living space was often provided by the place of work. Factories in the suburbs of Taipei were well provided with dormitories. Shops such as beauty parlours or dressmaking shops provided living space in a different compartment of the same shops. Living conditions were substandard. It was common to see women sharing poorly ventilated quarters with four to six other women. As a result of job changes, residential mobility was quite high. According to my interviews, one-fourth of migrants (25 out of 96) had changed residence four times or more since they moved to Taipei.

If a woman moved as part of her family, she lived in an apartment that was bought or rented for the whole family. Instead of the whole family moving together, usually the husband came to the city and his family joined him later. If the nuclear family moved first, the rest of the extended family joined them later. Thirty two per cent (17 out of 53) of the married momen lived with their extended families.

Work History

The working experience of women constituted a major part of the adaptation process of the rural female in Taipei. Work histories for migrant women were characterized by short duration and frequent changes but continuous employment.

Seventy-five per cent obtained job information from relatives or friends, 18 per cent applied through private and public employment services, and 2 per cent responded to factory recruitment at the village.

Because of the surfeit of job opportunities, most women found work within the first few weeks of their arrival. Ten per cent found work within one week to ten days and 6 per cent obtained work on the same day of arrival and 2 per cent took ten days to one month. Two-thirds (61 out of 92 working women) found work even before arriving in the city. This reflects the abundance of jobs available to women in Taipei.

Women migrants gave a variety of reasons for choosing their jobs. The choice of the first job was through an introduction by friends and relatives (29 per cent). Twenty-six per cent responded that they did not choose, implying that jobs had been decided for them by someone else. Therefore, more than half (53 out of 96) depended on personalized channels to obtain work. Only a small proportion (11 per cent) chose work that requires specific skills, such as hairdressing and dressmaking which they learned in the village. This also included women who had professional skills, such as accounting and nursing. Five per cent selected work because they were acquiring new skills, while an equal proportion chose

jobs that were not as demanding, and would leave them free in the evening to go to school. Only two women had compared carefully the alternatives and made choices based on knowledge of differences in salary, benefits, nature of work, and the work environment.

In Table 3, reasons for selecting the second job are compared with those for selecting the first. It is clear that friend-related reasons declined substantially over time from the former 53 per cent to 19 per cent. The proportion making choices on the basis of skills required, the terms of employment and being able to operate their own shops all increased. The proportion of women not working also increased greatly (from 7 per cent to 30 per cent) since many women ceased work after marriage or after having children.

Over the range of possible employment in the secondary and tertiary sectors, rural migrants expressed a preference for government work. A stable income commensurate with the rate of inflation, prestige, and fringe benefits, such as subsidies for housing, transportation, health insurance, and food make government employment most desirable. In addition, office work is preferred to all other types of employment. In terms of prestige, jobs as salesgirls and waitresses which involved "seeing people" are considered less desirable. Working on an assembly line in a factory is monotonous and pressured.

Table 3

Reason for Choosing First and Present Job in Taipei

Reasons	First job		Second job		Change
	Number	Per cent	Number	Per cent	Per cent
Introduced by friends and relatives	28	(29.2)	11	(11.5)	—17.7
Did not choose	25	(26.0)	7	(7.3)	—18.7
Could apply skills	10	(10.4)	17	(17.7)	+ 7.3
Managed one's own shop	11	(11.5)	16	(16.7)	— 5.2
Could study at the same time	5	(5.2)	3	(3.1)	— 7.1
Good prospect, learning skills	5	(5.2)	1	(1.0)	— 4.2
Good terms of work	2	(2.1)	10	(10.4)	+ 8.3
Not working	7	(7.3)	29	(30.2)	+22.9
Unknown	2	(2.1)	2	(2.1)	0
Others	1	(1.0)	2	(2.1)	+ 1.1
Total	96		96		

Source : Interviews.

However, this setting provides a means for undertaking work-study programs because of its regular and short hours of work, after which one can attend school in the evening. Most factories have three shifts from which one can choose; some require workers to rotate in taking night shifts. This would prevent women from attending schools in the evenings. Last choice is given to domestic service jobs, in spite of high pay, because they involve a subservient relationship to the employer.

High rates of labour turnover are a common feature in the work history of the migrant women. Since coming to Taipei, two-thirds of the women have changed their work one to three times, 27 per cent have changed work four to six times and 8 per cent changed as much as seven to ten times. The mean number of jobs per respondent within the first ten years of arrival is 3.1 Close to half of the jobs lasted for one to three years. Thirty-eight per cent of jobs only lasted for less than one year.

Throughout their work history, various conditions encouraged women to stay on or leave their jobs. Low salaries, long hours, boredom, tension, poor working enviornment, disagreeable managers or colleagues, and illness were given as the reasons for job changes. As migrants became more familiar with job opportunities over time, the lure of better pay elsewhere, a better position, or the opportunity to form a partnership or start one's own business, also accounted for the frequency of changes.

Satisfaction and dissatisfaction regarding present jobs are reported in Table 4. The nature of work accounted for the largest proportion of those who were satisfied or dissatisfied with work. Fifteen per cent of the women were dissatisfied with the nature of their work. Working on the assembly line was dull, non-creative, and did not result in learning skills. The pace of production demanded by factories also resulted in tensions for the workers. Multi-national companies offered various job incentives in the form of fringe benefits and a better physical working environment. Free classes in English, flower arrangement and cooking as well as monthly picnics were offered by some companies. However, they could not retain workers because the work was demanding.

The long work day was given by 7 per cent of women as the second major reason for being dissatisfied with work. Factories often demanded overtime work during peak periods of high market demand for their production. Higher ovetime pay was used as an incentive for workers to work longer hours. Six per cent of the migrants were not happy with their salaries.

On the other hand, 18 per cent of the women were satisfied with the nature of their work. This applied to skilled workers, who worked in offices. Jobs that provided skills were sought by villagers and counterbalanced undesirable qualities of the work.

Personal relationships at the place of work were highly valued, to the extent that they became important factors in decisions to stay or to go. One woman might stay on a job because she had good working companions, while another may leave because her good friends had done so. Good company at the shop tended to break up the boredom of routine work, while friendship

Table 4
Satisfaction and Dissatisfaction Expressed Toward Work

Reasons	Satisfaction toward work		Dissatifaction toward work	
	Number	per cent	Number	per cent
Nature of work	17	17.7	14	14.6
Relation with colleagues	10	10.4	2	2.1
Work hours	9	9.4	7	7.3
Can operate one's own shop	9	9.4	—	—
Cannot work at home	—	—	1	1.0
Relation with boss	4	4.2	1	1.0
Benefits	3	3.1	—	—
Distance from home	3	3.1	—	—
Pay	1	1.0	6	6.3
Other reasons	—	—	12	12.5
No complaints	—	—	17	17.7
Not working	32	33.3	32	33.3
Unknown	8	8.4	4	4.2
Total	96		96	

Source : Interviews

provided solace over homesickness for the newcomer. Ten per cent of the women felt that they were satisfied about their work because they had good colleagues.

Satisfaction about working hours was expressed by 9 per cent of the respondents, who either went to work after school or who were married. Married women who were managing a shop, grocery stores, or factories at home felt that operating shops in the place they lived was the most satisfactory aspect of their work.

Transition to a more prestigious position was difficult for rural migrants. Exploitation of workers was common in the lower occupational ranks. Apprentices with a skilled job, such as in hairdressing or dressmaking, could only make the transition to regular employment by changing to a new employer. One woman who worked as an apprentice in a hairdresser shop said that she had to work like a maid, doing menial work, and very little of her work involved learning new skills. After learning a few skills, she left and became a regular employee at another shop. This is, in fact, another reason for job changes. There were

also many blue collar workers who planned to make the transition through further education in the evenings. Once they finished school, they expected to advance to office work even though the salary may not be higher. Rather, aspiration for higher education justified the migrant's coming to the metropolis and gave her a sense of achievement in reaching her goals. In the long run, it may give her an alternative means of social mobility through marriage to someone with a higher status job.

Social Life

Aside from friends and relatives already in the city, women tended to relate to their peer groups at the work place. Friendships easily developed among women staying at the same factory dormitories and were often cited as a reason for being happy with one's work. Friends provided company for each other on weekday evenings going out to shop, stroll along the busy streets, or to see movies. Most women said that they had no pastimes in the evenings because, after a long working day, there was no energy left to go out in the evenings.

A working week consists of six days; and one is free on Sundays every other week. During weekends or on holidays, the most common recreation was picnicking in the suburbs of Taipei, visiting relatives in town, seeing a movie, or shopping. Going back to the village for a visit constituted a major "pastime." As both villages require long-distance travelling, these visits were made during national holidays.

Most of the acquaintances formed at the place of work were from villages (68 per cent) rather than Taipei (22 per cent). Kin and villagebased relationships provided some of the socio-economic and psychic security often needed by the migrant in the city. Only 38 per cent (36 out of 96) had friends from the same township. Both Hakka-and Hokkien-speaking women had stronger attachments to people of the same dialect group. As predicted, Hakka women were more attached to the same dialect group than Hokkien to theirs.

Although 94 per cent of the women (90 out of 96) said that they made new friends since moving to Taipei, two-thirds of those unmarried said that they did not have boy friends. This reflects the fact that the majority of their associates at work were women.

Besides having a limited social life, migrants were also spatially restricted. Distances travelled within the city were limited. Migrants reported that they were only familiar with the neighbourhoods around the place of work, home or school. The other places were major shopping and movie centres, the railway station, and the area where their relatives were located. Depending on the distance, it would usually take 20-30 minutes by bus to get to these places.

The majority of the migrants were unfamiliar with the greater part of the city, even after several years of stay, perhaps because they were afraid to go out to new places or were limited by their finances.

Attitudes Towards Urban and Rural Living

Female migrants were asked what they considered to be the advantages and disadvantages of life in both the capital city

and rural areas and the factors they considered most important were coded for analysis (Table 5). It was thought that the city provided comfort and convenience in its transportation (45 per cent), shopping (10 per cent), and schools (6 per cent). One quarter of migrants viewed the city as more developed than the village, with a higher standard of living, greater prosperity, and with more places for pastimes. Indoor work and regular income were regarded as other advantages.

The village, on the other hand, was seen as lacking in all the urban conveniences and facilities. Besides, one lived with a difficult farm life without having the prospect of finding regular paid indoor work. Two migrants even mentioned the lack of freedom while staying with their parents. They had to devote energy to domestic work and farmwork while living with their parents. A woman who worked as a salesgirl in her father's store said that she did not receive any pay, while now she had a regular income from her hairdressing work.

The tradeoffs for the convenience and freedom of residing in the city were also recognized. Crowding, pollution, and noise made the city a less desirable place to live than the village. The view of the city as being "complicated," "hypocritical" and with "poor human .relationships" was constantly raised.

A faster pace of life, pressure from work, and the high cost of living bear great contrasts to the leisure of the village. Even though transporation was convenient, two women migrants found it dizzying to ride on the bus because they were not used to it.

Table 5

Advantages and Disadvantages of Life in Taipei and Village Places

Response	Number	Per cent
Life in Taipei		
Advantages		
Convenient to travel	43	(44.8)
"Progressive"	24	(25.0)
Convenient for shopping	10	(10.4)
Provides good education	6	(6.3)
Provides indoor work	2	(2.1)
Regular income	2	(2.1)
No reply, no advantage	9	(9.4)
Disadvantages		
Crowded, polluted	31	(32.3)
Complex, hypocritical	15	(15.6)
Poor human relationships	13	(13.5)
Noise	12	(12.5)
High cost of living	7	(7.3)
Pressure, busy life	7	(7.3)
Car sickness	2	(2.1)
No reply, no disadvantage	9	(9.4)
Life in the village		
Advantages		
Clean air	36	(27.5)
Natural, peaceful	19	(19.8)
Warm human relationships	17	(17.7)
Simple lifestyle	10	(10.4)
Less tension	3	(3.1)
Low cost of living	2	(2.1)
No reply, no advantage	9	(9.3)
Disadvantages		
Inconvenient transport	49	(51.0)
Low living standards	11	(11.5)
Inconvenient to shop	7	(7.3)
No prospect for finding work	6	(6.3)
Difficult life	6	(6.3)
Monotonous	5	(5.2)
No good schools	2	(2.1)
No freedom	2	(2.1)
No reply, no disadvantage	8	(8.3)

Source : Interviews.

Although urban values and lifestyles are being brought back to the village and the image of the city was formed before moving, only when the migrants lived in the city were they able to make realistic comparisons or contrasts.

Evaluations of Experiences

Most of the women found their experiences rewarding. The most commonly stated "reward" is "to cope with critical situations and to get along with people" (16 per cent or 15 out of 96). "Being married" was the second most frequently cited and "skills and education" the third. Income-related reasons came last. It was also rewarding for some to feel that their personality had changed for the better, that they had become more "flexible," "outgoing," "independent," "mature," "diligent," and "far-sighted." A minority changed for the worse by being less even-tempered because of "the pressure of city life."

Although many came to the city to earn an income, money did not constitute their major reward. The salaries of female migrants ranged from below NT 3,000 (US$ 82) to slightly over NT 10,000 (US$ 270).

More than half of the migrants earned less than NT 5,000. This is less than the monthly per capita income for Taiwan in 1979. After deducting their expenditure for rent, food and clothing and the substantial amount of remittance, they have very little to spend for themselves.

The experience of the city was felt to be deterimental to health for some. Thirty-four per cent felt that their health was poorer than before. Illness was one of the reasons for a woman to change her job. An eighth of the migrants still could not adapt to the city environment. Various difficulties had been encountered by these migrants, but they were not as candid about them as their achievements perhaps because of their reluctance to be frank with strangers about negative things. "Unfamiliarity with work and study" were the major difficulties given.

To conclude the section on their attitudes, the question was asked : "Do you think Taipei is better, the same, or worse than you expected ?" About half felt that their experiences were not far from their expectations. The proportion of respondents (20 per cent) who felt that Taipei was better than expected was equal to the proportion that felt it was worse. Only 8 per cent said they had no expectations before moving. This may be due to variations in the accuracy of information carried back as well as the exposure of the individual to it.

Some Generalisations

Taiwan is a country experiencing rapid population growth, industrial expansion and urbanization. Taiwan's industrial and occupational structure has changed rapidly in recent years, its educational level has risen sharply, employment of women has shown a great increase and workers have migrated toward urban centers. As a result, females constitute a significant proportion of migration streams to cities in Taiwan. Among the numerous migration studies completed to this date in Taiwan, few have compared male and female migrants; none has studied female migrants exclusively although several exist on male migration.

I have carried out this study with the hope of redressing this gender bias in migration research. Since women form an increasing proportion of migrants and of the non-agricultural labour force, it appears particularly appropriate and timely to conduct a study focusing on female migration.

A typology of migrants was developed according to their marital status, length of stay and their working experiences with regard to marital status. Among the nine types of migrants, the largest numbers are single women who are long-term migrants and blue collar workers, and married women who continued to work after marriage.

The reasons for women who left for the Taipei Metropolis can be expressed in "economic," "social" and "psychological" terms. A good proportion of female migrants consider economic reasons as paramount in their decisions to move : that is, they can earn an income for the family or become economically independent themselves. City jobs provide indoor work and regular income. Migrating to the city would also mean a chance for more or better education. Moreover, the higher living standards of city life are perceived by villagers as more appealing than farm life.

The desire to move from the village often arose long before the actual decisions were made. To see earlier migrants coming back to the village on visits, to visualize city life as projected through television programs, and to hear of friends leaving for the city, would often spark a girl's desire to leave for the city at an early age. Even though the initiative and final decision to move come for the migrants themselves, parental consent was still needed for the rural female to move out. Whether approval is given or not usually depends on the presence of former relatives in the city, or in having the company of another village girl while moving. Decisions on where to move depend on the location of former friends or relatives. Taipei was usually the only choice considered by most migrants.

At the time of their first arrival in the city, the female migrants are helped by their friends and relatives. Even though most migrants are unfamiliar with the job market and do not possess specialized skills, they are able to obtain jobs through personal introductions, enabling most of them to join the formal sector of the labour market. Their subsequent job changes depend less on personal introductions as their knowledge of job opportunities improves. Changes of residences usually occur with job changes since residence is often provided by the employer or found close to the workplace. Changing work became an important aspect of their adaptation. It results from dissatisfaction with their salaries, long working hours and the occupational environment. Frequent job changes are typical of unskilled and semi-skilled workers since they are easily bored with repetitive work and suffered from mental strain due to the speed required in production processes. Even though individuals went through a number of jobs, they seldom acquire upward mobility. This is particularly true for blue collar workers who do not acquire further education nor skills after migrating to Taipei. Those who completed high school or college while working have a better chance to advance on the social ladder. Others may do so by marrying white collar workers.

While trying to adapt to urban life,

the female migrants all felt very homesick. This feeling is mitigated by visiting their relatives in the city and by forming friendships at the place of work. Other than this, they have very limited social lives. They are unfamiliar with the environment of Taipei and have a limited activity space. Having experienced the city, they can now realistically compare the advantages and disadvantages of living in the city and the village. Convenience (in transportation, shopping, schools) and higher living standard, indoor work, and regular income are considered advantages of city life. On the other hand, migrants are negative about the physical and cultural environments (congestion, air and noise pollution, hypocrisy and callousness of urban dwellers). In spite of adversities, the migrants are tolerant and accepting of the situation. They felt that the greatest reward is to have learnt to cope with new situations and people. The experience in the city is considered worthwhile and broadening for one's personal development.

The four propositions advanced at the beginning of this research may now be re-examined. The first proposition is that kinship and friendship ties play a significant role in migrants' decisions to move and in their adaptations in the city. In the present advanced level of economic development, females move to Taipei with fairly realistic hopes of finding employment or advancing their education. However, kinship and friendship ties play a dominant role in the actual decision making. It was found that prior to deciding to move, the migrant has either friends or relatives in Taipei whom they have visited or who have carried back to them information about the city. Movers as well as their parents are therefore influenced by these former migrants. The parents' reliance on friends or relatives also means that their daughters are limited in their decisions about where to move. Because of the presence of friends and relatives in Taipei, it is the only destination most women consider. Acquaintances in the city turn out to be an asset for the new arrival. They ensure to some degree the safety of new arrivals in the city and, later on, aid in adjustment. In spite of the belief that many cultural values have broken down with industrialization, kinship ties between urban and rural areas remain very strong.

The second proposition that occupational change is used by migrants as a strategy to adapt has not been confirmed. The work histories of migrant women were characterized by short duration and frequent changes but generally continuous employment. As job changes do not reflect vertical mobility, it is an evidence that workers had not adjusted to the initial working conditions and had to go somewhere else for better pay, more interesting work, better company or working environment. There is no constraint to stay in their jobs because their record of work changes will not prevent them from access to other jobs in the city. The large demand for unskilled and semi-skilled workers enables them to do this. Changing work thus gives them the opportunity to stay in the city rather than to go back to the villages.

The third last proposition, that migrants depend on *tung hsiang* or "people from the same village," is not confirmed except for the initial job. A similar finding exists as to social network. Although they depend

on friends and relatives when they first move, they did not necessarily socialize with people from the same village/township or dialect group thereafter. This is the result of a closing gap between dialect groups because of the increasingly wide use of Mandarin on the island. However, there is a tendency to associate with other migrants from central and south Taiwan. There is no segregation by villages/townships in their occupations or places of residence in the city. Migrants have not indicated that they join *tung hsiang hui* (organizations of people from the same village).

Further Research

To what extent can the experience of female migrants I studied be generalized to female migrants in general? Would the method of following up female migrants in the city result in a biased sample? It is well known in Taiwan that many rural women are engaged in low-status occupations such as hawking, domestic service, or prostitution. The absence of these occupational groups in my example may be due to the fact that their families would not tell an outsider or simply did not know about it. By drawing samples of female migrants who belong to the informal sector in the city, women from different professions can be better represented. A comparison of women in the formal and informal sectors may be made. How do their job channels differ? How do they differ in their adaptive strategies? Have their occupations prevented them from maintaining links with their places of birth?

The small size of the sample of women has limited applications for policy formulations. By selecting larger samples of women migrants belonging to different occupational groups, one can make more systematic comparisons of women migrants by years of residence in the city, by marital status, age, education and occupations. Women from various regions of the island can also be compared with non-migrant women in the city and the village.

Since female migration has increased over the past two decades in Taiwan, it is a social issue that deserves more attention than it is given now. The broader aspects of female movement should be examined. What would be the implications of movement on the status of rural women in society? Is it truly a movement of liberation? How does participation in the public sphere (as income earners) enhance the status of rural women in their family? How are they viewed compared to the women left behind and the long-term female residents in the city? What are the impacts of female migration on marriage patterns and fertility levels? I hope that this initial research on female migrants will generate further interest in such issues among social scientists and obtain the attention of policy makers in Taiwan.

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DETERMINANTS AND CHARACTERISTICS OF FEMALE MIGRATION : A CASE STUDY OF SALEM CITY IN TAMIL NADU, INDIA

S. NANGIA AND M.J. SAMUEL
NEW DELHI, INDIA

A random sample of 521 male and 481 females migrants surveyed in Salem city during 1980-81 was analyzed on the basis of a classification related to reasons (association, marriage, distress and voluntary) for migration. Women were found as outnumbering males in associational migration, both in rural to urban and urban to urban streams. They also formed almost all the marriage migrants. They were more numerous in distress migration as well. There were, however, comparatively few women among voluntary migrants. The incidence of illiteracy among migrant women was generally high, except for voluntary migrants who had completed high school education. The share of working women was not negligible but in most cases present work-status was achieved after migrating.

This study is a micro-level analysis of female migration to the industrial city of Salem in the state of Tamil Nadu, India. With a population of 0.52 million, Salem had 47.1 per cent of its workers engaged in household industry and manufacturing activities. Nearly 17 per cent of its total workforce consisted of females. There was a large number of female migrants engaged in the workforce. The main objective of this exercise is to analyse the reasons which caused females to migrate to the city, and to examine their educational attainment as well as their work-status before and after migration. The study is based upon the primary data collected during 1980-81 for nearly one per cent of the total households in the city of Salem. The city has 44 wards which were grouped into 11 contiguous zones for data collection. The sample households were randomly selected. The population of the sample households numbered 2928, of which 902 reported themselves as migrants, 521 males and 481 females.

Reasons for Migration

A variety of factors determined the migration of females to Salem city. These could broadly be classified in four groups : association, marriage, distress and voluntary. The rural-urban distribution and sex-comopsition of migrants who moved for various reasons are presented in Table 1.

1. *Associational Migration*

This was the most important form of migration, covering 41.2 per cent of the total sample migrants. Associational migration was meant basically to accompany the principal migrant, who often happened to be the chief earning member of the family.

Table 1

Migration Types by Reason of Migration

Migration type	Per cent of migrants		
	Total	Males	Females
1. Associational migration			
Total	41.2	15.3	25.9
Rural to urban	22.7	8.9	13.8
Urban to urban	18.5	6.4	12.1
2. Marriage migration			
Total	20.3	1.0	19.3
Rural to urban	12.2	0.4	11.8
Urban to urban	8.1	0.6	7.5
3. Distress migration			
Total	5.3	1.0	4.3
Rural to urban	4.0	0.7	3.3
Urban to urban	1.3	0.3	1.0
4. Voluntary migration			
Total	33.0	29.4	3.6
Rural to urban	18.8	17.1	1.7
Urban to urban	14.2	12.3	1.9

Total migrants = 902 (100 per cent)

Women dominated the scenario and accounted for 25.9 per cent of the associational migrants as compared to males who constituted 15.3 per cent. The dominance of female migrants over their male counterparts was reflected both in the rural to urban (13.7 per cent females and 8.9 per cent males) and urban to urban (12.1 per cent females and 6.4 per cent males) streams.

2. *Marriage Migration*

Marriage was the second most important reason for women to migrate in a patrilocal society. Of the 20.3 per cent marriage migrants, females formed 19.3 per cent. In the rural to urban stream (which constituted 12.2 per cent), female migrants formed 11.8 per cent, while in the urban to urban stream (8.1 per cent), they formed 7.5 per cent. Marriage, in itself, was the third most important reason for migration when both male and female migrants were taken into account.

3. *Distress Migration*

Distress migration was caused by factors, such as the death of the spouse, desertion by the spouse, and death of either or of both of parents. This type of migration, though least significant in order of number of migrants (5.3 per cent), was no less significant for females as they constituted 4.3 per cent of distress migrants and only one per cent was claimed by the males. Here rural to urban migration (4 per cent) dominated over urban to urban migration (1.3 per cent). In both streams, women formed 3.3 per cent and 1.0 per cent respectively. In distress migration, death of the spouse and desertion by the spouse had caused 22 and 8 persons respectively to migrate. Incidentally, all of them happened to be women. Death of the parents affected the migration of both sexes equally, both accounting for nine migrants.

4. *Voluntary Migration*

Eleven causes for voluntary migration were identified. These included search of employment (for the first time and for multiple times), for better employment, to take up a new job, under transfer or business

contract, to start an enterprise, profession or a vocation, for studies, for reasons of health and social amenities and returning home after completing studies or after retirement.

Though voluntary migration was the second most significant form of migration in terms of numbers (contributing 33.0 per cent to the total migrants), it was least significant for females, as their share as voluntary migrants was the lowest (3.6 per cent). In the rural-urban stream (18.8 per cent), their contribution was as low (1.7 per cent) and in the urban stream (14.2 per cent), they claimed only 1.9 per cent.

The most important reason for voluntary migration appeared to be the search for first-time employment in both streams. Of the 79 such cases, only one happened to be a female. The reasons like taking up a new job and job transfer accounted for 40 migrants each, of which females numbered 10 and 7 respectively. To start one's own enterprise was the fourth important reason for migration (covering 30 migrants) but no female migrant was involved. Of 26 persons migrating in search of employment, only 2 were females. Migrants on account of studies (24) and health reasons (6), constituted 25 and 30 per cent of females in that order.

For reasons, such as availing oneself of social amenities, returning home after retirement, the search for better employment and starting one's own enterprise, no females were registered as migrants. Instead, two important reasons for voluntary female migration included taking up a new job (10), followed by transfer (7), studies (6), returning home after studies (5), health reasons (2) and search for a job (1).

Educational Attainment of Female Migrants

Tables 2 a, b and c provide information on the educational attainment of female migrants by their rural-urban distribution. 58 per cent of the female migrants, both in associational and marriage migration, were illiterate (Table 2 a). Of the distress migrants, 43.6 per cent were illiterate, and so were 3 per cent among voluntary migrants.

Another 28 per cent of the marriage migrants, 35 per cent of the associational migrants, 41 per cent of the distress migrants and only 18.2 per cent of voluntary migrants were literate or had studied up to the primary level of education. The bulk of the migrant community was, thus, either illiterate or semi-literate. Voluntary migration, however, displayed a different picture. In this case, as the educational level went higher, the proportion of migrants too tended to increase up to class x, where it reached 57.5 per cent. The percentage of graduates in voluntary migration was greater than in all other forms of migration.

Rural to Urban Female Migrants

Among rural female migrants (Table 2 b), 60.1 per cent were illiterate, followed by primary school passed (15.2 per cent), literates below primary (14.5 per cent), middle school (6.9 per cent) and high school passed (3.3 per cent).

This educational pattern was similar to the overall pattern in marriage and associational migration, where illiterate migrants formed a majority. In associational

Table 2

Education Level of Female Migrants

Migration type	Number of migrants	Percentage of migrants in each group					
		Illiterate	Literate below primary	Primary	Middle	High school	Graduate
(a) Education level of all female migrants							
1. Associational migration	234	58.0	15.0	20.5	5.6	0.9	—
2. Marriage migration	175	58.3	11.4	16.6	9.7	3.4	0.6
3. Distress migration	39	43.6	30.7	10.3	12.8	2.6	—
4. Voluntary migration	33	3.0	6.1	12.1	15.2	57.5	6.1
Total	481	53.2	14.3	17.7	8.4	5.8	0.6
(b) Education level of rural to urban female migrants							
1. Associational migration	125	60.8	15.2	18.4	5.6	—	—
2. Marriage migration	107	69.1	10.3	11.2	7.5	1.9	—
3. Distress migration	30	50.0	26.7	10.0	10.0	3.3	—
4. Voluntary migration	14	7.1	14.3	28.6	7.1	42.9	—
Total	276	60.1	14.5	15.2	6.9	3.3	—
(c) Education level of urban to urban female migrants							
1. Associational migration	109	55.1	14.7	22.9	5.5	1.8	—
2. Marriage migration	68	41.2	13.2	25.0	13.2	6.0	1.4
3. Distress migration	9	22.2	44.5	11.1	22.2	—	—
4. Voluntary migration	19	—	—	—	21.1	68.4	10.5
Total	205	43.9	14.2	20.9	10.2	9.3	1.5

migration, no migrant had completed high school education. Distress migration too had a large component of illiterate migrants which tended to decline in subsequent educational groups. There was a relatively high proportion of migrants who had completed high school or had higher qualification (3.3 per cent). Voluntary migration, which exhibited an entirely different pattern, was low among illiterates and semi-literates and high among primary (28.6 per cent) and high school pass (42.9 per cent) females.

It was noted that illiterate and primary-school pass females constituted 75.3 per cent of the total migrants. High school-pass migrants formed 3.3 per cent. There was no graduate among rural migrants. Associational illiterates topped the list followed by married and distress illiterates. Among distress illiterates, death of spouse was the principal factor and accounted for 50 per cent of distress illiterate migrants. The percentage of voluntary migrants increased with the level of education. There were as many as 42.9 per cent of voluntary migrants with high school qualification. Among voluntary migrants, nearly 57.1 per cent of females had migrated due to economic reasons, and of these 60 per cent were high school pass.

Urban to Urban Female Migrants :

As in rural migrants, so among the urban to urban migrants (Table 2c), marriage and associational migration accounted for maximum illiterates. The proportion was low for literates below primary and rose in the case of primary to fall again. There was no graduate in associational migration.

The illiterates and literates below primary formed a large share of distress migrants, accounting for 66.7 per cent of total migrants.

The level of education was rather low (up to middle class) among distress migrants. Voluntary migrants showed a positive relation with education level as all the migrants had attained a minimum of middle school level education. 68.4 per cent had completed high school education. Here too, of the total voluntary migrants, nearly 53 per cent had migrated due to economic reasons and of these 66 per cent had obtained high school education or above.

Work-Status of Female Migrants

In work-status were included the employment for economic gains, unemployment but effort to seek a job, studentship and duties of housewives. In addition, infants, the old, invalids and pensioners, who were basically non-workers, either on account of their health or age, were also taken into account.

The work-status of female migrants was highly diversified (Tables 3 a and 4 a). Of the total migrants (481), the majority were housewives (36.4 per cent), followed by working women (23.9 per cent), the unemployed but seeking job (15.8 per cent) and students (13.9 per cent).

Infants, the old, and invalids formed 10 per cent of total migrants. A comparison with the past status of migrants revealed that the number of workers and job-seekers went up after migration while that of students and housewives declined.

A comparative analysis of present and past work-status showed that of the 115

Table 3

Work-Status of Female Migrants

Work status	Present status		Past status	
	Total	Percentage	Total	Percentage
(a) Distribution of female migrants by their present and pre-migration work-status				
Working	115	23.9	73	15.2
Unemployed but seeking job	76	15.8	47	9.8
Students	67	13.9	115	23.9
Housewives	175	36.4	184	38.2
Infants	13	2.7	51	10.6
Old, invalid and Pensioners	481	7.3	11	23.0
Total	481	100.0	481	100.0
(b) Distribution of rural to urban female migrants by their present and pre-migration work status				
Working	72	26.2	33	11.9
Unemployed but seeking job	39	14.1	19	6.9
Students	32	11.6	62	22.5
Housewives	110	39.8	128	46.4
Infants	10	3.6	32	11.6
Old, invalid & Pensioners	13	4.7	2	0.7
Total	276	100.0	276	100.0
(c) Distribution of urban to urban female migrants by their present and pre-migration work status				
Working	43	20.9	40	19.5
Unemployed but seeking job	37	18.1	28	13.7
Students	35	17.1	53	25.8
Housewives	65	32.2	56	27.3
Infants	3	1.5	19	9.3
Old, invalid & Pensioners	22	10.2	9	4.4
Total	205	100.0	205	100.0

Table 4

Work Status of Female Migrants before Migration

Present Status	Total Migrants	Status before migration					
		Working	Unemployed but seeking job	Students	Housewives	Infants	Old, invalid & pensioners
(a) Pre-migration work status of female migrants							
Working	115	26.9	18.3	22.6	30.4	1.8	—
Unemployed but seeking job	76	23.7	21.1	34.2	11.8	9.2	—
Students	67	—	3.0	59.7	3.0	34.3	—
Housewives	175	10.9	4.6	12.0	69.1	3.4	—
Infants	13	—	—	—	—	100.0	—
Old, invalid & pensioners	35	14.3	—	5.7	48.6	—	31.4
Total	481	15.2	9.8	23.9	38.2	10.6	2.3
(b) Pre-migration work status of rural to urban female migrants							
Working	72	25.0	6.9	26.4	40.3	1.4	—
Unemployed but seeking job	39	12.8	20.5	33.3	23.1	10.3	—
Students	32	—	—	53.1	—	46.9	—
Housewives	110	7.2	5.5	11.8	73.7	1.8	—
Infants	10	—	—	—	—	100.0	—
Old, invalid & pensioners	13	15.4	—	—	69.2	—	15.4
Total	276	11.9	6.9	22.5	46.4	11.6	0.7
(c) Pre-migration work status of urban to urban female migrants							
Working	43	30.2	37.2	16.3	14.0	2.3	—
Unemployed but seeking job	37	35.1	21.6	35.1	—	8.2	—
Students	35	—	5.6	65.7	5.6	23.0	—
Housewives	65	16.9	3.1	12.3	61.5	6.2	—
Infants	3	—	—	—	—	100.0	—
Old, invalid & pensioners	22	13.6	—	9.1	36.4	—	40.9
Total	205	19.8	13.8	24.8	27.7	9.4	4.5

worker-migrants, only 26.9 per cent were working prior to migration (Table 4a). Others were either housewives (30.4 per cent) or students (22.6 per cent) or seeking jobs (18.3 per cent).

Among the unemployed but seeking jobs (76), students formed 34.2 per cent. However, a substantial percentage (23.7) was also engaged in work besides hunting for jobs (21.1 per cent). Of 67 students, 59.7 per cent were also previously students while 34.3 per cent were infants who joined the race for education after coming of age. A large number of housewives (69.1 per cent of 175) continued to be housewives, but 10.9 per cent of working women, 4.6 per cent of job seekees and 12 per cent of students attained the status of "housewife" after migration. Among the 35 elderly, invalids and pesioners, 48.6 per cent were previously housewives, 14.3 per cent were working, 5.7 per cent were students (long term migrants) and 31.4 per cent were already old and dependent. The 4 infants continued maintaining their status.

Rural to Urban Female Migrants

Of the total female migrants (276) from rural areas, 39.8 per cent were housewives, 26.2 per cent were working and 14.1 per cent were looking for jobs. When past work-status and present work-status were compared, it was found that the number of house wives had gone down, while that of workers and job-seekers had gone up (Tables 3b and 4b). The number of students was also reduced. The number of infants had decreased while that of old people had gone up with passage of time.

Of the total 72 working migrants, only 25 per cent were working before. A majority of them was either housewives (40.3 per cent) or students (26.4 per cent). Only 6.9 per cent of them were seeking jobs. Out of 39 migrants who were currently unemployed but seeking jobs, 12.8 per cent were working earlier, 33.3 per cent were students, 23.1 per cent housewives, and 10.3 per cent infants. However, 20.5 per cent were previously in search of a job.

Of the 32 students, 53.1 per cent were previously students while the rest were infants and children and joined this status after attaining school-going age. A majority of the housewives (73.7 per cent) retained their status after migration while the others belonged to workers' (7.2 per cent), job-seekers' (5.5 per cent), and students' (11.8 per cent) groups. Many of the migrants, who were either working (15.4 per cent) or were housewives (69.2 per cent), had retired and joined the old and pensioners' group.

Urban to Urban Migrants

The work-status of urban female migrants was highly diversified as revealed by Tables 3 c and 4 c. Of the total migrants (202), almost one-third (32.2 per cent) were housewives. Of the rest, 20.9 per cent were working and 18.7 per cent were unemployed but seeking employment. All these categories showed an increase over the past work-status of females. The percentage of students, however, declined to 17.1 from 25.8. The number of infants had gone down but that of old and retired people had gone up. Comparing the relative status of women prior to migration in each of the present work-status groups (Table 4 c), it was observed that of the 43 women currently

working, only 30.2 per cent were working before migration, 37.2 per cent were struggling to get a job, 16.3 per cent were students, 14.0 per cent were housewives and 2.3 per cent infants. Of 37 unemployed females seeking jobs, 35.1 per cent were working and 35.1 per cent were students. Of the rest, 21.6 per cent were job-seekers. Infants accounted for only 8.2 per cent. Of 35 students, 65.8 per cent were infants and 5.6 per cent each housewives and job-seekers. Nearly 61.5 per cent of the total female migrants (65) continued to be housewives. Nearly 13.6 per cent of the women previously working had retired and joined the group of old and pensioners.

Conclusion

The analysis of determinants and characteristics of female migration in Salem city revealed that the most important form of migration in the sample area was associational migration, followed by marriage, distress and voluntary migration. Rural to urban migration dominated in all four migration groups, classified by reason of migration. Females had a higher share in associational, marriage and distress migrations compared to males in both rural to urban and urban to urban streams. In voluntary migration, economic reasons to move were the most dominant and women had the least share in this case. Hence their strength in voluntary migration was minimal. In distress migration, death of partner or desertion by partner affected female migrants only and not male migrants.

The analysis of the educational attainment of female migrants revealed that the illiterates took the maximum share among the migrants, both from rural and urban areas to the city. Illiterates were the maximum in marriage and associational migration. The pattern of migration level of education was also similar. It was the highest among illiterates, followed by semi-literates (up to a primary level of education). Voluntary migrants had a relatively higher level of education than other migrants. The level of educational attainment was higher in urban to urban migration than in rural to urban migration. For instance, nearly 13.4 per cent of female migrants from urban areas were graduates while in rural to urban migration, there was no graduate migrant. Since in voluntary migration, employment was one of the main considerations for females to move, the education level tended to be high in this case.

It was also learnt that the work-status of female migrants, both from rural or urban areas, was highly diversified. However, a majority of them was housewives and had joined their earning members. Their migration was associational. There was a significant change in work-status before and after migration. The percentage of female migrants working or seeking employment after migration had gone up, especially among those who had migrated from rural areas. This was partly due to the needs of an urban society where financial strains were high and those who were educated took up better jobs. Partly it was due to small family norms or break-up of the joint family system in urban areas which relieved women of household drudgery and allowed them to take advantage of employment opportunities in the city. Migration involved not only a change in place of residence but a displacement

in career as well. Many working women, who migrated either on account of marriage or in association with their family, were not in a position to get a job-transfer to the place of their migration. They had to resign from previous jobs and look for a new position, hence the number of job-seekers went up.

Migrants, many of whom reported 'students' as their status before and after migration, had either followed their families or had come to the cities for higher studies.

For many females, marriage was a terminal point in their studies. They remained students till their marriage. After marriage, once they migrated to a new place, they started looking for a job or became housewives. Hence their status invariably underwent a change.

SPATIAL MOBILITY AND REASONS FOR MIGRATION OF JAPANESE WOMEN

ATSUSHI OTOMO
UTSONOMIYA, JAPAN

This paper discloses, at first, the spatial mobility of Japanese women and its change mainly between 1970 and 1980, through the comparison with the men's mobility, in the respects of distance of movement, age patterns and labour force status, using the population census data. At second, chief reasons for migration of the women by types of migratory flows are examined using the data derived from the survey on reasons for migration conducted in 1981 by the Land Agency, the Government of Japan. As the results, it is found that the spatial mobility of Japanese women is smaller than that of the men in long distance movement but almost same in short distance moves, and that the age pattern of spatial mobility of the women is nearly same between the distances of movement. Also, it is disclosed that the mobility of women in non-labour force is higher for the whole country but lower in metropolitan areas than that of the men. The first prime reason for migration of the women is 'employment' as same as that of the men for the whole nation, but it varies between the types of migratory flows.

The period between 1950 and 1970 and that after 1970 demonstrated distinctly different patterns in the internal migration of the population of Japan, not only regarding migratory flows but also spatial mobility. For the period from 1950 to 1970, the main migratory flows were those toward urban or metropolitan areas from rural or non-metropolitan areas, in particular to the three major metropolitan areas of Tokyo, Osaka and Nagoya; reverse flows were insignificant. Since 1970, however, the volume and intensity of the main flows mentioned above have been tapering off, while those of the reverse flows from the major metropolitan areas have been significant (Kawabe, 1980; Okazaki 1977; Otomo, 1980). On the other hand, spatial mobility of the Japanese population, or the percentage of migrants who changed their residences crossing the boundary of minor administrative areas, that is *shi, ku, machi or mura*, in one year for the total national population, indicated an increasing trend for the period from 1955 to 1970. It showed 5.8 per cent in 1955, 6.1 per cent in 1960 and 8.0 per cent in 1970. Thereafter, however, it tended to decline and it recorded 6.8 per cent in 1975 and 6.1 per cent in 1980. The same trends are observed for the movements of population between prefectures.

Such tendencies as mentioned above are found separately for the female population as well as for the male population (Table 1). This paper discusses spatial mobility and the reasons for the migration of Japanese women, mainly for 1970 and

after, and as compared with those of Japanese men.

Data

The spatial mobility of the Japanese population can be assessed by two kinds of data : migration statistics based on resident registers and those derived from the population census. The former data refer to the movement on an inter-communal basis, or between minor administrative areas, *shi, ku, machi and mura*, and are collected and published monthly as well as annually. The data present the number of migrants by sex and by prefectures, or the major administrative areas, only (Fig. 1). On the other hand, the data from the population census, which are available for 1960, 1970 and 1980, refer to moves on a residential basis. In other words, they include all of the spatial movements in terms of residential change, and they present the number of migrants by sex, age and other demographic, social and economic characteristics and by various types of administrative areas and other areas, mainly for a one-year period. In this paper, the latter data are chiefly used (Fig. 1, 2, 3, 4 and 5).

The reasons for the overall flow of population migration for the country as a whole have not been analyzed until 1982, although those for local migratory flows are revealed by several *ad hoc* surveys. In this paper, the reasons for the moves of Japanese women as regards total migratory flows of the whole country and the various types of migratory flows are discussed on the basis of the data from the Survey on the Reasons for Migration conducted by the National Land Agency in 1981.[1]

Table 1
Japan
Rate of Migration by Sex, 1960 to 1980

(Per cent)

Year	Total		Within prefecture		Between prefectures	
	Male	Female	Male	Female	Male	Female
1960	6.5	5.6	3.3	3.1	3.3	2.5
1965	8.2	6.9	3.9	3.6	4.3	3.2
1970	8.7	7.3	4.0	3.8	4.7	3.5
1975	7.2	6.3	3.5	3.4	3.7	2.9
1980	6.5	5.6	3.3	3 1	3.3	2.5

Note : Migration refers to residential movement between minor administrative areas, or *Shi, Ku, Machi* and *Mura*, which excludes the movement within a minor administrative area, for each year.

Source : Statistics Bureau, Prime Minister's Office, Japan : *Annual Report on the Internal Migration in Japan, Derived from the Basic Resident Registers, 1980.*

1. This survey was undertaken on a sample basis. The respondents, about 7,000 persons, were sampled from all migrants who changed their residences, crossing the boundary of minor administrative areas during the period of one year from July 1, 1980 to June 30, 1981 for the whole country.

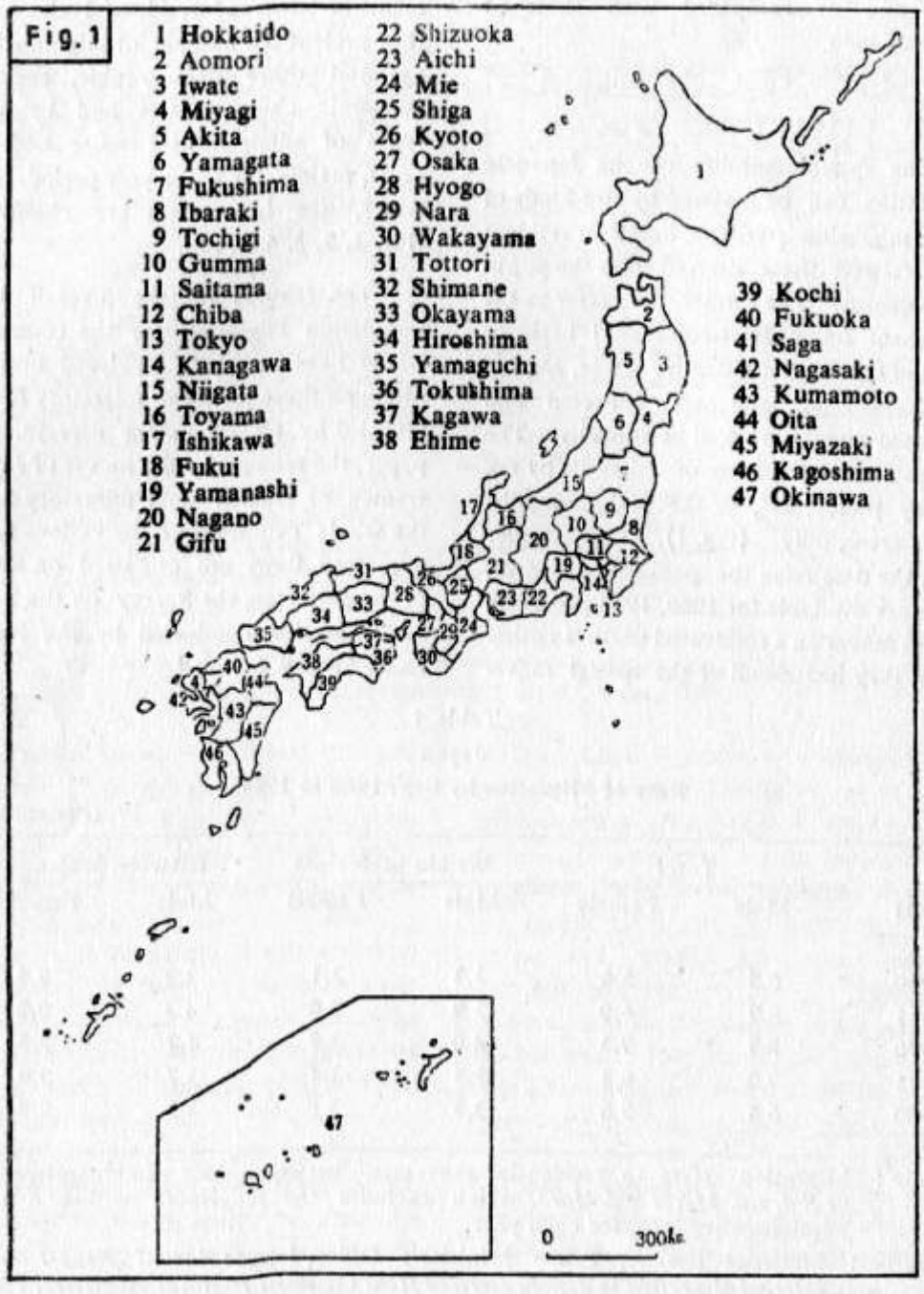
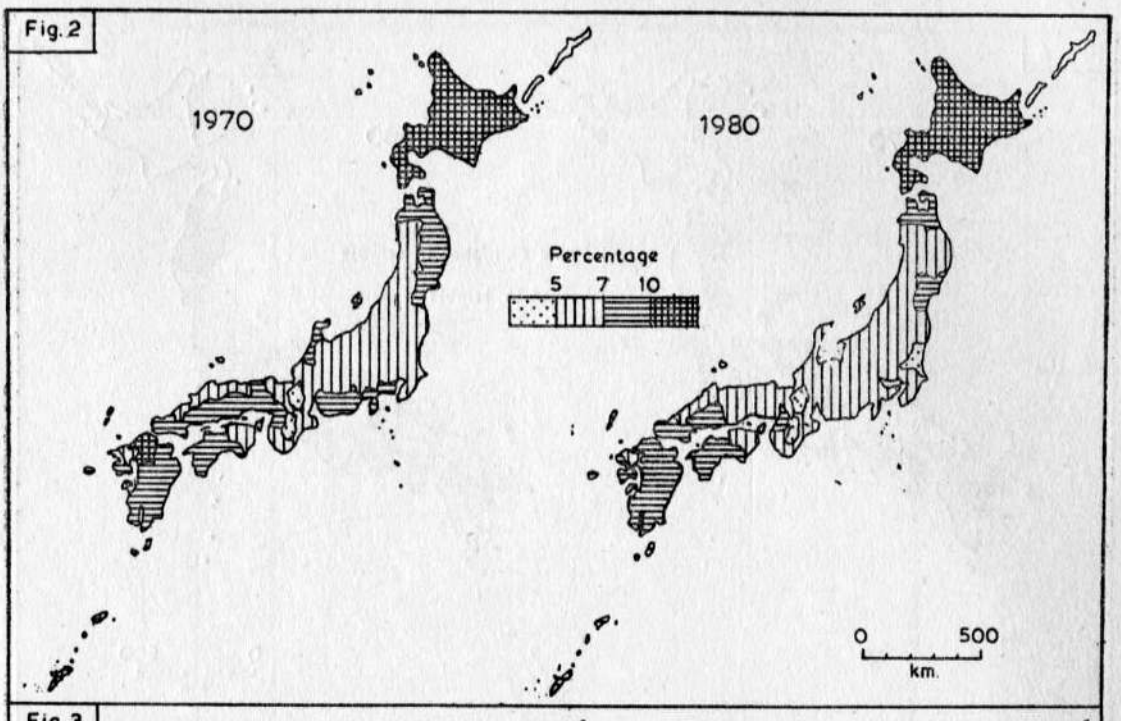


Fig. 1 : Japan, Reference map.



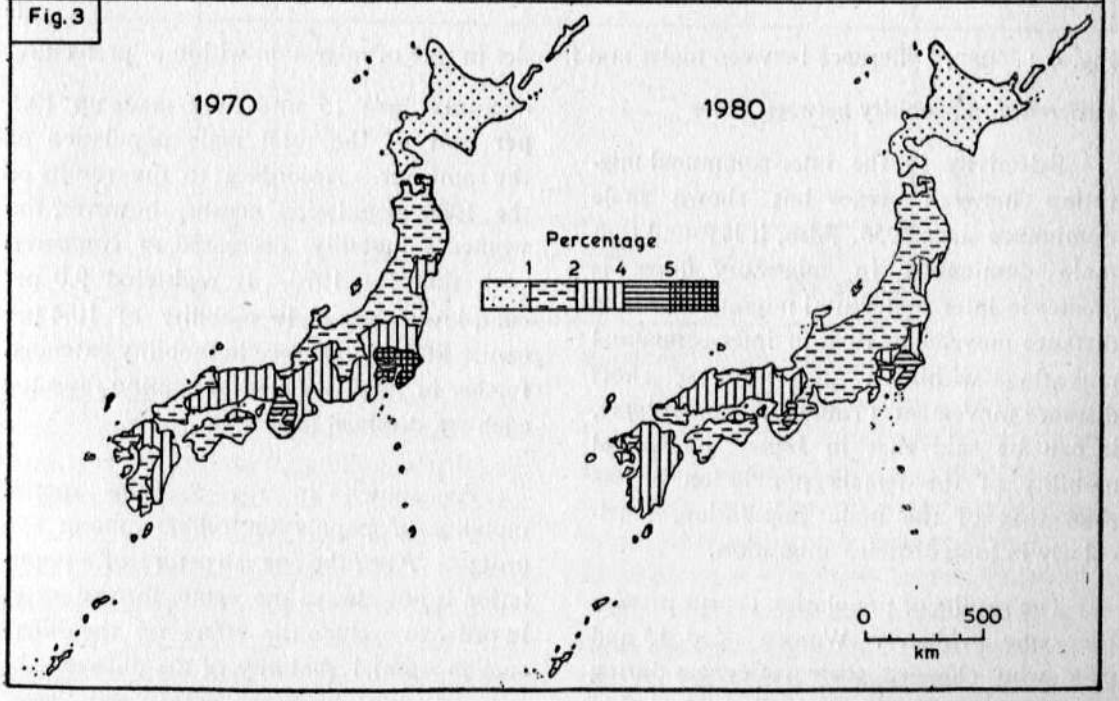


Fig. 2 : Japan, Rate of migration of female population aged 15 and over within a prefecture (standardized).

Fig. 3 : Japan, Rate of migration of female population aged 15 and over (standardized).

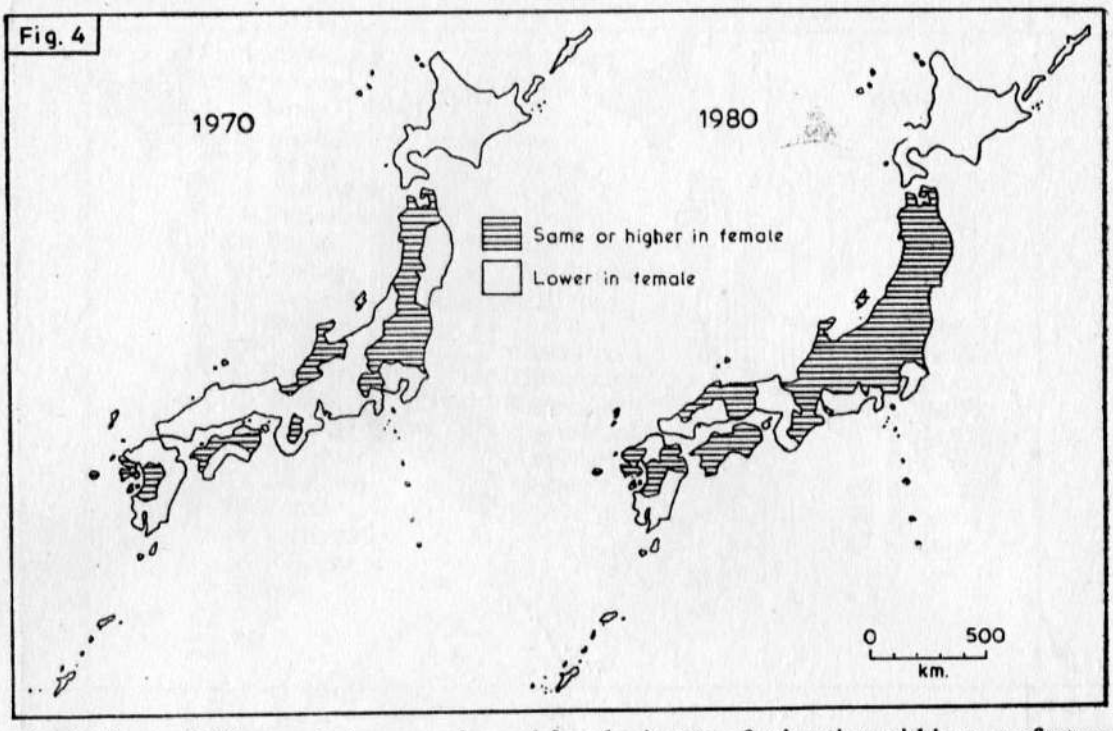


Fig. 4 : Japan, Difference between males and females in rate of migration within a prefecture.

Difference in Mobility between Sexes

Selectivity in the inter-communal migration between sexes has shown male dominance since 1955. Also, it is found that male dominance in migratory flows is greater in inter-prefectural migration or long distance movement than in inter-communal migration within a prefecture or short distance movement (Table 1). Accordingly, it can be said that in Japan the spatial mobility of the female population is less than that of the male population, particularly in long distance migration.

The results of population census present the same evidence. Women aged 15 and over who changed their residences during one year from October 1, 1969 to September 30, 1970 made up 11.8 per cent of all women aged 15 and over in the nation; the male migrants aged 15 and over made up 12.5 per cent of the total male population of the same age. According to the results of the 1980 population census, however, the women's mobility decreased as compared with that for 1970. It registered 9.0 per cent, lower than male mobility of 10.4 per cent. Male dominance in mobility extended further in 1980, although migration rates for each sex declined (Table 2).

As shown in Fig. 5, the spatial mobility of population differs among age groups. Also, the age structure of a population is not always the same for the sexes. In order to exclude the effect on the difference in spatial mobility of the difference in age structure between sexes and years, standardized migration rates were calculated on the basis of the age structure of the male

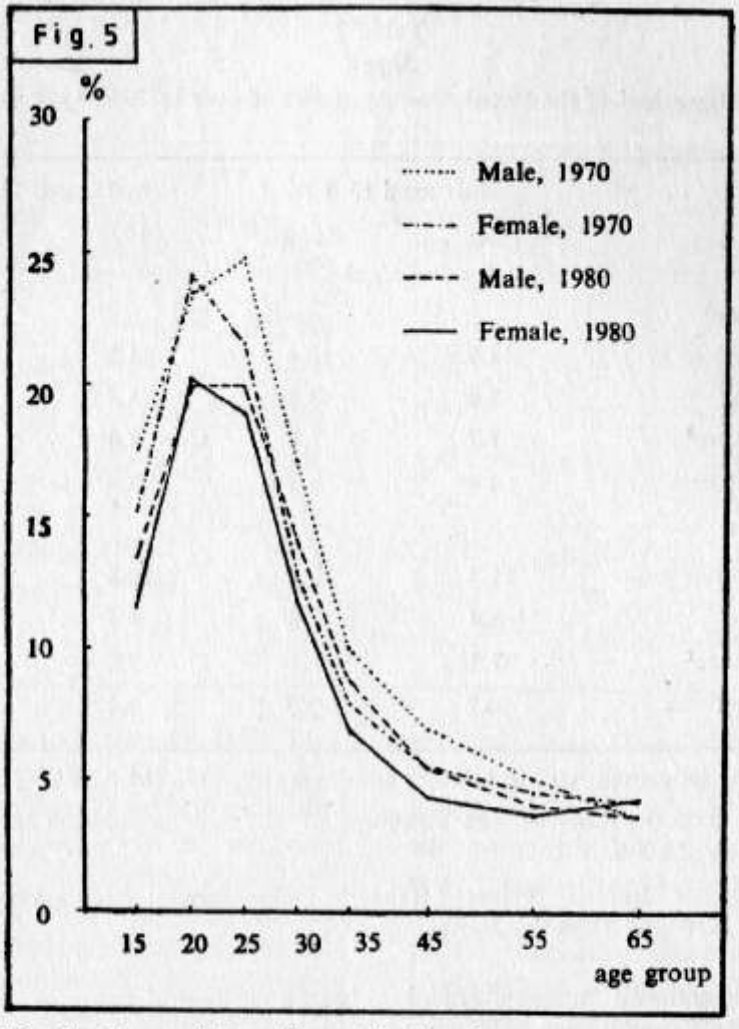


Fig. 5 : Japan, Rates of overall migration by sex and age.

population aged 15 and over. Observing the standardized rates of overall migration in Table 2, it is found that mobility was lower for women than for men in 1970 and 1980, the same as that observed in the non-standardized rates. However, it is known that the difference in the overall migration rates between sexes is smaller for the standardized rates than for the non-standardized ones. Furthermore, comparing the standardized rates of migration within a minor administrative area or those within a prefecture between men and women, it is found that the differences in both rates are very small between sexes; in particular, it is recognized that the women's rate of migration within a minor administrative area in 1980 is at the same level as the men's. These findings imply that spatial mobility in short-distance migration is not so different between men and women, but the total mobility of women is affected by inter-prefectural migration or long-distance movement.

Table 2

Japan

Rates of Migration[1] of the Population Aged 15 and over by Sex, 1970 and 1980

(Per cent)

	Male aged 15 & over		Female aged 15 & over	
	1970	1980	1970	1980
Not standardized				
Over all migration	12.5	10.4	11.8	9.0
Within M.A.A.	5.8	3.8	5.4	3.7
Within prefecture[1]	7.7	7.1	8.4	6.7
Between prefectures	4.8	3.3	3.4	2.3
Standardized[2]				
Over all migration	11.5	10.4	10.9	9.4
Within M.A.A.	5.4	3.8	5.1	3.8
Within prefecture[1]	7.3	7.1	7.8	7.0
Between prefectures	4.2	3.3	3.1	2.4

1 Includes the movement within a minor administrative area (M.A.A.).

2 Standardized on the basis of age structure of the male population aged 15 and over for Japan as of 1980.

Source : Statistics Bureau, Prime Minister's Office, Japan : *Population Census Report for 1970 and 1980 separately.*

The above-mentioned findings regard the national average, not each region or prefecture. According to Fig. 2 and 3, it is roughly observed that women's mobility is higher in the southwestern part of Japan than in the northeastern part, the same as observed in men's mobility. Further examination reveals that the prefectures constituting the three major metropolitan areas, such as the prefectures of Tokyo, Kanagawa, Chiba, Saltama, Aichi, Osaka, Kyoto and Hyogo, showed relatively higher migration rates together with the prefecture of Hokkaido in the northernmost part and the prefecture of Kyushu in the southernmost part of the country, in 1980 as well as in 1970. On the other hand, it is found that women's mobility as well as men's in terms of the immigration rate in inter-prefectural migration showed considerably higher values only in the major metropolitan prefectures but lower rates in other prefectures.

Comparison of migration rates within a prefecture between men and women reveals that 15 prefectures, most of which are located in the northeastern part, out of 47

Table 3

Japan

Coefficients of Variation for Rates of Migration by Sex for 47 Prefectures, 1970 and 1980.

	Mean		Standard deviation		Coefficient of variation	
	1970	1980	1970	1980	1970	1980
Female	Per cent	Per cent				
Overall migration	9.60	8.75	2.18	1.58	0.23	0.18
Within prefecture	7.27	6.64	1.95	1.53	0.27	0.23
Inmigration	2.37	2.10	1.45	0.83	0.61	0.39
Male						
Overall migration	10.92	9.49	2.64	1.89	0.24	0.20
Within preference	7.57	6.58	2.32	1.78	0.31	0.27
Inmigration	3.34	2.91	1.61	0.83	0.48	0.29

prefectures, indicated the same or higher values for women than for men in 1970. However, the number of prefectures exhibiting female dominance in the migration rate increased to 35 in 1980. Particularly, Fukui, Kagawa, Gumma, Aomori and Fukuoka prefectures indicated considerably higher rates in women's mobility compared with men's. The major metropolitan prefectures indicated male dominance in the migration rate within a prefecture in 1980 as well as in 1970 (Fig. 4).

Variation coefficients for the prefectural rates of migration within a prefecture and of immigration explain that prefectural differences in both rates for women decreased from 1970 to 1980 and the difference in the former rate was smaller than that in the latter rate (Table 3). Comparing the coefficients of variation for both rates between men and women, it is observed that the coefficients for the immigration rates were larger for women than for men in 1980 as well as in 1970, although those for the migration rates within a prefecture were smaller for women than for men in both years. On the other hand, the variation coefficients for overall migration rates[2] were smaller for women than for men in 1980 as well as in 1970. Also, it is found that the coefficients for women as well as for men decreased from 1970 to 1980. From these findings it can be concluded that prefectural difference in spatial mobility, excluding that of long-distance movement, of women is smaller than that of men and it has become much smaller in recent times.

2. For each prefecture, overall migration was defined as total migration within a prefecture and from other prefectures.

Age Patterns of Spatial Mobility

As shown in Fig. 5, the spatial mobility of women varies with their age, the same as that of men. In 1970, for the whole country the overall migration rate of women aged 15 and over indicated the highest value, 24.1 per cent, in the 20—24 age group and the second highest, 21.5 per cent, at ages 25 to 29. With increase in age it declined sharply, and it showed 4.2 per cent at age 65 and over. Also, for the 15—19 age group it showed a lower rate than at ages 20 to 24. Compared with the age pattern of the overall migration rate for men which shows peak mobility in the 25—29 age group, it is found that the spatial mobility of women was lower than that of men at each age excluding the age group of 20 to 24 and 65 and over. In 1980, spatial mobility declined sharply for women as well as for men, although basic patterns of migration rates by age were unchanged. Particularly, the overall migration rate decreased remarkably in the 15—29 age group. In 1980, the highest rate was 20.2 per cent at ages 20 to 24 for women. Further observation reveals that the age pattern of overall migration rates of women in 1980 is different from that for 1970 as well as from the male pattern. That is, the age pattern of migration rates depicting the declining slope up to age 65 and over with an increase in age for 1970 drew a slightly different pattern in which the migration rate was higher at age 65 and over than at ages 55 to 64, for 1980, although such a pattern had been observed for the major metropolitan areas, but not for the whole country in 1970 (Otomo, 1981).

Such a change in the age pattern of women's spatial mobility between 1970 and 1980 is observed not only in the overall migration rate but also in the migration rates within a prefecture and in immigration as shown in Table 4. Comparing the changes in age patterns of the spatial mobility of women between 1970 and 1980 among 47 prefectures, it is found that the age patterns of the migration rates within a prefecture and of immigration depict a pattern similar to that of overall migration rates for the nation for 1970 and for 1980, but the mobility rate, in particular the rate of migration within a prefecture at age 65 and over, showed a higher value than at age 55 to 64 for all prefectures except Shizuoka, in 1980. In 1970 it was observed in only 9 prefectures, such as Hokkaido, Miyagi, Tokyo and Fukuoka. Also, the rate of migration within a prefecture indicating a lower value in 1980 than in 1970 for each age group except age 65 and over showed the increase for the advanced ages mentioned above in all prefectures excluding Hokkaido, Ibaraki and Tokyo in 1980. Even in the age pattern of immigration rates showing sharp declines between 1970 and 1980, the same rate or a higher rate for advanced ages is found in most prefectures. Thus, it can be pointed out that the increase in spatial mobility of elderly women is recognized nationwide in spite of the decrease in mobility at lower ages in recent times.

Comparing the age patterns of spatial mobility between men and women, it is found that in 1970 the migration rate for women within a prefecture indicated a higher value at ages 20—24 and 65 and over than that of men, but it depicted a higher rate at ages 15—19 and 25—29 as well as at ages 20—24 and 65 and over in 1980. On the other hand, the immigration or

Table 4

Japan

Rates of Migration of the Population Aged 15 and Over by Sex and Age, 1970 and 1980

(Per cent)

Sex and age	Within prefecture		Between prefectures	
	1970	1980	1970	1980
Female				
15-19	8.6	7.0	6.5	4.6
20-24	16.8	14.8	7.3	5.4
25-29	15.6	14.0	5.9	4.8
30-34	9.4	8.8	3.3	3.0
35-44	6.0	5.4	1.9	1.6
45-54	4.4	3.6	1.1	0.8
55-64	3.5	3.0	1.0	0.7
65 and over	3.3	3.6	0.9	0.8
Male				
15-19	9.9	6.9	8.9	6.5
20-24	13.8	11.9	10.0	8.0
25-29	17.8	13.6	7.0	5.4
30-34	12.3	10.4	4.8	3.7
35-44	7.0	6.4	3.0	2.4
45-54	5.0	4.0	2.1	1.5
55-64	3.8	3.6	0.9	0.8
65 and over	3.0	3.1	0.7	0.6

migration rate between prefectures showed a higher value for women only at age 65 and over than that for men, in 1980 as well as in 1970 (Table 4). Also, it is found that differences in spatial mobility, in particular, in immigration rates within a prefecture between men and women diminished in almost all age groups from 1970 to 1980. Such comparisons for each prefecture indicate that in most prefectures the differences in spatial mobility for each age group are the same as those for the whole country and they became smaller in 1980 than in 1970.

Spatial Mobility of Women by Labour Force Status

Classifying women aged 15 and over

into the labour force and the non-labour force, it is known that the spatial mobility of women for the whole country was higher in the non-labour force than in the labour force, according to the data of the 1970 Population Census (Table 5). Observing the prefectural rates of migration within a prefecture for women by labour force status, it is found that they showed higher values in the non-labour force than in the labour force in all the prefectures, excluding Yamagata, Kanagawa, Tokyo, Osaka, Hyogo and Okinawa. Also, the prefectural immigration rates indicated higher values for women in the non-labour force than for those in the labour force in all prefectures, except for the major metropolitan prefectures of Tokyo, Kanagawa, Aichi, Osaka and Hyogo, where the immigration rate was higher for women in the labour force than for those in the non-labour force. These findings imply that in non-metropolitan prefectures the spatial mobility of women is higher in the non-labour force than in the labour force, while in major metropolitan prefectures it is considerably higher in the labour force than in the non-labour force.

Calcutating the coefficients of variation in the migration rates for the women in the labour force and in the non-labour force for 47 prefectures, it is found that the coefficient for immigrant rates was much greater than those for other migration rates. On the other hand, it is known that the coefficients for migration rates within a prefecture and within a minor administrative area were smaller than those for immigration rates for women in the labour force as

Table 5

Japan

Coefficients of Variation for Rates of Migration of the Female Population Aged 15 and Over by Labour Force Status for 47 Prefectures, 1970

(Per cent)

	Within M.A.A.	Within prefecture	Immigration	Outmigration
Mean				
Labour force	4.38	6.83	2.16	3.18
Non-labour force	5.19	8.27	2.96	3.62
Standard deviation				
Labour Force	1.53	2.13	1.89	1.35
Non-labour Force	1.42	2.23	1.60	0.84
Coefficient of variation				
Labour force	0.35	0.31	0.87	0.42
Non-labour force	0.27	0.27	0.54	0.23

Table 6
Japan
Associations in the Rates of Migration between the Male Population Aged 15 and over and the Female Population at the Same Ages by Labour Force Status for 47 Prefectures, 1970

	r	a	b
Within prefecture			
Labour force	0.930	0.375	0.854
Non-labour force	0.946	1.390	0.909
Immigration			
Labour force	0.889	-1.315	1.043
Non-labour force	0.928	-1.194	0.921

r : The correlation coefficient between the male (x) and the female (x). Here a and b are the parameters in the regression equation $Y = a+bx$.

well as for those in the non-labour force (Table 5). From these observations it is suggested that the spatial mobility of women is associated with non-economic factors rather than with economic factors. Furthermore, the correlation coefficients of migration rates within a prefecture and of immigration for males age 15 and over, computed on the basis of data for 47 prefectures, were greater for women in the non-labour force than for those in the labour force (Table 6). This implies that the spatial mobility of women in the non-labour force, or mostly of housewives, depends to a large extent on men's, or their husbands', mobility.

Reasons for Migration of Women

The overwhelming conclusion of all migration studies, both descriptive and econometric, is that people migrate primarily for economic reasons (Todaro 1976). However, the reasons for Japanese women's moves give a little different picture. According to Table 7, in which twenty categories of reasons for migration derived from the Survey on Reasons for Migration[3] were classified into seven categories, the first main reason for women's moves was the reason of "employment", indicating 33.5 per cent of all female migrants aged 15 and over for the whole country. The reason of "employment" includes the reasons of "change in job", "transfer to other place of residence", "undertaking new employment" and "looking for work". The second chief reason, 17.0 per cent of the migrant women, was "marriage" and the third important

3. In this survey duplicates of reasons for migration were also collected. However, only the main reasons are discussed here.

Table 7

Japan

Main Reasons for Migration of the Population Aged 15 and over by Sex, 1981

Per cent

Type of flow	Occupation	Family	Marriage	Housing	Schooling	Environment	Others
Female							
Total flows	33.5	14.5	17.0	9.6	2.9	4.6	17.9
Within core[1]	14.7	13.7	14.1	23.9	2.4	9.8	21.4
Within fringe[2]	12.1	12.1	17.4	21.9	0.5	8.2	27.8
Core to fringe[3]	11.5	14.6	16.4	19.5	2.7	9.7	25.6
Fringe to core[4]	24.4	17.2	15.4	8.9	4.1	11.9	18.7
Intermetropolitan[5]	69.1	14.8	8.6	0.0	3.7	0.0	3.8
Outflow[6]	44.1	26.8	10.6	3.6	2.6	1.6	10.7
Inflow[7]	57.2	5.9	19.5	0.8	8.9	0.4	7.3
Interprefectural[8]	60.9	10.2	14.5	0.4	3.0	1.3	9.7
Local flow[9]	36.1	13.6	24.2	4.9	2.1	5.3	13.8
Male							
Total flows	44.0	12.2	7.4	8.4	4.9	7.1	16.0
Within core[1]	15.7	13.8	15.7	19.0	1.5	11.2	23.1
Within fringe[2]	18.8	11.7	12.7	19.1	1.2	11.8	24.7
Core to fringe[3]	16.5	10.9	3.4	19.9	0.4	12.1	26.8
Fringe to core[4]	31.2	10.4	7.8	5.2	7.8	17.4	20.2
Intermetropolitan[5]	82.7	3.8	0.8	0.8	6.8	0.0	5.1
Outfllow[6]	57.2	22.4	1.8	1.6	2.9	3.0	11.1
Inflow[7]	66.1	5.3	1.1	0.0	18.6	2.7	6.2
Interprefectural[8]	69.0	9.8	2.9	0.8	8.2	1.6	7.7
Local flow[9]	52.1	12.6	7.9	4.5	3.6	5.6	13.7

1) The inter-communal migration within the core area, or the central cities in each of three major metropolitan areas.
2) The inter-communal migration within the fringe areas in each of three major metropolitan areas.
3) The migration from the core area to the fringe area in the three major metropolitan areas.
4) The migration from the fringe to the core area in the three major metropolitan areas.
5) The migration between the three major metropolitan areas.
6) The outmigration from the three major metropolitan areas to other areas.
7) The immigration to the three major metropolitan areas from other areas.
8) The inter-prefectural migration excluding the migrations mentioned in 1) to 7).
9) The inter-communal migration excluding the migrations mentioned above.

Source ; National Land Agency, *Report on the Survey on Reasons for Migration, 1982.*

reason, 14.5 per cent, was "family reasons" including "living together with family", "living in neighborhood of family" and "separation from family". Also, the percentage of other chief reasons for the migration of Japanese women was 9.6 for "housing", 4.6 for "environmental"[4] and 2.9 for "schooling". Besides those reasons mentioned above, it cannot be ignored that there were also "other" reasons, 17.9 per cent, including "retirement", "medical care", etc.

Compared with the chief reasons for the movement of males aged 15 and over, 44.0 per cent of which migrated for the reason of "employment", 12.2 per cent moved for "family" and 8.4 per cent for "housing", Japanese women migrated rather for non-economic reasons, such as marriage and family reasons. For a fair evaluation, it should be noted that the reasons for migration shown in Table 7 may include not only the reasons of respondents themselves but also those of other household members, including their household heads. In other words, the migratory reasons of women may include the reasons originating from the women themselves and those motivated by other household members including their husbands, although those reasons were presented by the women in the survey themselves. Based on the other data of the survey, it is estimated that the proportion of the women's reasons actually motivated by other household members and considered as pertaining mostly to employment, amounts to more than half. Accordingly, it can be said that the percentage of migrant women motivated directly by the reason of employment themselves was much lower than 33.5.

The reasons for migration are different for varying types of migratory flows. In the cases of movement within a metropolitan core area, of that within a metropolitan fringe area, and of that from the core to the fringe within one of the three major metropolitan areas, the most important reason for the migration of women, excluding the reason "others", was "housing", the same as for men's moves. The second one was "marriage" in the latter two cases, while it was "employment" in the former case. On the other hand, in the cases of migratory flows from the fringe to the core within a major metropolitan area, of inter-metropolitan movements or movements between the three major metropolitan areas, of outflows from the metropolitan areas, of inflows to the metropolitan areas, of inter-prefectural migration, that is, movement between prefectures excluding the moves mentioned above, and of local moves of those crossing the boundary of minor administrative areas but within a prefecture excluding movements within metropolitan areas, women migrated mostly for "employment", the same as men. Particularly, in cases of inter-metropolitan flow, of immigration to metropolitan areas and of inter-prefectural flow, more than half of migrant women moved due to "employment". The second main reason for the movement of women was "marriage" in the latter three flow types, and it was "family reasons" in the former three types. In particular, in local moves, "marriage" as a

4. "Environmental" reason includes those for conviences of "commuting" and of "shopping", for "avoiding pollution or danger of disaster" and for "avoiding aggravation of social relations".

reason involved a higher percentage (24.2) than in other types of migratory flow. Also, it is noted that inflows to metropolitan areas showed a comparatively noticeable percentage (8.2) due to "schooling", although the same flows for men indicated a much higher percentage (18.6).

As previously stated, "employment" as a reason for the migration of women did not always originate directly from the women's motivation. This should be considered in the reasons for various types of migratory flows. The higher mobility of women in the non-labour force in migrations between prefectures, as metioned earlier, may support such a consideration. Accordingly, even in cases of inter-metropolitan flows, of outflows from and inflows to metropolitan areas and of inter-prefectural migrations, more than 50 per cent indicating "employment" as the reason for moving, it is judged that moves for employment reasons originating directly from women themselves were not so frequent.

From the above mentioned findings, it can be concluded that the main reason for the moves of Japanese women varies between different types of migratory flows. It is "housing" in the types of flow within major metropolitan areas while it is "employment" in the other types. It can be said, however, that "marriage" and "family reasons" are rather important for the migration of women because the "employment" reason is not always motivated directly by the women themselves.

Conclusion

This paper has shown, first, that the spatial mobility of Japanese women is less than that of men in long-distance migration but it is almost the same as that of men in short-distance movement, and that the prefectural difference in the short-distance spatial mobility of women is smaller than that of men while that regarding long distances is larger, although prefectural differences in both migration rates recorded were smaller in 1980 than in 1970 for women as well as for men.

Second, it was observed that the age patterns of women's spatial mobility rates, which depicted a curve with a peak at age 20-29 and a slope declining with the increase in age and having higher rates in both groups of younger and advanced ages than those regarding men, are nearly the same for the various types of migration, excluding rate differences for each age group, and for most of the prefectures. Compared with the 1970 pattern, it was found that the 1980 pattern, in which the difference between women and men became smaller, depicted a similar curve but with an upheaval at aged 65 and over, due to the increase in the mobility of the elderly, which seemed to be associated with increased life expectancy in women, despite the decrease in mobility at lower ages.

Third, comparison of woman's spatial mobility between the labour force and non-labour force has revealed that mobility was higher in the non-labour force than in the labour force although it showed the reverse pattern in major metropolitan areas, and that the mobility of women in the non-labour force depended on that of men rather than of women in the labour force.

Lastly, the chief reasons for the migration of women were examined. The results

disclosed that the prime reason for the moves of women was "employment", the same as for men for the whole country; however, it varied between types of migratory flows. In general, woman's first main reason for intra-metropolitan movements was "housing", the same as for men, while the woman's chief reason for the other types of flows was "employment", which was not always motivated directly by the women themselves. "Marriage" and "family" reasons, which were found in all major migratory flows of women as the second or third main reason, were rather important ones for the migration of Japanese women. Although further intensive examinations are needed to obtain a clearer picture of the migratory reasons of Japanese women, it can be concluded, based on the previously-mentioned findings, the Japanese women migrate primarily for non-economic reasons rather than for economic ones.

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THE ROLE OF WOMEN IN INTERNAL MIGRATION IN ZAMBIA

PRITHVISH NAG
CALCUTTA, INDIA

Zambia is an interesting case study of the role of women in internal migration. Almost its entire African population is matrilineal, a factor which plays an important part in governing migration patterns. A rural household is considered a female institution in most regions. Women's control over land, property and lineage places them in an important position in society. They play a crucial role among other things, in decision making process relating to migration although it is men who migrate in a larger number. Another interesting point is that females are more numerous than males. There are 962 males per 1,000 females on an average. The migration of males to urban areas has resulted in a numerical dominance of the females in rural areas and of males in urban zones. This imbalanced distribution of male and female populations has affected the household structure in particular and the Zambian social set up in general.

The study of human movements in southern Africa has drawn the attention of social scientists such as Gugler (1969), Hutton (1966), Mayer (1961), Mitchell (1969, 1971), Watson (1958), and Mwanza (1979). They have studied population movement as regards rural-urban migration, stablization, deportation and detribalization. In such studies, emphasis is placed on the clan, lineage and village of the migrants to urban areas. Population movement is studied principally on an individual basis rather than as population waves or flows.

Around 1890, the Zambian Copperbelt started to develop as a mining area, thereby creating high employment opportunities for the labour force. There was also a demand for labour on the farms and in towns located along the railway. Consequently, population movement toward the Copperbelt and railway line became part of sub-Saharan labour circulation. Kay (1967) elucidated internal and international labour migration during the colonial period. The situation changed considerably after independence. Depopulation of rural areas during 1963-69 reached an alarming rate, resulting in an annual population decrease of 5 per cent in some districts. During the same period, Northern and Luapula provinces recorded a decline of 5.9 and 3.4 per cent, respectively. On the other hand, squatter population in towns along the railway and in the Copperbelt increased at a faster rate (Nag, 1982). This population shift was associated not only with the movement of the young unemployed males but also with the movement of their families who joined them

in towns. This process was further facilitated by the liberal housing conditions provided after independence in 1964. In addition, young educated females could also find jobs in offices and shops. Schuster (1979), in her recent study on the women of Lusaka, describes the urban woman's way of life in Zambia today. She observes that "success in school and training programs has given young women confidence, pride and a sense of their own worth. This is a solid basis for such high self-esteem, for such educated women enter the urban scene ready to achieve both financial independence and high social status". There is a tendency among the educated and enterprising female and male population to move to urban areas. The rural areas are left to the elderly and infants, the least productive section of the Zambian population. The urban growth rate measures, among other things, the disparities between rural and urban living standards, perceived opportunities and aspirations (Simons, 1979).

Distribution of Female/Male Population

Zambian urban areas consist of the seven urban districts of the Copperbelt Province, the Kabwe, Livingstone and Lusaka urban districts and the towns along the railway line. Among other urban centres, provincial headquarter towns, such as Chipata, Mongu, Mansa and Kasama have substantial populations. These towns are urban islands in vast rural areas, hence they are not included in the 'urban areas' for this study, but are mentioned individually. From the above description, it is evident that urban areas are along the rail line, running south to north, from Livingstone to Chilalabombwe. This urban corridor plays a significant role in female/male population distribution in Zambia. (Fig. 1)

Fig. 1

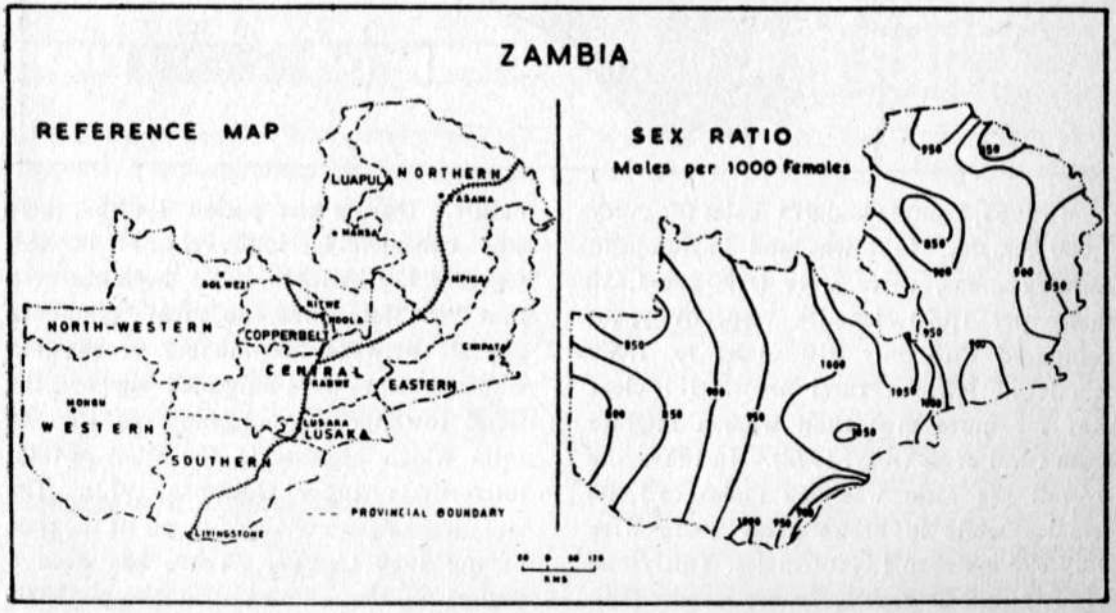
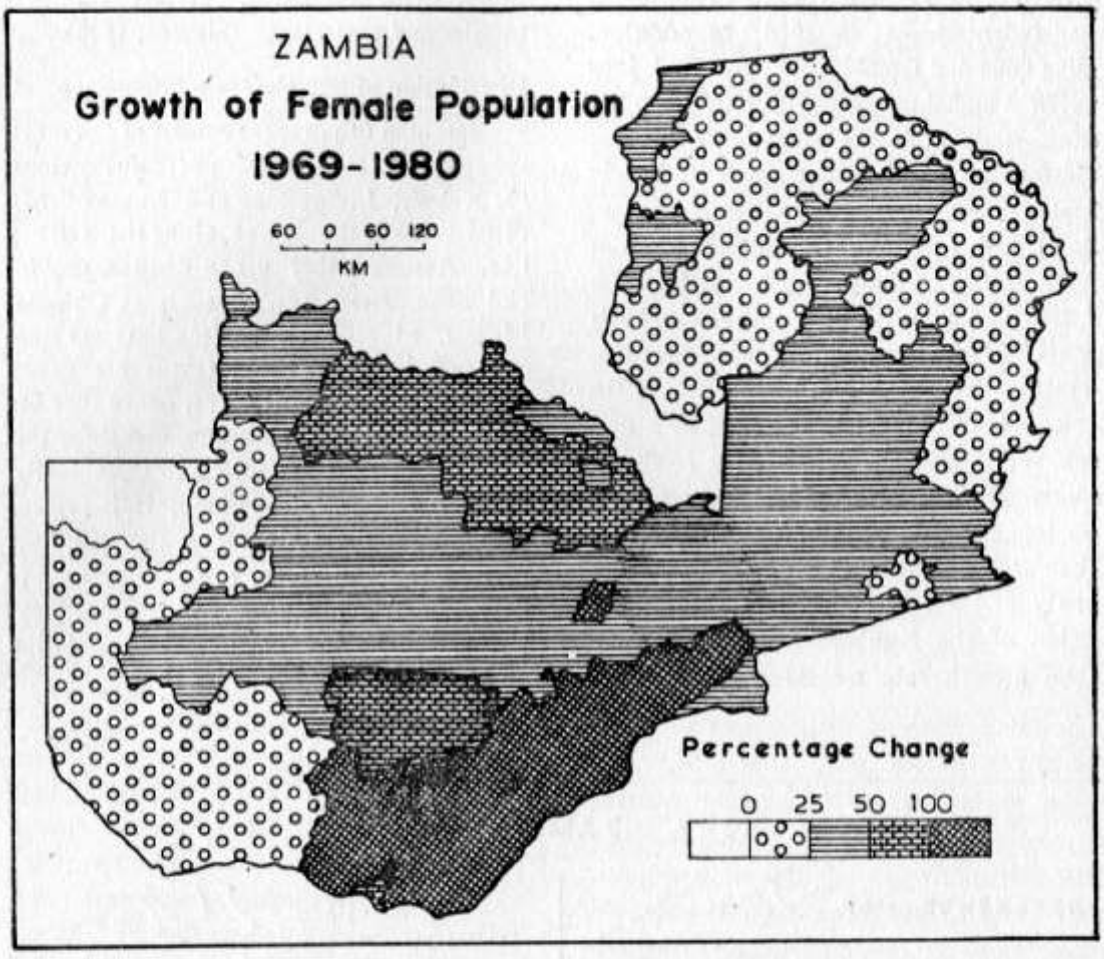


Fig. 2



In 1963, Zambia had 975 males for every 1,000 females. In towns and in European farming areas, there were 1,790 and 1,620 males per 1,000 females respectively, as compared with only 810 males to 1,000 females in African rural areas. It is clear that far more men than women migrate from rural areas (Kay, 1972). In 1969, the overall sex ratio was 960 males to 1,000 females while in urban areas there were only 895 males to 1,000 females. Thirty-one of forty-four districts had more females than males and these districts were rural in nature. During the period 1963-69, there was considerable improvement in this regard. Furthermore, it has been observed that "the fact that no great difference appears between the number of each sex who claimed to have migrated supports the trend towards normalization of the sex ratio which appears in the study of total intercensal changes" (Jackman, 1973). The situation had not changed much at the time of the 1980 Census. There has been a decline in the number of males per 1,000 females in the Eastern, Northern and North-

Table 1

Zambia

Sex Ratio in Urban Areas, 1969 and 1980.

Urban district	Males per 1,000 females in	
	1969	1980
1. Ndola	1,120	1,069
2. Mufulira	1,076	1,057
3. Luanshya	1,075	1,081
4. Kitwe	1,114	1,071
5. Kalulushi	1,081	1,051
6. Chingola	1,091	1,058
7. Chilalabombwe	1,101	1,059
8. Livingstone	1,163	1,058
9. Lusaka	1,103	1,055
10. Kabwe	1,098	1,042
Total urban	1,113	1,061
Total rural	895	916
ZAMBIA	960	962

Source : *Census of Zambia*, 1969 and 1980.

Western provinces. The sex ratio was still favourable to males along the old rail lines, where the male surplus was the result of sexselective immigration from other areas of the country (1980 Census). However, it is obvious from Table 1 that during the period 1969-80, the process of normalization of the sex ratio has been effective in all sections of Zambian society especially in urban areas.

Composition of Zambian Households

A household in Zambia is defined as a group of people who normally live and eat together. The average African household has 4.7 persons, with a minimum of 3.5 in Kabompo district in the North-Western Province and a maximum of 6.0 in Mufulira district in the Copperbelt Province. In the provinces along the railway, the size was either equal to or higher than this average, while it was smaller in the provinces which have been suffering from out-migration.

According to the 1969 Census, in households with male heads there were on an average 0.88 wives, 2.10 sons and / or daughters, 0.03 parents, 0.79 other relatives and 0.13 unrelated persons. On the other hand, households with female heads had 1.49 sons and/or daughters, 0.03 parents, 0.78 other relatives and 0.12 unrelated persons. From Table 2 it can be calculated that about one-quarter Zambian households had female heads. The size of the households headed by females was smaller (3.6 persons) than of those headed by males (5.01). One of the reasons for the smaller number of persons in female-headed households was the absence of the male counterpart who was likely to be employed in a place along the railway. The male headed households, without any wife, had 2.65 persons on an average (Table 3). Household size enlarged with an increasing number of wives : for example, a household with 3 or 5 wives had an average of 12.32 or 22.12 persons, respectively.

Although the number of 'never married' females was smaller than for the other sex, the percentage of widowed (10.09) and divorced (13.12) to married was alarming (Table 4). It was likely that female household heads were in large part either widowed, divorced or separated. Among African women in the 15-49 age group, 8.14 per

Table 2
Zambia
African Households Classified by Size and Sex of the Head

Item	Household heads		
	Males	Females	Total
Population	3,269,042	727,955	3,996,997
Number of households	651,994	204,118	856,112
Mean household size	5.0	3.6	4.7
Household size			
1-3 persons	237,706	122,984	360,690
4-7 persons	293,419	72,261	365,680
8 + persons	120,759	13,923	134,682

Source : *Census of Zambia, 1969.*

Table 3
Zambia
African Households Classified by Sex of the Head, Number of the Wives of Male Heads and Size

Sex of the head	Total number of persons	Total number of households	Household size
Male	3,269,042	651,994	5.01
No wife	342,867	129,307	2.65
1 wife	2,554,746	481,832	5.30
2 wives	304,091	35,763	8.50
3 wives	50,838	4,127	12.32
4 wives	11,856	727	16.32
5 + wives	4,468	202	22.12
Female	727,995	204,118	3.57
Grand Total	3,996,997	856,112	4.67

Source : *Census of Population and Housing, 1969,* (First Report).

Table 4
Zambia
African Population Classified Marital Status and Sex

(Per cent)

Marital status	Males	Females
Never married	63.68	52.89
Married	34.09	38.20
Widowed	0.64	3.86
Divorced	1.09	5.01
Status not stated	0.50	0.09
Percentage of widowed to married	1.89	10.09
Percentage of divorced to married	3.20	13.12

Source : *Census of Zambia, 1969.*

cent were divorced, 2.65 per cent widowed and 14.47 never married. Male-headed households without wives or the households headed by widowed, divorced or separated females indicated the incomplete nature of households. Also, in a society like Zambia, with a pronounced tendency towards monogamy, the different propensities of men and women to take part in internal migration meant that the actual number of family units was smaller than their potential number (Heisler, 1974).

Pattern of Female Migration

During the 1969 Census, one-third of the people were enumerated in districts other than the districts of their birth. This movement was thought to have avery important function in creating a feeling of Zambian national unity. It is difficult to estimate the exact volume of female migration in Zambia. If we compare the number of females born in a particular district to the number of females enumerated in the same district, the difference will indicate to a certain extent the internal migration pattern.

Female migration in the Southern and Western provices was negligible. In Luapula, Northern and North-Western provinces, there has been a reasonable amount of outmigration of the female population, while the remaining povinces along the railway have been receiving females from other provinces. Nearly a half of the female population of Lusaka province was born elsewhere. In general, 6.8 per cent of Zambian females were enumerated in districts other than those they were born in (Table 5).

Although detailed migration figures for the 1980 Census are not available, an estimate of female migration can still be made. The number of females increased from 2,070 thousand in 1969 to 2,894 in 1980; however, the sex ratio improved marginally. In urban districts, there has been

Table 5

Zambia

Place of Birth and Enumeration of Female Population, 1969

Province	Place of birth	Place of enumeration	Difference in percentage
Western	221,863	219,652	1.01
Central (old)	243,690	347,086	29.79
Eastern	325,790	275,400	18.30
Luapula	194,742	174,509	11.59
Northern	340,370	289,246	17.67
North-Western	138,564	122,114	13.47
Southern	246,265	251,250	1.98
Copperbelt	217,985	390,697	44.20
Central (New)	156,219	177,424	11.95
Lusaka	87,471	169,662	48.44
ZAMBIA	1,929,269	2,069,984	6.80

Source : *Census of Zambia, 1969.* Central Province (Old) = Central (New) + Lusaka provinces

an overall decrease in the number of males per 1,000 females. Since male population in these areas has increased at a higher rate during this period, the normalization process of the sex ratio was due to the in-migration of females.

Zambia can be divided into five major migration zones based on the 1969 Census (Nag, 1980). If we consider female population growth during 1969—80, we find that some districts of Southern and Lusaka provinces, whose population doubled, were definitely characterized by female in-migration. A similar increase was also recorded in the Kabwe Urban district. The districts around the Copperbelt Urban Complex and Namwala district in Southern province demonostrated substantial female population growth ; however, in Copperbelt Urban and mining districts (except Kalulushi and Kitwe), the increase was near the national average (39.8 per cent). Furthermore, a similar pattern was found in vast areas where female out-migration has been consistent. Growth was below average in outlaying areas that had suffered heavy female out-migration. This was the case of the Sambezi district in the North-Western province where there has been a reduction in the number of females. Table 6 gives an

Table 6
Zambia
Growth of Female Population, 1969-80

Province	Number of females in		Per cent growth rate
	1969	1980	
Central	177,424	225,062	26.85
Copperbelt	390,607	606,221	55.17
Eastern	275,400	347,663	26.24
Luapula	174,509	215,797	23.66
Lusaka	169,662	338,872	99.73
Northern	289,246	358,521	23.95
North-Western	122,144	157,721	29.13
Southern	251,250	348,876	38.86
Western	219,652	265,606	20.92
Total Female	2,069,984	2,894,339	39.82
Total Male	1,987,011	2,785,469	40.18
Total ZAMBIA	4,056,995	5,679,808	40.00

Source : *Census of Zambia, 1969 and 1980.*

aggregate picture of female population growth in Zambia's nine provinces (Fig. 2).

If we take Lusaka urban district as a case study, we would find some interesting female migration trends. This district has attracted population from every corner of Zambia due to its importance as an administrative seat and a social and cultural centre. Here female population doubled during 1969—1980 but the sex ratio improved from 1,103 in 1969 to 1,055 in 1980. Squatter compounds and site and service scheme housing areas have been receiving zones for migrants from areas away from the old rail line. In these inexpensive areas, such as John Howard, Mandevu, Misisi, Mutendere and Ng' ombe, there were more females than males. In other inexpensive housing areas, such as Chainda, Chibolya, Cook, Kanyama, Kaunda Square and Marrapodi, males marginally outnumbered females. A similar trend was observed also in some of the high, medium and low cost housing areas.

In the Chantala, Chilenje, South, Kacha and Ridgeway high-cost residential areas, females outnumbered males, but in most high cost residential areas and in peri-urban areas, females' number was less than their counterparts. It appears that female in-migration was directed to the inexpensive housing areas of Lusaka city, such as site and service schemes or shanty townships. Here popula-

Table 7
Lusaka
Sex Ratio in Different Types of Housing Area, 1980.

Type of locality	Males per 1,000 females
Site and service scheme housing areas/shanty towns	1,049
Low and medium cost housing areas	1,029
High cost housing areas	1,088
Peri-urban areas	1,136

Source : *Census of Zambia, 1980.*

tion density was high and the process of normalizing the sex ratio was relatively more effective (Table 7).

Conclusion

During 1969—80, the percentege of Zambia's urban population increased from 29.4 to 43. 0 and made Zambia one of Africa's most urbanized countries. Female migration in this urbanization process played a modest role but it helped in improving the sex ratio in urban areas. On the other hand, the annual growth rate of the rural population was only 1.1 per cent.

The recent change in Zambia's population is likely to alter the situation in 1969 when regions of male and female dominance could be identified. Urban areas would still dominate in rural areas. Under these circumstances, a socio-economic transition stage could be traced. The single male household was likely to be replaced by a mature household and household size should increase. In rural areas, the situation was likely to change as well but at a slower rate. There would be a decrease in the number of female household heads and absenteeism of enterprising females would affect land ownership patterns and agricultral output. As a consequence matrilineal rural society would have to adjust to the changing situation. The government of the Republic of Zambia will sooner or later take notice of the situation in light of its commitment to rural development. Zambia is a promising African country where some problems of women's internal migration should not be ignored so as not to allow them to hinder the development process.

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Acknowledgement

This paper is part of the research work carried out at the School of Oriental and African Studies, University of London, under the Commonwealth Geographical Bursary Scheme of the Royal Geographical Society, 1982/83. I am grateful to Pushpita Mallick, Sutapa Chandra and Debnath Sengupta of the National Atlas Organisation for their assistance in preparing this paper.

INTERNAL MIGRATION IN INDIA RESULTS FROM THREE STOCHASTIC PROCESS MODELS

GEOFFREY T. ROWE AND PARAMESWARA KRISHNAN
EDMONTON, CANADA

Approximations of the inter-state migration process in India by three logically different models reveal surprisingly similar results. The 1961 census data on place of birth by place of emuneration were employed for this study. India is characterized by a high degree of inter-state immobility. But a slight change in pattern in inter-state mobility is noticed when the most recent cohort of migrants is compared to the earlier ones. If the pattern of migration noticed at the time of the 1961 census continues, more than 60 percent of India's population would be located in the states of Assam, Madhya Pradesh, Maharashtra, and West Bengal put together.

Internal migration in India has been studied by various researchers (Bogue and Zachariah, 1962; Bose, 1974; Davis, 1951; Gosal and Krishan, 1973) mostly from a substantive perspective. Before the 1961 census, the data on migration had been of the orthodox type - place of birth by place of enumeration. In view of the built in bias in this type of data, the immobility of the people of the Indian sub-continent got over-emphasized. The following quote from Davis highlights the issue :

> The population of the sub-continent, like that of most peasant regions, is relatively immobile. The immobility is due not only to the predominance of agriculture, but also to the caste system, to the diversity of language and culture, and to the lack of education.
>
> Despite the relative immobility, the absolute numbers involved in the internal movement are large. In 1931, some 12 million were enumerated outside the province or state of birth...
>
> (Davis, 1951, p. 122)

The duration of residence data collected at the time of the 1961 census tried to explode this myth on the Indian immobility. Bose (1974) and Gosal and Krishan (1973) demonstrate that short distance migration is quite high in India. The determinants of migration have been discussed by the researchers mentioned. A detailed quantitative analysis of the factors behind the labour mobility and inter-state migration in India can be found in Greenwood (1971) and Rao (1973). Some results on internal migration in the 1961-1971 span are available in Mehrotra (1974). According to this monograph, while 66.9 per cent of the population was marked by immobility in 1961, in 1971 the per cent immobile was 68.5, implying a

slight increase in the degree of immobility in India. We cannot immediately accept these results without doing a detailed analysis of the internal migration process during the 1961-1971 period.

This study is aimed towards developing a set of probability models of internal movement in India and infer its future ramifications. The 1961 census data are being employed for this purpose.

Probability Process Models of Internal Migration

There is a growing literature on stochastic process modelling of the mobility process, both social and spatial. Most of it can be found in Bartholomew (1973), Halmos (1973) and Krishnan (1977). Even though Joshi (1967) presents a model for internal migration, very little empirical work on India, employing this method has been done. See the epilogue for some recent studies. The 1961 census data on migration by duration of residence, in spite of some inherent problems, yield a starting point for developing such types of models. We have attempted here three stochastic process approximations of inter-state migration in India - (1) a simple Markov chain (2) a conditional Semi-Markov process model and (3) an unconditional Semi-Markov process approximation.

Notation and the Models

We follow Howard (1971) in developing the model.

p_{ij} — probably that a person who has entered state i on last transition will enter (move to) state j on the next transition.

r_{ij} — holding time in state i before transition to state j.

$h_{ij}(.)$ — probability function of holding time in state i before moving to state j.

$w_i(m)$ — $\sum_j P_{ij}\, h_{ij}(m)$—probability function of waiting time in state i.

$c_{ij}(m)$ — the joint probability that a process that entered state i at time zero will make its next transition to state j and at time m.

$p_{ij}(m)$ — the conditional transition probability from state i to state j at time m, the probability that a process that entered state i at time zero, and made its next transition at time m, will make that transition to state j.

Instead of selecting the destination first and then selecting the time of transition, which is the basic approach in most cases, let us conceive of the process as selecting the time of transition first and then the destination. Thus, if p_{ij} and $h_{ij}(.)$ are given, $w_i(m)$ and $p_{ij}(m)$ are determined and conversely, if $w_i(m)$ and $p_{ij}(m)$ are given, p_{ij} and $h_{ij}(.)$ are solved from the results on joint probabilities.

Assuming time to be measured in discrete units, we have

$$p_{ij}\, h_{ij}(m) = c_{ij}(m) \quad (1)$$

$$= w_i(m)\, p_{ij}(m) \quad (2)$$

Then $$p_{ij}(m) = p_{ij}\, h_{ij}(m)/w_i(m) \quad (3)$$

If $w_i(m)$ and $p_{ij}(m)$ are given

$$p_{ij} = \sum_{m=1}^{\infty} w_i(m)\, p_{ij}(m) \quad (4)$$

Table

Transition Probability Matrix,

State	Ahdhra Pradesh	Assam	Bihar	Gujarat	Kerala	Madhya Pradesh	Tamil Nadu
Andhra Pradesh	0.9760849	0.0001258	0.0003605	0.0002443	0.0000541	0.0010986	0.0035465
Assam	0.0000685	0.9947487	0.0006570	0.0000202	0.0000087	0.0007655	0.0000242
Bihar	0.0000627	0.0055594	0.9570437	0.0000550	0.0000084	0.0012143	0.0000209
Gujarat	0.0003182	0.0000468	0.0004794	0.9647486	0.0001521	0.0023368	0.0003728
Kerala	0.0014422	0.0002219	0.0004133	0.0004546	0.9640836	0.0010570	0.0163535
Madhya Pradesh	0.0003241	0.0003772	0.0014338	0.0010792	0.0000205	0.9738519	0.0000816
Tamil Nadu	0.0049951	0.0002488	0.0003249	0.0003418	0.0056684	0.0005713	0.9702021
Maha-rashtra	0.0026308	0.0000506	0.0001771	0.0049538	0.0001518	0.0080137	0.0003269
Mysore	0.0078703	0.0000386	0.0000804	0.0002666	0.0009187	0.0002338	0.0038292
Orissa	0.0024204	0.0030323	0.0034366	0.0000441	0.0000091	0.0065302	0.0000451
Punjab	0.0004127	0.0006851	0.0014887	0.0005738	0.0000567	0.0030946	0.0001557
Rajasthan	0.0005691	0.0011017	0.0014277	0.0071194	0.0000106	0.0131776	0.0004672
Uttar Pradesh	0.0001493	0.0006539	0.0040686	0.0011156	0.0000137	0.0064132	0.0000556
West Bengal	0.0002323	0.0019793	0.0102923	0.0001794	0.0000294	0.0008792	0.0001484
Delhi	0.0015374	0.0007065	0.0016185	0.0019476	0.0004266	0.0056864	0.0016840

Source : Computed from the 1961 census data on migration.

1

Finite Markov Chain

Maha-rashtra	Mysore	Orissa	Punjab	Rajasthan	Uttar-Pradesh	West Bengal	Delhi
0.0078468	0.0080318	0.0014657	0.0000949	0.0000613	0.0001608	0.0006930	0.0001329
0.0001902	0.0000191	0.0003969	0.0002263	0.0000949	0.0005441	0.0021346	0.0000954
0.0002410	0.0000151	0.0020143	0.0001897	0 0000711	0.0047928	0.0284970	0.0002052
0.0278479	0.0003326	0.0001221	0.0001200	0.0014487	0.0005302	0.0008897	0.0002564
0.0056819	0.0079482	0.0002469	0.0003384	0.0001157	0.0003286	0.0007193	0.0005927
0.0076065	0.0000544	0.0017811	0.0002587	0.0040741	0.0071028	0.0015824	0.0003698
0.0035228	0.0115299	0.0002492	0.0002306	0.0001124	0.0003108	0.0011344	0.0005575
0.9770644	0.0045137	0.0000967	0.0003120	0.0003369	0.0006352	0.0003988	0.0003363
0.0201144	0.9659384	0.0000475	0.0001056	0.0000488	0.0001347	0.0001773	0.0001961
0.0002470	0.0000207	0.9732623	0.0000916	0.0000239	0.0001473	0.0106199	0.0000697
0.0030586	0.0001969	0.0005227	0.9404912	0.0133783	0.0148810	0.0025109	0.0157732
0.0054961	0.0006069	0.0002458	0.0565617	0.8999103	0.0058426	0.0030005	0.0044555
0.0056547	0.0000653	0.0001379	0.0038932	0.0019443	0.9654260	0.0046520	0.0056406
0.0007457	0.0000779	0.0024199	0.0003599	0.0002164	0.0020050	0.9799143	0.0005169
0.0095912	0.0010110	0.0013661	0.0527604	0.0080181	0.0432168	0.0063639	0.8635754

The transition probability matrix ($p_{ij}(m)$) is more meaningful in some instances than the usual matrix (p_{ij}). In migration analysis, we usually take the transition probability p_{ij} first and then the random time $h_{ij}(t)$. What happens in real life is that a person lives in a place for some time and at some point in time decides to move. Just before, or at the time migration, he selects a place to move. Thus ($p_{ij}(m)$) may be more meaningful in many cases. A model for internal migration based on $p_{ij}(m)$ and $w_i(m)$ may be called a *conditional* Semi-Markov process. A model which depends on p_{ij} and $h_{ij}(.)$ may be termed an *unconditional* Semi-Markov process. The third possibility is to approximate the process by a finite Markov chain, where transitions are permitted at fixed intervals of time only.

Data and Findings

The data on migration at the time of the 1961 Census (India, 1966), as is the practice, have been collected on the basis of place of birth and place of enumeration. Duration of residence at the place of emuneration is an extra piece of information. The data are available by district and state of birth. For a more meaningful analysis, data by district of birth should be used. Since our consideration is inter-state and not intra-state migration, we have used the state of birth data. The main component of internal migration in India is intra-state. We skip that in this study but hope to present results on such behaviour for each state in later reports.

The data on duration of residence are shown as "less than one year", "one to five years", "six to ten years", "eleven to fifteen years" and "sixteen years and above". Unfortunately the data provide us with only the duration of residence at the place of enumeration (which is destination as far as the migrants are concerned). In Semi-Markov modelling, we require the duration of residence at origin before migration. In the Indian situation, the origin is the place of birth. This makes it difficult for us to apply the model straight away on the census data on duration of residence. Since the proportion of people in each state who have stayed over ten years is very high (over 90 per cent), we may assume that the census data fairly approximate the duration of residence information by place of birth. We may note that it will be worthwhile for the future Indian censuses to collect data by length of stay by place of last residence instead of place of enumeration for more meaningful analyses of migration patterns.

We have considered in this study only 14 states and Delhi.[1] The states are Andhra Pradesh, Assam, Bihar, Gujarat, Kerala,

1. At the time of 1961 Census, Punjab was undivided. Assam too did not undergo boundary changes. Tamil Nadu was known as Madras and Mysore was the name for Karnataka state.

   All foreign born have been excluded from the start. The following states/centrally administrated territories were not considered for the data analysis : Andaman and Nicobar Islands, Himachal Pradesh, Laccadive, Manicoy and Aminidive Islands, Dadra and Nagar Haveli, Goa, Daman and Diu and Sikkim.

   North East Frontier Agency, Manipur, Nagaland and Tripura were merged with Assam, Pondicherry with Madras (Tamil Nadu) and Jammu and Kashmir with Punjab.

Madhya Pradesh, Madras (now Tamil Nadu), Maharashtra, Mysore (now Karnataka), Orissa, Punjab (in 1961 Punjab was undivided), Rajasthan, Uttar Pradesh and West Bengal. Others and centrally administered areas have been ignored.

A Finite Chain Approximation

Considering the migration behaviour of those whose duration of residence is less than one year as reflective of one-year migration pattern, a one-year transition probability matrix has been generated. This is shown in Table 1. If 95 per cent of a state's population stays therein, we may call that a non-sending state. The complement forms a sending state By this criterion, Punjab, Rajasthan and Delhi are sending states. The receiving states are usually the neighbours. For instance, Rajasthan sends its migrants mostly to Punjab and Punjab to Delhi. Which are the receiving states ? Maharashtra, West Bengal, Madhya Pradesh and Assam. A look at the column entries in Table 1 tells us this story. In order to infer the implications of this migration pattern, we derive the steady state characteristics of the chain.[2] This yields us the population distribution of India, under the assumption that the present conditions continue for a long period of time. The steady state probability vector (Table 2) reveals that 18 per cent of the population of India would be located in Maharashtra, 11 per cent in Madhya Pradesh, 16 per cent in West Bengal and 17 per cent in Assam. The population shares of other states would be less than seven percent.

TABLE 2

Steady State Probability Vector From A Finite Markov Chain Model

State	Probability
Andhra Pradesh	0.0482
Assam	0.1736
Bihar	0.0589
Delhi	0.0088
Gujarat	0.0363
Kerala	0.0056
Madhya Pradesh	0.1127
Tamil Nadu	0.0193
Maharashtra	0.1781
Mysore	0.0447
Orissa	0.0346
Punjab	0.0294
Rajasthan	0.0124
Uttar Pradesh	0.0742
West Bengal	0.1632

Source : Authors' computations.

The mean first passage times and recurrence times are of interest to social scientists. These are indicative of the time, on an average, required by one to move from one state to another and move back to the state of start. As with most of the

2. Steady state is a term used by engineers. Statisticians prefer to employ "statistical equilibrium" for the same concept. In a regular Markov chain, it is shown that a steady state is attained by the process. The usual procedure to derive the steady state is to raise the matrix (p_{ij}) to higher powers until stability is attained (i.e. the rows/columns become identical).

finite Markov chain approximations in social sciences, the values have to be interpreted in relative terms. Looking at the sending states,[3] we find that, if the average time from Rajasthan to Punjab (where most migrants move) is taken as one unit, the time units to move to Madhya Pradesh and Maharashtra are less than and to West Bengal a little more than one unit. Obviously, all these states except West Bengal are geographically close to Rajasthan. From Punjab, all the southern states, Orissa, Assam and Gujarat are not approachable within one unit of time, where the unit of time is the mean first passage time to Delhi. One point that emerges from this approximation is that the mean first passage time to Maharashtra is the lowest and to West Bengal the second lowest in most of the cases. The influence of the two largest Indian industrial-urban centres is apparent in this result. Surprisingly, Delhi does not seem to be the third major state of attraction to migrants in spite of being the third largest metropolitan area in the country.

Since most of the migration is to the neighbouring states, we can rewrite the transition matrix effectively as

$$p = (p_{ij}) = \begin{bmatrix} 1-\varepsilon_1 & \varepsilon_1 & 0 & \dots & 0 \\ 0 & 1-\varepsilon_2 & \varepsilon_2 & \dots & 0 \\ \dots & \dots & \dots & \dots & \dots \\ \dots & \dots & \dots & \dots & \dots \\ 0 & 0 & \dots & \varepsilon_{15} & 1-\varepsilon_{15} \end{bmatrix}$$

Then

$$p^n = \begin{bmatrix} 1-n\varepsilon_1 & n\varepsilon_1 & 0 & \dots & 0 \\ 0 & 1-n\varepsilon_2 & n\varepsilon_2 & \dots & 0 \\ \dots & \dots & \dots & \dots & \dots \end{bmatrix}$$

This can be employed to project the population distribution by internal migration. If the matrix P is drawn on a regional basis, P is effectively a diagonal matrix=diag (p_N, p_E, p_W, p_S), where p_N, p_E, p_W, p_S, are the interstate transition matrices for states comprising Northern, Eastern, Western and Southern regions[4]. Each of these matrices can be analysed for their steady state characteristics.

Is the recent pattern of migration different from the earlier patterns ? A partial answer emerges from the following. If a stationary finite chain approximation holds, and the pattern of migration remains unchanged, then the tenth power of this transition matrix should yield the 10-year transition matrix obtained from those whose duration of residence is over 10 years. Since these two are not identical and furthermore, the diagonal elements of the tenth power of the one-year transition matrix are much smaller than those of the ten-year matrix, we conclude that there may be a shift in the inter-state migration pattern. It seems that the inter-state mobility is on the increase.

The Unconditional Semi-Markov Model

This is the conventional Semi-Markov

3. Many of the computer results are not shown here to save space in the Journal. Those interested in details should contact the senior author in Edmonton.

4. A diagonal matrix has non-zero elements on and zero elements off the diagonal. Then the nth power is easily seen as a diagonal matrix of the nth powers of the diagonal elements.

approach to migration analysis. We have the ten-year transition probability matrix and frequency function of length of residence at place of birth (see elsewhere for the assumption underlying this statement). The steady state characteristics of the process are given in Table 3. We see that a current transition to Maharashtra is highly likely, followed by Assam, West Bengal, Madhya Pradesh, Uttar Pradesh and Bihar in that order. The probability of ensurance (in a given transition) is highest for Maharashtra, followed by Assam, West Bengal and Madhya Pradesh. The steady state distribution shows Maharashtra with 19.2, Assam with 17.3, West Bengal with 18.9 and Madhya Pradesh with 8.4 per cent of the population. About 60 per cent of India's population is likely to be concentrated in these four states. There are other characteristics (e.g., holding time probability matrix, duration between transitions, occupancy matrix values) which are not discussed here. The results presented here show exactly the same pattern exhibited by the finite chain approximation.

TABLE 3

Steady State Characteristics From An Unconditional Semi-Markov Process Model

State	Entrance probability*	Occupancy probability**
Andhra Pradesh	.0057	.0448
Assam	.0245	.1725
Bihar	.0069	.0704
Delhi	.0010	.0077
Gujarat	.0043	.0272
Kerala	.0007	.0046
Madhya Pradesh	.0133	.0837
Tamil Nadu	.0023	.0202
Maharashtra	.0210	.1919
Mysore	.0053	.0339
Orissa	.0041	.0374
Punjab	.0035	.0198
Rajasthan	.0015	.0147
Uttar Pradesh	.0089	.0526
West Bengal	.0192	.1667

Note : *Probability that state j is destination on a given transition.

**Probability that the process occupies each state j.

Source : Authors' computations.

Results from a Conditional Semi-Markov Model

As stated earlier, here the decision to move is taken at a random point in time and then the destination selected. The transition probability matrix for the conditional model has diagonal elements slightly larger than those in the unconditional model; the implication of this is that the conditional model increases the stayer probability. In real life, this is interpretable as, the people have few to choose from, when they migrate. The steady state characteristics do follow the same pattern of results seen in the unconditional model. These are shown in Table 4. The probability values are a little lower as compared to the unconditional Semi-Markov process.

Discussion

The three models utilized here have broadly indicated the same pattern

TABLE 4

Steady State Characteristics From A Conditional Semi-Markov Process Model

State	Enterance probability*	Occupancy probability**
Andhra Pradesh	.0056	.0453
Assam	.0189	.1590
Bihar	.0071	.0718
Delhi	.0065	.0480
Gujarat	.0045	.0282
Kerala	.0007	.0050
Madhya Pradesh	.0126	.0795
Tamil Nadu	.0025	.0223
Maharashtra	.0199	.1826
Mysore	.0054	.0345
Orissa	.0040	.0366
Punjab	.0033	.0188
Rajasthan	.0017	.0171
Uttar Pradesh	.0089	.0830
West Bengal	.0172	.1682

Note : *Probability that state j is destination on a given transition.

**Probability that the process occupies each state j.

Sources : Authors' computations.

of redistribution of population by migration. The results suggest that the majority of India's population will get located in the states of Assam, Madhya Pradesh, Maharashtra and West Bengal in the long run. According to the 1971 Census, these four states accounted for only 28 per cent of the population of the country. The population of any state at any point of time is the net result of the vital processes (i.e., births and deaths) and migration on the population at an earlier point in time. Assuming no state differentials in vital processes and that migration is the sole factor behind population redistribution in India, we see that some of the presently populous states, such as Andhra Pradesh, Bihar, Kerala, Mysore, Tamil Nadu, Uttar Pradesh would comprise much less population proportionately in the far distant future. Thus, if the present pattern of inter-state migration continues, there would be a major shift in the distribution of India's population. In spite of using three logically different models, we arrive at similar results. The migration path seems to be directed towards those states which have better and more employment opportunities in the industrial and the tertiary sectors (e.g. Madhya Pradesh, Maharashtra and West Bengal). One is unable to explain how Assam turns out as a state attracting people. The days of plantations and the government sector are almost over. It is likely that those who migrated long ago and settled down in Assam in large numbers are contributing to the "attraction" aspect of this state, which has undergone a lot of geographical boundary changes after the 1961 census.

Many changes, both social and economic, have taken place in India since then. In order to understand the migration pattern in the sub-continent better, the data from the 1971 census have to be analyzed in greater detail. Those results may help to affirm or modify the implications drawn here based on the 1961 census data.

A question that arises is why is the degree of inter-state mobility in India persistently low. We quoted from Kingsley Davis at the beginning of this paper, to indicate that the relative immobility of the Indians is due to a complex of factors. Better modes of transportation and employment opportunities available in different parts of the country have started to ease the situation. But language barriers, regionalism, linguistic chauvinism etc. are there to retard the mobility of the Indian people. All these seem to be linked to the low degree of economic development and growth in employment (relative to population size) the country has achieved. If Indians are ready to move to other countries (e.g. the Gulf states) where life is not a bed of roses, they will very well move within their country as well.

We personally feel that for a country like India, where intra-state migration is high, this type of inter-state migration modelling may not yield meaningful results, unless we have at hand the proportions of stayers and movers. The stayer-mover model will tell the migration story better. The place of birth statistics, particularly collected over a ten-year interval would not hint at what is really going on. The census should collect detailed information on the migration process, based on the last place of residence. A special migration questionnaire administered on a small per cent (sample) of the population, either at the time of the census, or periodically would provide researchers with a more meaningful data base for migration modelling and analysis.

Epilogue

Since writing this paper in 1977 for the I.A.S.P. Meeting, we have come across an article by T.K. Pachal in *Demography India* and another by S.S. Narayanaswami, also in the same issue of *Demography India*, which employed Markov modelling to study migration in India. Pachal's paper is on the pattern of internal migration based on the 1961 census data. Pachal uses the finite chain analysis to the data on seventeen Indian states. The grouping of the geographical areas in the Pachal study is not the same as the one done in our paper. But the general nature of results seems to be similar in both studies.

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ACKNOWLEDGEMENT

An earlier version of this paper was circulated at the 1977 Annual Meeting of the Indian Society for the Study of Population, Hyderabad. The authors are grateful to the referees of the Journal for their valuable comments and suggestions. This research was supported by the Department of Sociology, University of Alberta by providing computer time and services of a research assistant.

REDISTRIBUTION OF POPULATION IN INDIA : SOME REFLECTIONS

B. K. ROY
NEW DELHI, INDIA

This article examines some aspects of redistribution of population on the basis of internal migration data provided by the 1971 census. Its scope is in India limited to the assessment of the quantum and proportion of the redistribution at the national and state levels and to the change in internal migration during 1961-1971 on the basis of birth place statistics. A comparison of POB (place of birth) and POLAR (place of last residence) migrants is also referred to in the discussion. Brief analysis of types of migration streams in the intra-district, inter-district and inter-state levels are assessed to indicate the composition of migration. Certain characteristics of migrants in urban areas are also presented which may be useful for further investigations at the levels of cities and towns. The gamut of the above considerations may provide a view on the redistribution of population.

Population censuses in India continue to be the main source of data for migration analysis. The place of birth, place of last residence, and duration of residence in the place of enumeration give the basic information on migrants. The 1971 Census provided data not only on 'place of birth' but also on the 'place of last residence'. The present paper is based on a rigorous analysis of data relating to the 'place of last residence' and 'duration of residence' statistics. The data on the rate of natural increase were also put into service. The formula used for the purpose of the study is listed below ;

$$P_1 = P_0 + NM + NI$$

Where P_1 and P_0 is population in 1971 and 1961 respectively ; NM is net migration during 1961 and 1971 and NI the rate of natural increase during 1961-71. Thus, $P_1 - P_0$ equals NM + NI. In this context, net migration refers to in-migrants (0-9 years duration) minus out-migrants (0-9 years duration). Natural increase in population refers to total variation (1961-71) minus net-migration (0-9 years duration). Thus,

NI rate = Percentage of natural increase to mid year population (1961 and 1971)

$$= \frac{NI}{P} \times 100 \text{ where } P = \frac{P_1 + P_0}{2}$$

NM rate = Percentage of net migrants (0-9 years) to mid year population (1961 and 1971)

$$= \frac{NM}{P} \times 100$$

Results and Discussion

The most important point which emerges from the data is the significance of migration in redistribution of population at rural, urban and regional (state) levels. The rural and urban, which are the two most important macro-social components, represent the distribution or re-distribution of population in accordance with the economic and cultural systems. The redistribution of population at the state level reflects the supply and absorption capacity of different areas in terms of employment opportunities these can offer.

A look on the 1961 and 1971 birth place statistics shows a 15.49 per cent increase in female migrants, related mainly to the factor of marriage. The increase rate of the female migrants was higher than that of the male migrants in both rural and urban areas. In absolute numbers, the rural has been accounting for higher figures for both female and male migrants than the urban in both 1961 and 1971 (Table 1).

An analysis of internal migration with the help of the place of birth (POB) and the place of last residence (POLAR) data is still more revealing (Table 2). According to POB data, there were 157.4 million migrants in India in 1971, whereas migrants according to POLAR data were 159.5 million. This means that some of the migrants had returned to or happened to be at the place of their birth at the time of the census enumeration. The number of such persons was higher in the urban areas than in the rural. They included more of females than males.

Table 3 classifies different states and union territories by the degree of net inmigration or outmigration. Net inmigration is usually associated with a high rate of development. Assam, Chandigarh, Tripura, Andaman and Nicobar Islands and Arunachal Pradesh were noted among the prominent net gainers in terms of migration.

Table 1

India

Migrants in 1961 and 1971

		Number in millions			Percentage variation during 1961-71		
		Total	Male	Females	Total	Male	Female
Total	1961	144.8	46.9	97.9	15.17	14.50	15.49
	1971	166.8	53.8	113.0			
Rural	1961	109.4	28.2	81.2	13.24	12.31	13.57
	1971	123.9	31.7	92.2			
Urban	1961	35.4	18.7	16.7	21.13	17.80	24.87
	1971	42.9	22.1	20.8			

Source : D II Table (Place of birth) 1961, and D I Table (Place of birth) 1971.

Table 2

India

Volume of Internal Migration Based on Birth Place (POB) and Last Residence Concepts (POLAR), 1971.

Type of migration		Number of migrants (in million)			
		Rural		Urban	
		Male	Female	Male	Female
Intra-district	POB	20.2	70.4	5.8	7.3
	POLAR	20.1	70.7	6.3	7.8
		(-0.5)	(0.4)	(8.6)	(6.8)
Inter-district	POB	5.9	14.9	7.3	7.0
	POLAR	5.9	15.0	7.6	7.3
		(-)	(0.7)	(4.1)	(4.3)
Inter-state	POB	3.0	4.5	6.6	4.5
	POLAR	3.0	4.5	6.7	4.6
		(-)	(-)	(1.5)	(2.2)
Total	POB	29.1	89.8	19.7	18.8
	POLAR	29.0	90.2	20.6	19.7
		(-0.3)	(0.4)	(4.6)	(4.8)

Source : Migration Tables, India - DI and DII.
Figures in brackets are percentage change over POB.

Maharashtra, Manipur, Lakshadweep, Meghalaya, Nagaland, West Bengal and Delhi came in the next category of moderate gainers of migrants. Some states, such as Haryana, Madhya Pradesh, Gujarat and Orissa, were also net gainers in migration, but only in small degree.

On the other hand, the less developed or exceptionally densely populated states recorded excess of outflow over inflow. These states included Kerala, Bihar, Uttar Pradesh, Andhra Pradesh, Rajasthan, Tamil Nadu and Himachal Pradesh.

Migration Types

Table 4 presents a picture of the migration streams for rural to rural, rural to urban, urban to rural and urban to urban

Table 3

India

Net Inmigrants or Outmigrants as Per Cent of Total Migrants

Net gaining states/ union territories	Percentage	Net losing states/ union territories	
High Incidence			
Arunachal Pradesh	93.69		
Andaman & Nicobar Islands	91.99		
Tripura	90.08		
Chandigarh	80.88		
Assam	77.51		
Medium Incidence			
Delhi	74.99	Kerala	55.39
Nagaland	74.96		
West Bengal	74.47		
Meghalaya	59.49		
Lakshadweep	57.93		
Manipur	52.88		
Maharashtra	52.16		
Low Incidence			
Sikkim	44.39	Uttar Pradesh	32.87
Dadar & Nagar Haveli	40.26	Bihar	30.34
Madhya Pradesh	36.62		
Haryana	25.37		
Very Low Incidence			
Punjab	16.55	Andhra Pradesh	17.43
Jammu & Kashmir	16.06	Himachal Pradesh	10.61
Pondicherry	9.37	Rajasthan	9.97
Orissa	8.63	Tamil Nadu	5.26
Gujarat	4.37	Goa, Daman & Diu	5.14
Karnataka	2.91		

Source : Net-migration is based on Table DI (Place of birth) of the 1971 census data. Actual percentage of gain or loss is given against each.

Table 4

India

Percentage Distribution of Migrants by Migration Type, 1961 and 1971*

Type of migration	Year	Rural to rural		Rural to urban		Urban to rural		Urban to Urban	
		Male	Female	Male	Female	Male	Female	Male	Female
Intra-district	1961	70.8	80.6	35.1	49.5	50.5	58.0	22.7	28.4
	1971	71.9	79.8	36.3	49.3	50.0	57.8	17.7	22.0
Inter-district	1961	19.9	15.3	34.3	32.4	32.6	30.6	40.0	42.2
	1971	18.9	15.7	34.7	32.5	31.9	29.8	43.0	45.5
Inter-state	1961	9.3	4.1	30.6	18.1	16.9	11.4	37.3	29.4
	1971	9.2	4.5	29.0	18.2	18.1	12.4	39.3	32.5

*Excludes unclassifiable persons.

areas. It is obvious that females were in higher proportion than males in all streams in intra-district context. In inter-district situation, males were generally in higher proportion. And in the inter-state context, the males predominated over the females in all the streams. Indeed the share of the males increased and that of the females decreased as the spatial scale of the migration field enlarged.

Migration to Cities

Migration to cities is the most noticeable feature of any country, including India. Detailed data for cities (places with a population of at least 100000 each) were available which have been used for certain observations in this paper. It was noted that quite many migrants in the cities located in the northwestern and northeastern India were born in Pakistan and Bangladesh respectively. Some cities, such as, Greater Bombay, Calcutta, Delhi and Chandigarh showed a multi-regional character. Delhi recorded three-fourths of its population as having born outside the limits of the union territory by the same name. Bombay had over a half of its population having born outside Maharashtra. Similarly Calcutta recorded nearly a half of its population as hailing from states/union territories other than West Bengal. On the other hand, Kanpur, Ahmedabad, Hydarabad and Madras had about two-thirds or more of their population as having born within the state of enumeration.

Conclusion

The paper highlights some important trends in redistribution of population in India with the help of migration data. The number of migrants in rural areas increased

by 13 per cent and of those in urban areas by 21 per cent during 1961-71. A comparison of POB and POLAR data indicates that the incidence of return migration is not large.

The migration types in terms of intra-district, inter-district and inter-state, duly classified into rural to rural, rural to urban, urban to rural and urban to urban categories, all showed a greater increase among the female migrants than the male migrants. The rate of rural to rural migration has remained stable, both in the case of males and females, but rural to urban migration at the inter-state level showed some slowing down. It was noted with a great concern that the share of non-working migrants had increased significantly during the decade.

Note : The views expressed in this paper are entirely of the author and not of the organisation to which he belongs.

CHANGES IN THE INDUSTRIAL STRUCTURE OF INDIA'S MALE WORKING FORCE, 1961-81

SUSHEEL KAUR AND R.C. CHANDNA
CHANDIGARH, INDIA

The post-Independence period in India has witnessed a gradual decline of some of the occupations and services and emergence of others. In the present paper an attempt has been made to analyse the change in the industrial structure of India's male working force by calculating an index of change. The index so calculated for two decades separately (1961-71 and 1971-81) has been portrayed cartographically and has been analysed.

The overall low degree of change recorded by the country's male working force establishes the weakness of India's industrial infrastructure. Consequently, the secondary sector seems to have failed in generating employment opportunities on a large scale. Regionally, the peripheral areas have recorded higher incidence of change than the interior heartland of the country. The areas that were overwhelmingly agricultural and had experienced developments in the field of agriculture alone exhibited low degree of change in comparison to those that had experienced developments both in the field of agriculture and industry.

During the last inter-censal period (1971-81) the country recorded an accelerated rate of change in the industrial structure of its male working force. Spatially too, the increasing rate of change has spread over to new regions.

The attribute of working force and its distribution into various industrial categories and occupations, despite its immense significance to planning, has received less attention of the geographers in comparison to other such attributes of population as growth, literacy, urbanisation, etc. For developing countries like India, which are undergoing the process of economic diversification, the studies pertaining to the changes in the industrial structure of the working force are assuming special significance. During the post-Independence period, some readjustment of the country's male working force has been observed partly due to a gradual decline of some of the occupations and services and partly due to emergence of others (Kaur,1982). The present paper intends to examine the magnitude and direction of shift of male workers from one industrial category to another during 1961-81. It is postulated that this index of change is positively correlated with the index of diversification of economy, degree of urbanisation, standard of literacy and education and degree of commercialisation

of agriculture. It is hoped that the paper will stimulate more of such investigations both at national and regional level.

Scope of Study.

One typical feature of the workforce that differentiates the developing countries from the developed world is the wide disparity in the participation rates of their males and females (Table 1). While in the case of developed countries females are equal partners in the economic struggle, in case of developing country like India the female participation in economically gainful activities is only nominal. The responsibility of earning the bread still lies on the masculine shoulders (Sinha, 1972). According to 1981 census, only 14.4 per cent of the country's females were at work. The patriarchal system of Indian society, the age-old prejudices against females' mobility, the prejudices against their education, their relatively low status in the society (Mukerji, 1967), frequent child births, limited job opportunities for the females and little desire on the part of the females to avail themselves of these opportunities (Chandna,1967) may have contributed to the negligible role of the Indian females in the country's economic struggle. Moreover, the process of modifying the concept of a worker from census to census also affected the female workers more adversely than the male workers. It introduced the constraint of comparability of data with regard to female workers, particularly when the changes were being investigated. It is in this context that the scope of the present study has been confined to the analysis of changes in the industrial structure of the country's male working force alone.

Table 1

Standardised Participation Rates in Selected Developing Countries

Country		Participation rate of aged 10 and above	
		Males	Females
India	(1961)	81.4	39.4
Pakistan	(1961)	84.5	13.7
Sri Lanka	(1963)	71.5	20.3
Indonesia	(1961)	78.3	29.5
Iran	(1966)	79.2	12.3
Philippines	(1960)	75.3	24.9
Nepal	(1961)	84.2	53.1

Source : *Interrelation Between Population and Manpower Problems*, United Nations, Asian Studies No. 7, 1971, p 80.

Data Constraints and Methodology

The study uses district level census data pertaining to the male workers in various industrial categories for the census years of 1961, 1971 and 1981. It was in 1961 that Indian census introduced the concept of a worker for the first time. These workers were further sub-divided into a number of industrial categories such as cultivation; agricultural labour; mining, quarrying, livestock, etc; household industry; non-household industry; construction; trade and commerce; transport, storage and communications; and other services. Since then, this scheme of data tabulation has been followed by the Indian census with minor modifications from time to time. However, the 1981 census data published so far club

the workers into only four categories of : cultivation; agricultural labour; household industry; and other workers. It restricts the scope of the present analysis as the magnitude and direction of shift of workers from one industrial category to another intended to be investigated could not be accomplished for the decade 1971-81. Therefore, while the present study deals in detail with the changes in the industrial structure during 1961-71, it makes only a brief reference to the changes that have taken place during 1971-81.

In order to measure the magnitude and direction of change in the industrial structure of the Indian male working force, an index of change has been calculated by using dissimilarity index method. The proportion of male workers in each industrial category at the time of 1961 census has been compared with the corresponding proportions at the time of 1971 census and the magnitude and direction of change in each category has been calculated. The addition of all positive values of change has been done to signify the index of change during 1961-71. Similar calculations have been done for the decade 1971-81, of course, by adjusting the 1971 data according to 1981 clubbing. The indices so calculated for the decades 1961-71 and 1971-81 have been cartographically portrayed on two separate maps. It bears stressing here that in order to neutralise the effect of any change in the definition of a worker during the period under review, the calculation of the index has been done by treating agricultural labourers and cultivators as one category because the changing definition of a worker affected these two categories the most.* For instance, due to the changed definition of a worker during 1961-71, many small/marginal cultivators have been turned into agricultural labourers because their main earnings came from agricultural labour and not from cultivation. Consequently, the proportion of both cultivators and agricultural labourers recorded a significant change during 1961-71 which could hardly be termed as diversification. It is interesting to note that the index of change for the country during 1961-71 comes to be 10.5 when these two are treated as separate categories and only 5.3 when these are clubbed together. It imples that the magnitude of shift of workers within the agricultural sector almost equalled the amount of change between agricultural and non-agricultural sectors.

It may be pointed out here that although the maps included here have been prepared to display the dynamism in the industrial structure of the country's male working force during 1961-71 and 1971-81 yet liberal use of the detailed data on occupations specifically pertaining to 1971 census has been made.

Review of Literature

A review of previous investigations attempted by geographers reveals that while at regional level the analysis of working force and its distribution into various industrial categories has received much attention, such studies at all-India level are not many. At regional level, patterns of working force

* Such a clubbing of agricultural workers into one category would, however, conceal any change taking place within the agricultural sector. But it became necessary to neutralise the effect of change in the definition of worker.

have been analysed by Chandna (1967), Krishan & Chandna (1974) and Singh (1981), while the industrial structure of working force has been examined by Gosal and Krishan (1965), Kayastha (1966), Stoner (1968), Sharma (1969 and 1973), Tiwari (1970), Sharma (1973), Gupta (1973), Mukerji (1975), Bhardwaj and Harvey (1975), Kumar (1979), Jaikumar (1980), Kant (1980), Kumar (1981), Rao and Reddy (1982) and Singh & Deen (1982). Singh (1979) and Kant (1982), however, have attempted to examine the occupational structure of population of their respective states of study like Punjab and Uttar Pradesh. At all-India level, working force has been studied by Chellaswami (1958), Ganesharan (1960), Mehta (1961), Dadi (1972), Sinha (1972), Krishnamurthy (1972) and Raju (1982), whereas Gosal (1958), Lall (1958), Kuriyan (1962), Schwartzberg (1963), Bagchi (1975), Devi (1975), Mukerji and Mehta (1975) and Vasantha (1975) have analysed the industrial categories of India's working force. Krishan (1980) and Kaur (1982) have dealt with the occupational structure of India's working force at all-India level. Thus, the above observations reveal that although Indian geographers have been using the terms like occupational structure yet much of their analysis, with a few exceptions, has been confined either to the working force alone or to the industrial categories of the Indian census.

Changes in Industrial Structure, 1961-81

According to 1981 census, the industrial categories of cultivation and agricultural labour together claimed 63.5 per cent of the country's male workers. Cultivation ranked first with about 44 per cent of male working force engaged in it. Agricultural labour accounted for about 20 per cent of the country's male workers. In 1961, cultivation alone accounted for about 51 per cent of the male workers and the agricultural labour had about 14 per cent of the male workers. It implies firstly, that cultivation and agricultural labour continue to occupy the first and second ranks respectively, and secondly, there has been considerable shift of workers within the agricultural sector from cultivation to agricultural labour. As observed earlier, such a trend was due to the fact that some of the small farmers were recorded as agricultural labourers by virtue of receiving large part of their earnings from agricultural labour instead of cultivation. Similarly, there has also been some incidence of elimination of small and marginal farmers on the grounds of economic viability. Other services continue to rank third among the various industrial categories in terms of proportion of male workers. In the following pages detailed analysis of changes in the industrial structure of male workers is attemped on the basis of the index of change portrayed on Maps 1 and 2.

Changes During 1961-71

Table 2 reveals that the average index of change for the country as a whole during 1961-71 was only 5.3. It speaks of slow pace of change in the industrial structure of India's male workers during 1961-71. However, among the various states, Kerala has been found to be the most dynamic (17.4) and Rajasthan to be the least (3.3). Other states displaying high degree of dynamism were Tamil Nadu (16.1), Nagaland (14.6), Punjab (13.5), Bihar,

Table 2

India

Dissimilarity Index of Industrial Structure, 1961-71

	Total	Rural	Urban
INDIA	5.3	5.2	8.3
States			
Kerala	17.4	17.9	14.8
Tamil Nadu	16.1	8.5	19.5
Nagaland	14.6	7.0	7.0
Punjab	13.5	8.7	25.3
Bihar	7.9	8.4	16.2
Sikkim*	7.9	3.9	21.4
Manipur	7.9	7.6	26.8
Jammu & Kashmir	7.4	5.3	18.5
Assam**	7.4	3.4	17.8
Andhra Pradesh	7.1	3.9	14.8
Orissa	7.0	7.0	15.2
Himachal Pradesh	6.9	8.2	16.0
Karnataka	6.3	2.9	13.1
West Bengal	6.0	6.4	6.8
Gujarat	5.9	6.2	7.9
Meghalaya	5.1	2.5	20.3
Maharashtra	4.6	3.2	6.0
Tripura	4.5	5.0	6.6
Uttar Pradesh	4.4	4.9	6.7
Haryana	4.4	3.7	8.6
Madhya Pradesh	4.0	4.4	4.4
Rajasthan	3.3	3.5	6.6
Union Territories			
Arunachal Pradesh	68.6	72.1	—
Lakshadweep	58.6	58.6	—
Chandigarh	22.2	—	—
Goa, Daman & Diu	19.2	14.9	19.2
Andaman & Nicobar Islands	13.4	12.4	21.0
Delhi	9.1	11.1	9.0
Dadra & Nagar Haveli	7.4	7.4	—
Pondicherry	6.6	11.9	16.0

Source : Calculated from *Union Primary Census Abstract*, Census of India, 1971, and *Union Primary Census Abstract*, Census of India, 1961.

*Figures for Sikkim have been calculated from *General Economic Tables*, India, Part II B (i), Census of India, 1971

**Includes Union Territory of Mizoram which was carved out of Assam after the 1971 Census.

Sikkim, Manipur (7.9 each), Jammu & Kashmir, Assam (7.4 each), Andhra Pradesh (7.1), Orissa (7.0), Himachal Pradesh (6.9), Karnataka (6.3), West Bengal (6.0) and Gujarat (5.9). In the remaining states the index of change was below the national average. The state of Kerala which was the most diversified state in the country from the point of view of occupational structure (Krishan, 1980) and Tamil Nadu also relatively more diversified in its economy, thus, recorded the highest index of change in the country. Punjab in the northwest, where developments associated with agriculture and the growth of agro-based industries had stimulated emergence of a large number of rural service centres (Randhawa, 1974), was another state to record a high index of change. This index of change was high in Nagaland in the northeast where the economy was not so diversified, it was mainly due to the sudden spurt in the proportion of workers in other services because of deployment of armed forces in the region. Relatively high index of change in case of Assam, Sikkim, Manipur and Jammu & Kashmir may also be associated with the deployment of armed personnel in these strategically located states particularly after the armed conflict with China in 1962, and with Pakistan in 1965. It is interesting to note the states like Bihar and Orissa which otherwise rank low in the development scale recorded relatively high index of change. The government's initiative in developing the areas endowed with rich mineral resources with a view to minimising regional imbalances in development seem to have paid the dividends. In case of Himachal Pradesh, the relatively high index of change is associated with the development of tourism, fruit trade and fruit-packing. Similarly, the relatively high index of change in case of Andhra Pradesh, Karnataka, West Bengal and Gujarat may be associated with considerable development of household industries, transport and services. In addition, the high degree of urban development in the interior and of fishing and salt making in the coastal areas have also been instrumental in bringing a change in the industrial structure of working force in the above mentioned states. Since the change in the industrial structure of a state was closely linked with the developmental processes taking place in it, it raises an important research problem for further investigation to see as to how far the inter-state disparities in the index of change were the product of differences in the allocation of funds for development by the centre to its federal units.

The incidence of change was significantly high in most of the union territories in comparison to the states. Arunachal Pradesh recorded the highest index of change (68.6) followed by Lakshadweep (58.6), Chandigarh (22.2), Goa, Daman & Diu (19.2), Andaman & Nicobar Islands (13.4) and Delhi (9.1). The high index of change in case of union territories in comparison to the states was perhaps attributable to the easy availability of funds for development of these territories which were directly under the administrative control of the central government. Interestingly, the union territories which were predominantly rural but had little agricultural resources recorded the highest index of change. For instance, Lakshadweep which was wholly rural but where the rural economy was entirely dependent upon fish and coconut with

virtually no area under cultivation, and Arunachal Pradesh which was least urbanised and had limited land under cultivation exhibited the highest index of change. Such a change was associated with a sudden spurt in the absolute number of workers in other services due to the strategic location of the two areas. In case of other union territories displaying high index of change like Chandigarh, Goa, Daman & Diu, Andaman & Nicobar Islands and Delhi also, the economy in general was highly diversified. It establishes a positive relationship between the degree of diversification of economy and the index of change.

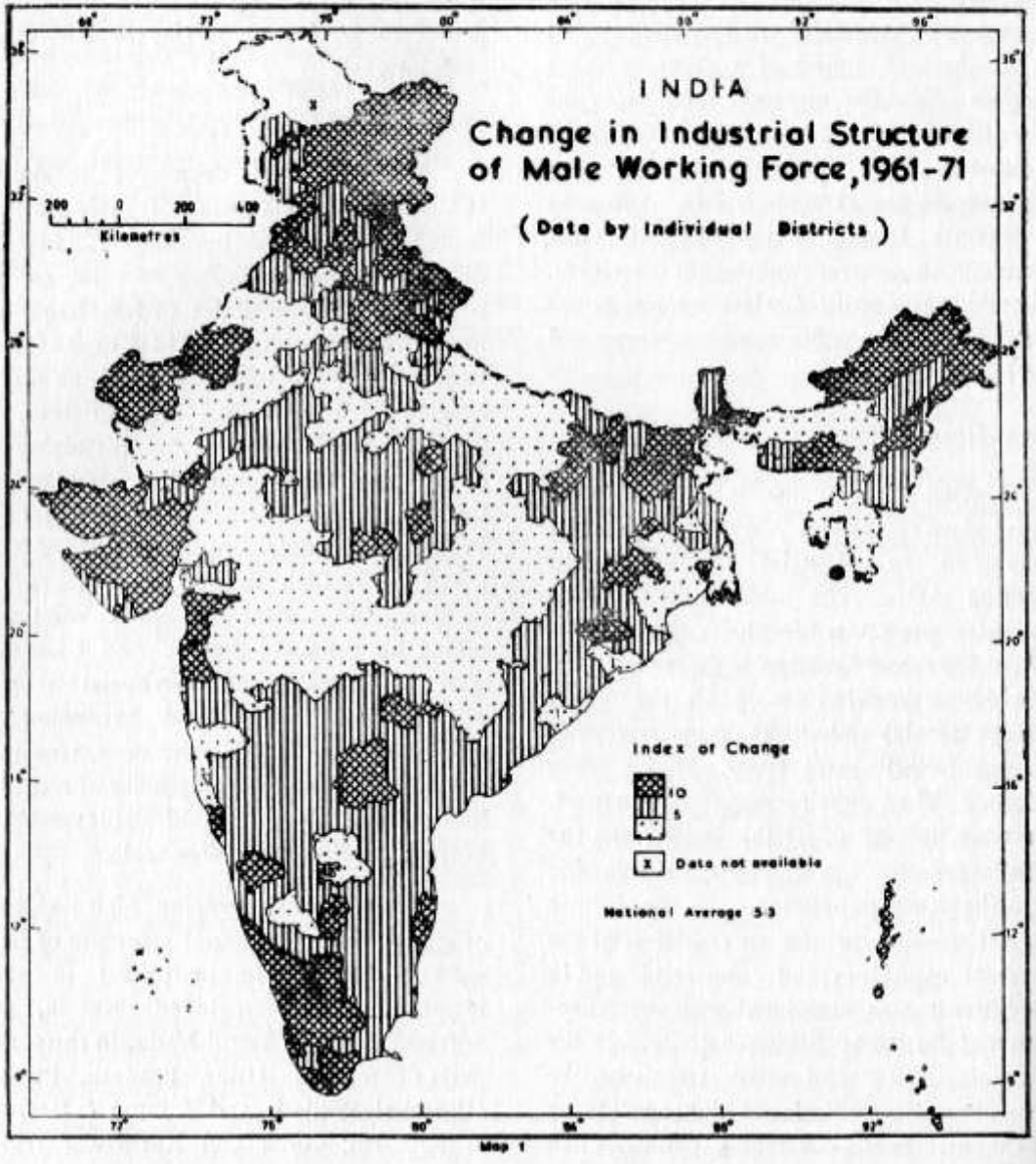
Rural-Urban Differential

During 1961-71, the rural and urban populations displayed varying degree of change in the industrial structure of their working males. The urban areas recorded an index of 8.3 while the corresponding index for the countryside was 5.2 only. The urban populations of all the states (except Kerala) and all the union territories (except Delhi) were found to be more dynamic than their rural counterpart. However, in case of Delhi and Kerala, the rural population was slightly more dynamic than the urban population. In the former case, it was due to the spread-effect of the national capital in the countryside and in the latter it was associated with the expansion and growth of fishing activity. In the remaining states and union territories, the urban population displayed higher incidence of change. In the developing countries like India, where the mainstay of economy is agriculture, the standards of literacy and education are low, the constraints of capital are acute, the processes of social and economic reconstruction emanate from urban concentrations in the first instance and diffuse to the countryside later. That is why, the rural populations have been found to be less dynamic than the urban populations.

Spatial Pattern

An overall low degree of dynamism in the industrial structure of male working force is revealed by Map 1. In 113 districts, confined mostly to the central parts of India, an index of less than 5 has been observed. Another 154 districts falling largely in south India recorded an index ranging between 5 and 10. However, the index of change varies from the highest of 68 in parts of Arunachal Pradesh to the lowest of 2 in the district of Baster (Madhya Pradesh). Broadly speaking, the index of change was high in the areas where the incidence of diversification of economy was high, the rates of literacy and education were high, the recent territorial reorganisation had necessitated expansion of administrative, health, education, transportation services and the exigencies of sensitive border location warranted deployment of armed personnel on a large scale.

The areas experiencing high incidence of change in the industrial structure of male working force were peripheral in their location. These included Kerala, and adjacent parts of Tamil Nadu, in the south; parts of western Uttar Pradesh, Punjab, Himachal Pradesh and Jammu & Kashmir in the north; Kutch and Kathiawar region of Gujarat in the west; and Arunachal Pradesh, parts of Nagaland and Meghalaya in the northeast. These apart, the index of change was also high in a few border


INDIA
Change in Industrial Structure of Male Working Force, 1961-71
(Data by Individual Districts)
200 0 200 400
Kilometres
Index of Change
10
5
Data not available
National Average 5·3
Map 1

districts of Rajasthan, highly urbanised regions of Bombay-Surat belt, Madras, Bangalore, Hyderabad, Goa, and a few scattered districts in Bihar. In all these areas index of change of more than 10 has been observed.

Kerala and the adjacent parts of Tamil Nadu constitute the most compact region in the south displaying an index of change of more than 10. This region possesses a high degree of diversification of economy by virtue of its rich variety of resources, traditional overseas contacts, high literacy rates and rural electrification (Krishan, 1980). In fact, the region's richness in a variety of resources such as plantations, fishery and forestry, on the one hand, facilitated the diversification of its economy and acute pressure of population on the land resources, on the other hand, necessitated a shift from agriculture to non-agricultural sector. The high literacy rates also were helpful in increasing the number of workers in the tertiary sector. Above all, there was a diffusion of household industry associated with coir-making, processing of cashewnuts, coffee curing and country liquor. During 1961-71, household industries, factory industries, trade and commerce, transport and communication services recorded a significant increase resulting into a high index of change in the industrial structure of male working force of the region. To this must be added the factor of reorganisation of workers into various industrial catagories at the time of 1971 census because such a readjustment of workers affected this region the most. In this region there existed a large number of eating houses and restaurants which were shifted from the category of other services in 1961 to the category of trade and commerce at the time of 1971 census.

Parts of western Uttar Pradesh, Punjab, Himachal Pradesh and Jammu & Kashmir constitute another area displaying high index of change. In western Uttar Pradesh, the change in the industrial structure of male working force was largely associated with the developments in the field of agriculture which accelerated the growth of agro-based industries particularly sugar in the region. A large employment potential of sugar industry in the region had earlier been recognised by Schwartzberg (1969) and Gosal (1958). In addition to sugar, handlooms, brass utensils and woodwork have emerged as other industries of the area (Kant, 1982). In the districts of Punjab displaying high incidence of change during 1961-71, the developments related with commercialisation of agriculture, rural electrification and road transport in the countryside have been responsible for the change. While the declining size of landholding has necessitated diversification, the emergence of large number of service centres and growth of agro-based industries and household industries have facilitated this change. In case of hilly regions of Himachal Pradesh, Jammu & Kashmir and Uttar Pradesh, the development of tourism, horticulture, fruit-based household industries, extensive road construction activity and deployment of armed personnel on large scale have been responsible for the high index of change.

The Kutch and Kathiawar region covering large parts of Gujarat also displayed high index of change in the industrial structure of its male working force during 1961-71. This index at places was as high as 22. This

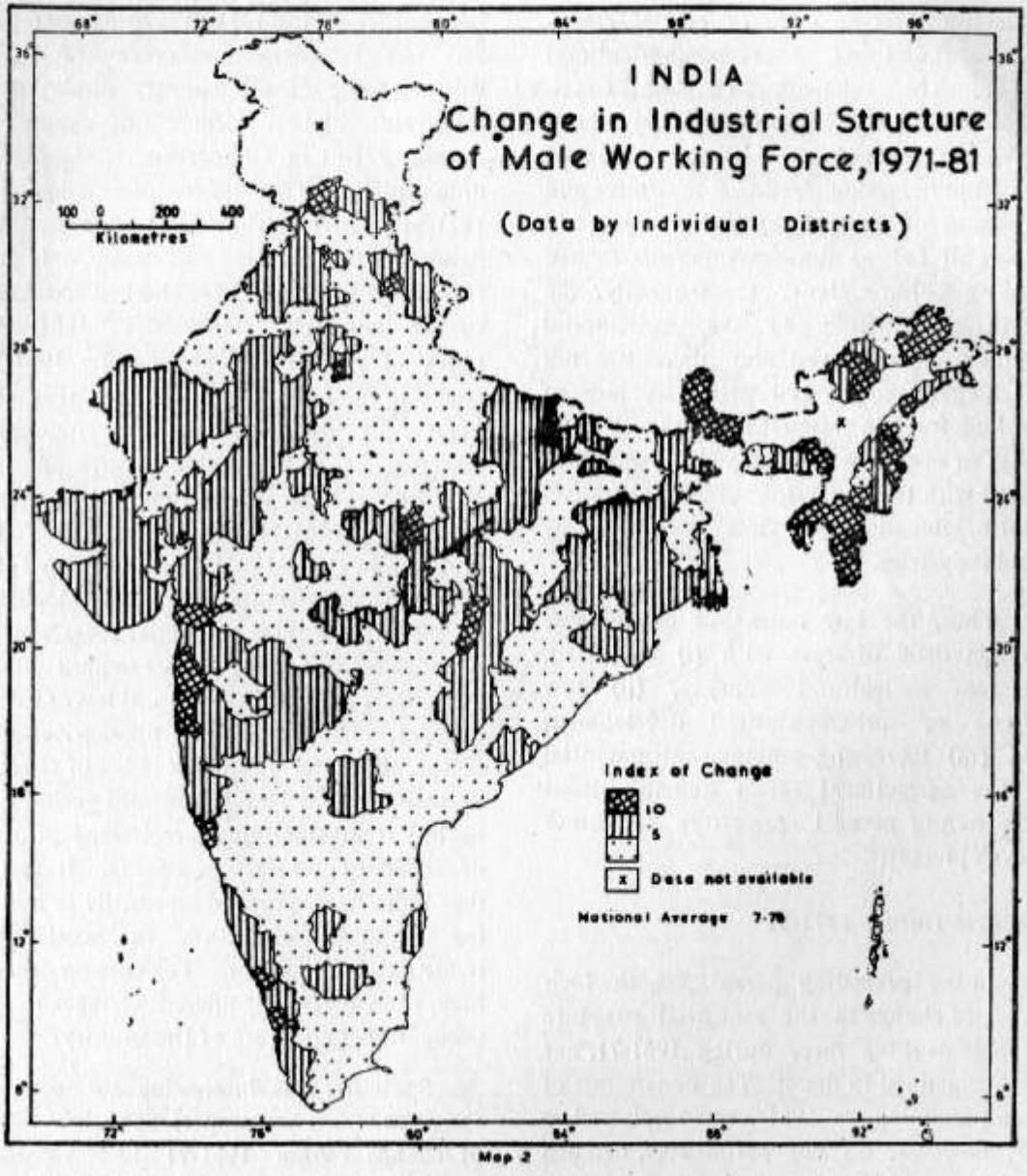
region also was characterised by high degree of diversification of economy where petrochemicals, cotton textiles and salt-making were important activities outside the agricultural sector. Besides, repeated armed conflicts with Pakistan were instrumental in giving spurt to other services by way of deployment of armed forces on a large scale.

The hilly states and the union territories in the northeast including Arunachal Pradesh, parts of Nagaland and Meghalaya also displayed high index of change. Such an index was highest (68.6) in Arunachal Pradesh, very high in Nagaland (over 16) and high in Meghalaya (over 10). It was partly due to the deployment of armed personnel, central reserve police, border security force and partly due to improvement in the census enumeration. It may be pointed out that at the time of 1961 census, a large part of these areas was physically inaccessible and, therefore, could not be covered for the purposes of enumeration (Census of India, 1972). By the time 1971 census took place, road construction activity had been taken up on a large scale in these areas of sensitive border location, particularly after the armed conflicts with China in 1962 and with Pakistan in 1965. These developments, on the one hand, resulted in road construction activity and, on the other hand, brought large contingent of armed forces in the region, both resulting in change in the industrial structure of the working force.

The sensitive border location and consequent deployment of armed forces in Jaisalmer and Bikaner districts of Rajasthan, large scale urban-industrial development in Bombay-Surat belt (Maharashtra), Madras and adjacent districts (Tamil Nadu), Bangalore and Shimoga (Karnataka), Hyderabad and Mahbubnagar (Andhra Pradesh), Goa and Daman and Diu, Hooghly (West Bengal); development of mining and industries in Dhanbad, Singhbhum districts (Bihar) ; and developments in the field of agriculture in north Bihar plain (a large number of small/marginal farmers turning into agricultural labourers and a conspicuous shift of general labour to agriculture labour due to growing demand for agricultural labour) all have resulted in the high index of change in the respective areas.

Thus, high index of change was characteristic of areas with (i) high degree of diversification, (ii) high degree of urban-industrial development, (iii) abundance and variety of resources, and (iv) sensitive border location.

By contrast, the central heartland of the country covering large parts of Madhya Pradesh, northern and eastern parts of Maharashtra, large parts of Rajasthan and eastern Uttar Pradesh constituted the most conspicuous compact area of low degree of change. Outside this heartland, parts of Assam, West Bengal, Tripura and Mizoram in the northeast were the areas which displayed low index of change. In all, there were 113 such districts in the country occuring either in the central or in the northeastern parts. Broadly speaking, the low index of change was most typical of the areas which were least diversified and where the cultivation was predominantly the first ranking occupation and agricultural labour was equally important. From amongst the non-agricultural occupations, the category of other services was most significant. It


INDIA
Change in Industrial Structure of Male Working Force, 1971-81
(Data by Individual Districts)
100 0 200 400
Kilometres
Index of Change
10
5
X Data not available
National Average 7·78

Map 2

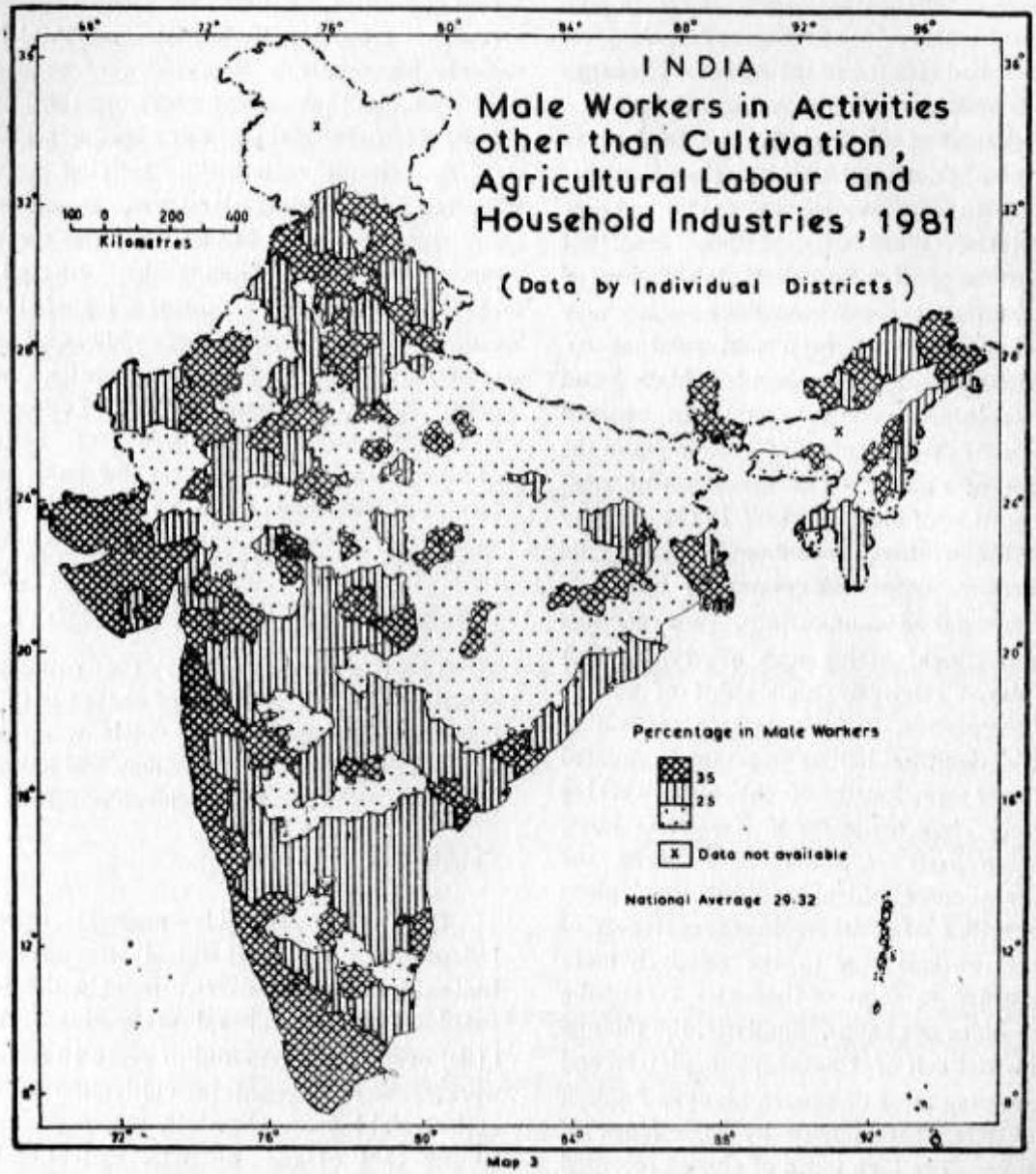
signifies that the economy of these areas was primarily agrarian with little development of secondary and tertiary sectors. During 1961-71, the developments in the agricultural sector were of greater consequence than those of the non-agricultural sector. The reclamation of land for agricultural purposes in some parts, intensification of agriculture with the help of increased irrigation facilities in others and extension of general agriculture in still others all led to the developments related with agriculture alone. Consequently, the absorbing capacity of the agricultural sector itself improved and there was not much change in the industrial structure of working force in this area. Whatever little index of change was observed it was associated with the expansion of administrative, health, educational services and of household industries.

Thus, the low index of change was characteristic of areas with (i) backward, stagnant agricultural ecomony, (ii) low degree of urban-industrial development and (iii) increasing employment potential of the agricultural sector due to related extension of general agriculture and other developments.

Changes During 1971-81

In the preceding paragraphs, the incidence of change in the industrial structure of male working force during 1961-71, has been examined in detail. The constraints of data pertaining to 1981 census released so far, however, do not permit such detailed analysis of the changes during 1971-81. As pointed out earlier, the 1981 census data have been clubbed into 4 categories only. Such a clubbing not only makes the calculation of index of change difficult but also decreases its utility. It is in the context of this limitation that only a brief review of the changes during 1971-81 is being attemped at. The industrial structure of male working force of the country displayed a relatively higher degree of dynamism during 1971-81 in comparison to the preceding decade. The index of change for 1971-81 was 7.8 while the corresponding figure for the preceding decade was only 5.3. If the data for 1961-71 are clubbed according to the industrial categories of 1981, the index of change for the decade 1961-71 comes to be only 2.3. It implies that the degree of dynamism in the industrial structure of male working force during 1971-81 was more than 3 times higher than that during 1961-71. Moreover, since the clubbing of the data released so far for 1981 is in 4 broad categories, the index calculated on the basis of these categories reveals more of inter-sectoral change between agricultural and non-agricultural sectors and less of intra-sectoral change within non-agricultural sector. Therefore, the high index of change witnessed by the last intercensal period is a healthy trend signifying accelerated growth of secondary and tertiary sectors. It seems that India has succeeded gradually in building up an infrastructure for accelerated industrial development. The coming decade may, thus, reveal significant changes in the occupational structure of the country.

Spatially, it is interesting to note that the areas which had experienced low index of change during 1961-71 had recorded high index of change during 1971-81 and *vice-versa* (Maps 1 and 2). This reversal of the spatial pattern of index of change in the


INDIA
Male Workers in Activities other than Cultivation, Agricultural Labour and Household Industries, 1981
(Data by Individual Districts)
100 0 200 400
Kilometres
Percentage in Male Workers
35
25
X Data not available
National Average 29.32

Map 3

industrial structure of India's male working force signifies firstly, that new areas were picking up and were experiencing a high degree of change from agricultural to non-agricultural sectors and secondly, the areas which had receded in their index of change were perhaps undergoing the intra-sectoral adjustment of working force particularly in the non-agricultural sector. However, this could not be revealed by the limited data available. When detailed data for 1981 census according to the nine industrial categories become available these may confirm what has been postulated above. Furthermore, a comparison of Maps 2 and 3 establishes a positive correlation between degree of diversification of economy and the index of change. The areas having high proportion of male workers in the category of other workers (including non-household industries, trade and commerce, transport, storage and communications, other services and livestock, mining and quarrying, etc.) displayed relatively high index of change in comparison to those where cultivation and agriculture labour together accounted for over three fourths of the male working force. Thus, the states of Kerala, Gujarat, western parts of Maharashtra along the western coast which recorded the highest proportion of workers in the category of other workers due to the relatively more diversified economy of the states recorded a high index of change. Similarly, the mining-industrial belt of Chotanagpur plateau and the mining areas of eastern Madhya Pradesh also were characterised by high index of change. The high index of change recorded in the northeast covering Manipur, Tripura, Nagaland, Mizoram, Meghalaya, Sikkim and Arunachal Pradesh may be associated with the rapid expansion of tertiary sector as a consequence of territorial reorganisation process that has been undergoing in this part of the country during the decade under review. Parts of Rajasthan and Punjab displaying relatively high index of change were among those areas where one-third to one-half of the working force was engaged in agricultural activities signifying high diversification index. However, it needs stressing here that in most of these areas mentioned above (excluding the northeast), the index of change was on the higher side only marginally, reaching high only in a few scattered districts in these broad belts. In the northeast, of course, the index of change was significantly high. Outside these belts of high index of change, a very low index of change of less than 5 was observed. In all such areas, cultivation was not only the first ranking occupation but also claimed a very large section of the male working force.

Thus, during 1971-81, the country experienced accelerated rate of change in the industrial structure of its male working force. Diversification of economy and index of change continued to be related positively.

Conclusions

Despite considerable progress since Independence, the occupational structure of India still remained overwhelmingly dominated by the agricultural occupations. A little over 6 workers out of every 10 male workers were engaged in cultivation and agricultural labour. Spatially too, in about 80 per cent of the districts, agricultural occupations dominated. It establishes the primacy of agriculture in the industrial structure of the country's working force.

During 1961-71, the country displayed an overall low index of change in the industrial structure of its male working force. However, the pace of change in any part of the country was positively correlated with the degree of diversification of economy, rates of literacy and degree of urbanisation. Regionally, the interior heartland of the country which was least diversified, least urbanised, and poorly literate exhibited low index of change. The areas of low index of change had experienced developments only in the field of agriculture. By comparison, the peripheral areas characterised by higher degree of diversification, higher degree of urban-industrial development, richness and variety of resources, and sensitive border location recorded a high index of change.

During 1971-81, the country displayed higher index of change. The accelerated pace of change in the industrial structure of India's male working force during 1971-81 was largely associated with the developments in the non-agricultural sector of economy. There was a conspicuous shift from agricultural to non-agricultural sectors. It signified that the country had developed an infrastructure for the rapid expansion of the secondary and tertiary sectors which might be reflected in the changes in the coming years.

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BOOK REVIEW

E. A. Wrigley & R. S. Schofield

The Population History of England, 1541-1871 : A Reconstruction

Edward Arnold

London, 1981

XV+740 pages; tables, graphs, maps, bibliography, index. Forty-five pounds sterling.

Reviewed by John W. Webb

This book is a landmark in the study of human populations. In it the authors reconstruct the population of a country for the first time over several centuries. That the country is England is of general interest because the process of modernization and the associated population explosion first developed there. From 3.0 million in 1550 the national total reached 4.0 million in 1600, and 5.0 million in 1700. To this point the rates of increase were not unusually high : Scotland, Ireland, Scandinavia, the Netherlands, and Russia all had rates as high or higher than England over the same period. From about 1750, however, England's population started to increase at a faster rate, reaching 8.6 million in 1800, 21.1 million in 1870, and 40.0 million by 1940. During the two centuries when England's population was increasing fast, additional millions emigrated to other parts of the world.

Wrigley and Schofield's research is based on registers kept since the middle of the 16th century for many of the 10,000 parishes of England's established church. Church ministers or their clerks recorded the religious events of baptism, burial, and marriage. The parish records of Scotland and Wales were apparently not kept in as complete a fashion as were the English registers; so this huge and expensive book is about England only. The parish registers are a national treasure; many of them have now been examined systematically by a small army of volunteer local historians, who collected and sifted millions of facts about individual persons. This book is founded mainly on their labours; additional information comes from the censuses and registers organized by the state beginning in the 19th century.

Wrigley and Schofield subjected records of baptisms, burials, and marriages from some four per cent of all parishes to a sustained, complex, and lengthy examination. From this, a series of weightings and augmentations converted the raw facts from the sample parishes into annual national statistics of birth, death, and marriage for 1541-1871. Further statistical elaboration allowed the authors to go beyond these figures to national population totals which then become the base for a thoroughgoing analysis of fertility and mortality. Using long-term economic series on prices and wages, the authors then draw inferences

about the ways in which economic trends interacted with changes in population and the frequency of vital events. The main text concludes with the exposition and discussion of a group of model systems showing the interaction of demographic events with the social and economic environment of the time.

The book contains a rich harvest of information, ideas, and findings, among which one important conclusion can be stated briefly : Prior to and during the early part of the industrial revolution, the English adjusted to the shifting ties of national economic, social, and political affairs by the long-run regulation of fertility. Brief bursts of high mortality had short-term effects on population totals, fertility changes had long-term effects. Only after the early 19th century did mortality decline become a more sustained influence on population increase than fertility.

Wrigley and Schofield do not attempt a comprehensive explanation of the demographic information presented. In particular, from the geographer's point of view, little account is taken of regional differences, although the authors are obviously aware of the degree to which their national statistics cover a multitude of varied individual circumstances.

The expository arguments and data transformations cover almost five hundred pages. Hundreds of tables and graphs (and some maps) illustrate the arguments, present data, and support conclusions. Sixteen appendixes give two hundred pages of data and the statistical results of the tranformations, as well as technical information on methods. The discussion reaches beyond the vital data to national population totals and, by statistical inference, to consideration of fertility and mortality. In what it sets out to do, the book is a triumph of sustained argument, the first full bloom from the field of historical demography of England. It is likely to be a required guide for historical demographers and the source of a new generation of population studies.

The government of England ordered that parish registers be kept, beginning in 1538, but there is sparse coverage before 1541, so this analysis starts in that year. Beginning about 1960, registers were transcribed by volunteers organized by the Cambridge Group on the History of Population and Social Structure, in which the two authors have played a leading role in the past two decades. The group began a small but influential journal *Local Population Studies*.[1] By 1974 some hundreds of parishes had been transcribed. From these 404 were selected to form the basis of this national study. A dozen parishes provided complete "family reconstitution," an elaborate reconstruction of the relationships of all

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1. *Local Population Studies*, No. 1 (1968), No. 2 (1969), No. 3 (1969), etc. Tawney House, Matlock, Derbyshire, England.

members of a parish over a long period of time.[2] The 404 parishes are only a small proportion of all the parishes covering the country; however, they have records for virtually all years from 1541 to the end of the 18th century. Registrations for any year might be incomplete : church ministers and clerks might be slothful, civil conditions unsettled, and so on. For the first half of the period of this study, the church was usually the centre of community life for the villages, towns, and city neighbourhoods. By the early 19th century, however, births, deaths, and marriages were no longer reported to the authorities of the established church by an increasingly dissenting, non-religious, and libertarian population. Following new ideas in other European countries, the English began the decennial census in 1801. By 1871, the census had become complete and accurate; that year is the end point of this study. Further, in 1838 a new system of registering vital events began in England with the formation of districts and sub-districts organized under a national registrar-general. The ecclesiastical parishes no longer carried out their secular registration function. It was three decades before the new registration system was accurate and complete.

To enhance and augment the data from the 404 registers, the authors and their associates developed computer programs to identify years with defective records—the reigns of Edward VI and Mary I in the 16th century, the English Civil War and its aftermath in the 17th century, and the late 18th and early 19th century when under-registration was common. Marriage registrations are particularly under-represented; they run up to ten per cent defective in normal times and as much or more than thirty per cent in difficult times. Wrigley and Schofield augmented the data on baptisms, burials, and marriages systematically. The words in this paragraph and those that follow do not do justice to the tenacity and imagination with which the authors carried through this part of their work.

The 404 parishes are not a random sample of all parishes. In particular, the thousands of small parishes are under-represented. The data were weighted by varying amounts, for different time periods, to account for this. As with the other enhancements in this book, the authors make judgements on the best evidence and principles, proceed with the calculations, then press on to the next problem demanding attention.

The authors inflated the adjusted sample parish figures to reach totals representative of baptisms, burials, and marriages for the nation as a whole. Rationales were developed for multipliers for each of the three series; ranging from about 23 to about 27. Table 1 shows sample decades for baptisms.

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2. Family reconstitution is a research procedure developed by French historical demographers. See Michael Fleury and Louis Henry (1956) : *Des registres paroissioux a l'histoire de la population : Manuel de depouillement et d'exploitation de l'etat civil ancien*, Paris. A new version was published in 1965. Hundreds of reconstitutions have now been completed for many European countries. See M.W. Flinn (1981) : *The European Demographic System, 1500-1800*, Johns Hopkins University Press, Baltimore, U.S.A.

Table 1

Sample Totals of Baptisms

Decade	Weighted baptisms for 404 parishes	National baptism totals	Ratio of B to A
	A	B	
1550 - 9	45,130	1,056,797	23.42
1650 - 9	55,316	1,374,399	24.85
1750 - 9	68,131	1,730,541	25.40
1820 - 9	131,510	3,321,857	25.26

Source : *The Population History of England, 1541-1871*, Table 3.14, page 87.

The national totals of births and baptisms were now converted to births and deaths. Of course, the registers do not record all births and deaths. Up to six per cent of all births were recorded in nonconformist churches and chapels and allowances must be made for these; they became common by the late 18th century when new protestant sects grew up to rival the established church for the allegiance of the population. Further, during the second half of the study period, delay in baptism became a very common practice. Weeks went by before babies were brought to baptism; the result is there are no records of the birth or death of many infants who died before baptism could occur. All these and other defects in registration mean that by the early 19th century as many or more than one in five demographic events were not registered. An elaborate procedure was devised to account for all the missing events : it used national age and sex structures from the mid-nineteenth century as a base from which to predict back to earlier decades. The inflation percentages get very high for the early 19th century.

Table 2

Comparison of Uncorrected and Corrected Baptisms and Estimated Births for Selected Decades

Decade	Uncorrected but weighted baptisms	Corrected baptisms	Estimated births	Total inflation
1681 - 90	1,452,044	1,531,772	1,574,047	1.0840
1751 - 60	1,733,152	1,733,152	1,980,576	1.1428
1821 - 31	3,368,809	3,093,270	4,786,007	1.4207

Source : *The Population History of England, 1541-1871*, Table 5.27, page 140.

These sections seem to this writer to be a tour de force; one is impelled by the vision of the authors and the logic with which they sweep on toward it. Next comes a comparison of national population events with sets worked out by seven other authors; Wrigley and Schofield's figures are at about the average[3]. But the national figures run from 1540 to 1870, and are unique in their temporal coverage; other major series are for France (from 1740) and for Sweden (from 1749). Fig. 1 summarizes the new information on births and deaths for five year periods.

England : Five Year Totals, Births and Deaths, 1540-1870

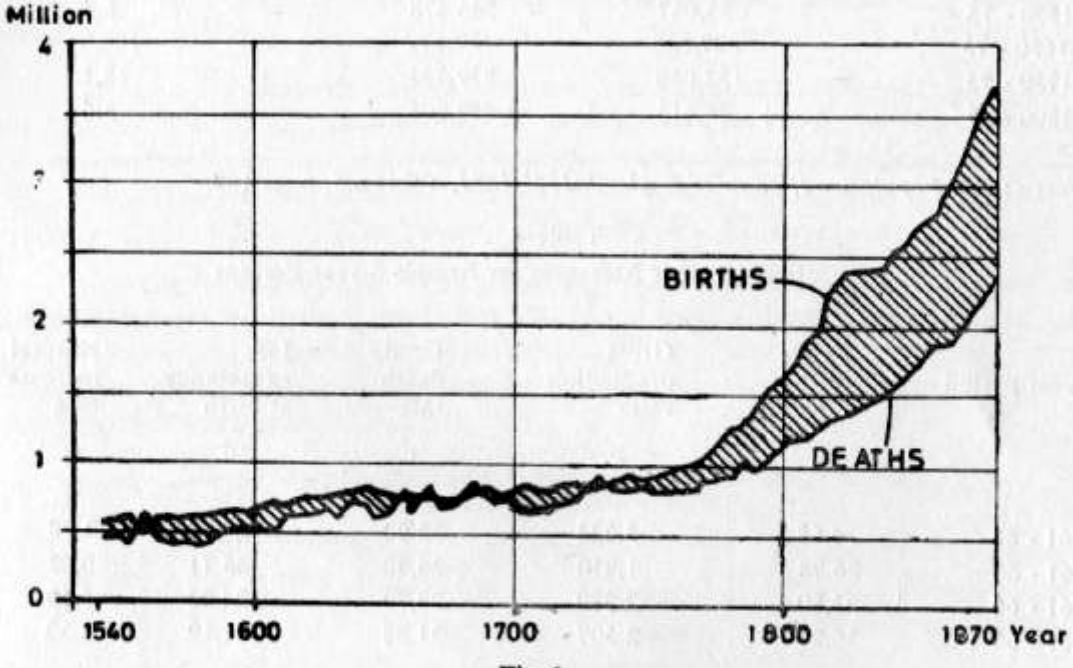

Fig. 1

Source : *The Population History of England, 1541-1871*, p. 495

Many inferences can be made from the lists of enhanced figures. From 1540 to 1640 births, deaths, and marriages all increased, but deaths increased faster than births so that there was a decreasing surplus ; from 1640 to 1710 there was rough balance ; from 1710 onwards all three increased and there was an increasing surplus of births over deaths (except for one brief spell). Annual rates of change varied from 1.0 per cent (late 1500s), to 0.5 (early 1600s), 0.0 (mid 1600s), 0.5 (early 1700s), to 1.5 per cent (1800s).

London is dealt with somewhat tangentially in this book because parish data, it seems,

3. The sets are from the works of Finlaison (1939), Farr (1871), Brownlee (1915-16), Griffith (1926), Krause (1958), Hollingsworth (1969), and Razzell (1972).

were only partially available to the authors. The city's role in English population history is shown by the following remarkable statistics :

Table 3
Natural Change in London and England

25 Year Period	Natural change		London as a percentage of the Rest of England
	London	Rest of England	
1550 - 75	— 35,067	546,378	6.4
1650 - 75	— 227,828	120,577	189.0
1750 - 75	— 152,068	839,731	18.1
1800 - 25	+ 88,413	2,469,905	3.6

Source : *The Population History of England, 1541-1871*, Table 6.5, page 168.

Table 4
Demographic Measures for Sample 5-year Periods

5 year period	Crude birth rate	Gross production ratio	Crude death rate	Life expectancy at birth	Natural increase rate
	a.	b.	c.	d.	e.
1561 - 66	34.68	3.322	32.90	27.77	1.78
1661 - 66	26.78	1.810	26.30	35.71	0.48
1761 - 66	33.80	2.370	28.70	24.23	5.19
1861 - 66	36.20	2.507	21.88	41.19	14.32

Source : *The Population History of England, 1541-1871*, Table A3.1, pages 528-9.

a. Crude birth rate : $\frac{\text{Births}}{\text{Population}} \times 1000$ measures the numerical impact of the number of births on a population.

b. Gross reproduction ratio tells the extent to which the current generation of mothers is reproducing itself with female children.

c. Crude death rate measures the numerical impact of the number of deaths on a population : $\frac{\text{Deaths}}{\text{Population}} \times 1000$.

d. Life expectancy at birth, a measure of mortality.

e. Natural increase rate : the crude birth rate minus the crude death rate.

The second part of the book uses the transformed birth, death, and marriage data to get at the underlying society - the population of England. For thoroughgoing demographic analysis, one needs continuous series for both (a) vital events (births, deaths, marriages) and (b) estimates of population size with age and sex structures. From the simple notion that the flow of births modifies a population, which is then further modified by the incidence of death, the authors developed a procedure they call "aggregative back projection." Beginning with the 1871 census, they carried each age group backward, increasing its numbers according to age - specific mortality rates derived from model populations. The earlier 19th century censuses (suitably corrected) were used as check points. As back projection proceeds, there is a continuous check against the number of births in any period (year, quinquennium, decade). Estimates for net migration are fed in and population totals derived for each year. It is now possible to calculate some fundamental measures of fertility and mortality.

Fertility, as measured through the gross reproduction ratio dropped to about 1.9 in 1650, rose to 2.3 by 1700 and to 3.0 by 1800, then dropped back to 2.4 by 1850. Mortality, as measured through life expectancy at birth showed the lowest five-year rate in 1581-4 (41.7 years) : this was not achieved again until the 1870s. Life expectancy dropped in the 1600s, as deaths rose quickly, and began to rise slowly after 1730.

By using ingenious graphs which compare gross reproduction ratios and life expectancy, the authors show that fertility in England increased in significance from 1670 to 1815, but that life expectancy outran fertility before and after that period. In Sweden, by contrast, population growth rates increased because of declining mortality. In France, fertility and mortality declined together.

Gross Reproduction Ratio (GRR) and Life Expectancy (e_0) in England, Sweden and France

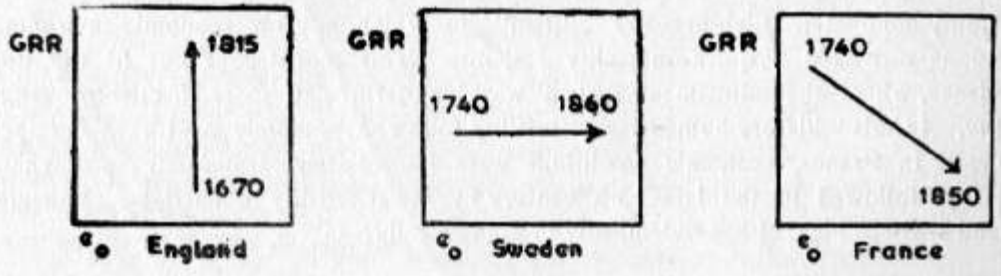

Fig. 2

Source : *The Population History of England, 1541-1871*, Fig. 7.13, p 246 (generalised).

Family reconstitutions for 12 parishes were used to further analyse the fertility patterns by examining ages of marriage. Age of marriage of women dropped by 1.5 years in the 18th century. The impact of this reduction was reinforced by a huge reduction in the proportions never married from 27 per cent of those aged 40-44 (1650s) down to 4 per cent (1780s) followed by a rise to over 10 per cent (1820s).

But that cannot be the whole story. The biggest drop in the age of marriage of women was from 1800-49, yet this was a time of decreasing fertility. Obviously, one cannot explain all increases in fertility by lowering ages of marriage, since in the early 19th century, the formerly close relation reversed itself : fertility fell after 1816 as marriage ages continued to fall.

The authors performed sensitivity testing for the reproduction and life expectancy figures and believe they are firmly established and that the wide swings in and out of the seventeenth century are unassailable.

The theories of Thomas Malthus (1798 and later) concerned the way in which a population responded to the availability of subsistence. He argued that while population could increase (if unchecked) at a geometrical rate (1, 2, 4, 8, 16 . . . .), subsistence could only be increased at an arithmetic rate (1, 2, 3, 4, 5 . . . .). This "law" (as he called it) meant that the population had to adjust to the resources available, either by using "prudential and preventive" checks (later marriage, sexual abstinence) or would be forced to adjust by "positive" checks (famine, pestilence, and war).

Wrigley and Schofield's evidence amply supports Malthus's theories — to about 1800. Until then there was a rough balance between the cost of living and population numbers, and real wages show a clear relationship with fertility. People married younger and had their first child earlier. The proportion of brides pregnant at marriage rose from 10 per cent in the 17th century to 30 per cent in the first half of the 19th century.

The main conclusion then is that England was a society with a "low-pressure" population-resources equilibrium. The commonly-held view is that, in the traditional society, a high birth rate with a high to moderate and fluctuating death rate produced a "mortality-dominated high-pressure system" in which adverse economic-environmental conditions provoked a quick mortality response. This model does not fit the English experience, where the adjustment system was long-term and more affected by changes in fertility. In this "dilatory homeostasis" fertility followed economic health at a respectful distance. In France, economic conditions were immediately translated into changing mortality, followed in the late 18th century by lower fertility in marriage. Mortality in England was not high, either endemically or epidemically.

The main text concludes with a discussion of a set of models of the relations of population and economy and environment from early modern time in England. First comes a simple and ingenious diagram of a Malthusian negative feedback system showing the preventive check (fertility) and the positive check (mortality) operating in a negative feedback mechanism (Fig. 3). Such a system is closed. An open system might have mortality determined from outside, in which case a higher nuptiality might be expected.

A Simple Model of Pre-modern Population Change

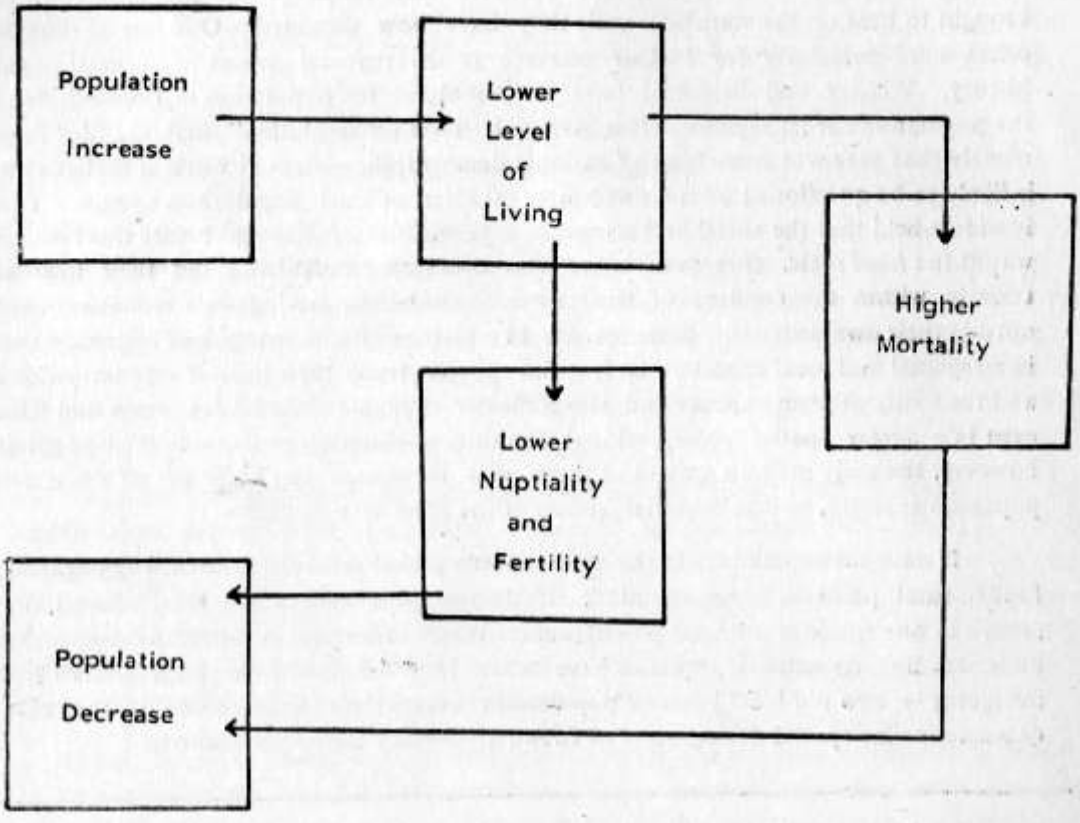

Fig. 3

The authors describe complex model systems that fit the English national economy in the late 16th, 17th, early 19th and late 19th centuries, the latter providing positive feedback systems which account for the breakout from the older negative systems. Malthus's arguments reflect a stable society with technological and other limits on production. In the 19th century the productive effects of the idea of *progress* (as in Adam Smith, *The Wealth of Nations*, 1776) allowed for support of much greater increases than Malthus envisaged. This speculative discussion concludes with a brief essay on the limitations of the models, and a graceful brief commentary concludes the main text. There follow 250 pages of statistics and technical discussion in 16 appendixes.

The influence of this book will not be transitory. It will undoubtedly remain essential reading for anyone interested in reconstructing past populations. More than that, the technical display and the advancement of the use of numbers represented here will provide population students with food for thought for years to come.

In the closing pages the authors anticipate work on "a more comprehensive understanding of population history," in which a wide range of ideas and materials will be brought to bear on the statistical basis they have now provided. One line of thought that offers some possibility for further research is the regional aspect of national population history. Wrigley and Schofield have written about the population of England, not about the populations of its regions. This *national* "level of resolution" and the idea behind it, namely that here was some kind of national demographic system at work in earlier centuries, is likely to be questioned as more and more studies of local populations appear. The view is widely-held that the social and economic organization of Europe before the 19th century was at the *local* scale. One may argue that ordinary people lived out their lives almost entirely within the confines of their own communities, having only tenuous connections outside their own districts. Basic events like birth, death, marriage and migration occurred in a regional and local context. Only a few people lived their lives at a countrywide scale, and then only at great expense and with difficulty. Primate cities like London and Paris did exist in a larger spatial order, taking migrants to maintain or increase their populations ; however, the early modern growth of these cities is perhaps the harbinger of a new national population system, not an essential feature of the older way of life.

If national populations in the early modern period are only statistical aggregates, some fundamental questions come to mind. If demographic events are locally-based, in what sense can one speak of national populations ? What meaning, in terms of comprehensive understanding, do national statistics have when they are based on local studies ? Most intriguing — how did locally-bound populations evolve into the national systems that now characterize the spatial demography of twentieth century European countries ?

Professor John W. Webb is the Dean, College of Social and Behavioural Sciences, and Professor of Geography at the State University of New York at Albany, United States.

DOCTORAL DISSERTATION ABSTRACT

Susheel Kaur : **Changes in the Occupational Structure of India's Male Population, 1961-71**

Year : 1982 Supervisor : R. C. Chandna

University : Panjab, Chandigarh

After Independence, the occupational structure of India's working force has witnessed some significant changes. Some of the traditional occupations/services have been waning, while some new sets of services/occupations have been gaining importance. A review of literature reveals that not much work has been done on the changes in the occupational structure of India's working force. The accomplished doctoral dissertation is the first attempt to analyse in detail the changes in the occupational structure of male workers of India during 1961-71.

The scope of present study was restricted to the analysis of the changes in the occupational structure of male population alone and for the decade 1961-71 only. It was in 1961 that the Census of India introduced, for the first time, the concept of a worker and also adopted a neat distinction between industrial and occupational classification. However, since the modifications introduced in the definition of a worker at the time of 1971 census rendered the data on female workers uncomparable, therefore, the scope of the present study was limited to the analysis of male working force alone.

The study makes liberal use of vast district level census data pertaining to major industrial categories and occupational structure. Using these voluminous census data, a number of sets of maps were prepared to portray (i) the regional pattern of industrial categories in 1961; (ii) the regional pattern of industrial categories in 1971 ; (iii) the regional pattern of first and second ranking occupations for 1961 and 1971; (iv) the regional pattern of index of change for each industrial category; and (v) the degree of diversification of economy and degree of change in the industrial structure of male working force.

The present work presents its material in eleven main chapters. The first chapter deals with changes in the proportion of male workers. In the nine subsequent chapters each industrial category has been analysed separately. The last chapter has been devoted to the analysis of the regional pattern of overall change in the industrial structure. In the end, the conclusions arrived at in different chapters have been given. The thesis incorporates text (pp. 1-256), 29 tables, 73 nearly drawn maps, 6 diagrams, in addition to a bibliography and appendices.

India still ranks low in terms of participation rates in economically gainful activities even when only males are considered. It may be attributable to the typical age-structure of the country associated with the second stage of its demographic transition. However, during the decade under review, the proportion of male workers declined marginaily due to change

in the definition of a worker. Areally, the interior heartland of the country displayed a negative index of change while the peripheral areas recorded a positive index of change. This disparity was associated with the differences in the degree of dynamism of the industrial structure of the two areas.

The occupational structure of India's male working force in 1971 still remained overwhelmingly dominated by the primary occupations. Seven out of every ten male workers were engaged in primary occupations. Of the remaining three, two derived their livelihood from tertiary occupations and only one from secondary occupations. However, the various industrial categories that recorded an increase in the proportion of workers during 1961-71 were agricultural labour, factory industry, trade and commerce, transport, storage and communication. On the other hand, the proportion of workers engaged in cultivation, other primary occupations excluding agricultural labour, household industries, construction and other services declined.

In terms of areal spread, cultivation was the first ranking occupation in almost ninety per cent of the districts. In most of the remaining districts agricultural labour which otherwise was the second largest occupation ranked first. The existence of large landless labour is to be understood in the context of the country's social and economic history, gradual breakup of traditional services in the countryside, dwindling market for goods produced by artisan class and increased demand for hired labour as a consequence of green revolution. Other services that ranked third in importance had their areal concentration in areas having land borders with countries like China and Bangladesh. Other areas which displayed high concentration of such services were those which had a long history of exposure to external influences, high literacy rates and high degree of urban/industrial development. A positive index of change in such services was recorded by those areas where the administrative, defence, educational, and health services experienced vast expansion due to their sensitive border location or territorial reorganisation or local law and order exigencies. Factory industry workers ranking next in importance were found to be highly clustered in traditional industrial centres, newly emerging industrial belts and areas having peripheral location to some industrial centre. The workers in trade and commerce had their concentration in areas having some historically important trade centre or a high degree of commercialisation of agriculture or a well-developed network of roads and railways. In the remaining industrial categories, not only the proportion of workers engaged was low but also the pace of change was slow.

Within various industrial categories certain occupations have been observed to be waning while others are gaining significance. For instance, from amongst the primary occupations, agricultural labour, agricultural services, mining and quarrying, and fishing have been gaining significance while livestock production and hunting have been declining. Cultivation also suffered a significant decline. Similarly, amongst the secondary occupations, the manufacture of machinery, machine tools, beverages, tobacco and tobacco products, jewellery, stationery articles, medical and surgical instruments improved their share while manufacture

of cotton textiles, particularly weaving and spinning, manufacture of leather and leather products, food products, non-metallic mineral products, metal products declined in terms of proportion of workers. Such a trend was partly due to the emergence of factory industry and decline in demand for hand made products and partly due to change in the definition of a worker. From amongst the tertiary occupations, trade and commerce and transport experienced a positive change while other services recorded a decline. This decline in the proportion of workers in other services, in spite of vast expansion of administration, defence, and health services, was related to the modification in the classification of industrial categories.

In terms of overall index of change in the industrial structure of male working force, the country displayed low degree of dynamism during 1961-71. Regionally, this index varied from 2 to 60. The regional variations in this index of change were attributable to the regional variations in the index of diversification of economy, degree of urbanization and extent of commercialisation of agriculture. The index of change in the industrial structure of male working force was positively correlated with incidence of diversification of economy, urbanization, and degree of commercialisation of agriculture. Broadly speaking, the central heartland of the country which was least diversifiied and was experiencing developments in the field of agriculture alone was found to be less dynamic than the peripheral areas where the diversification index was high and which were experiencing developments both in the agricultural and industrial sectors. Interestingly, the most developed and the least developed areas recorded high index of change. While the concentration of basic infrastructure in the former provided the greatest stimulus for change, the government's initiative for removing regional imbalances in development proved to be the most catalytic agent in the latter case.