INTERPROVINCIAL MIGRATIONS IN CHINA: AN ANALYSIS BASED ON THE 1990 CENSUS

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Abstract

Using the data from the 1990 census, this thesis studies interprovincial migration in China between 1985-90 and interprets these migrations in terms of socioeconomic development and migration policies. The main findings included the following.

1. Due to the relaxation of government intervention and the shifts of economic activities from the interior to the east and from rural to urban areas, both strong **urban-ward** and **eastward** trends characterize the interprovincial migrations.

2. Compared with females, males have greater migration propensities and their migrations depend more on personal attributes and employment-related factors in destinations than on local socioeconomic, especially living, conditions. Thus, while female migrants show an unidirectional **eastward** trend, male migrants dispaly not only a strong **eastward** but also a substantial **westward** trend.

3. Choice of migration reasons largely depends on both **personal** and **place attributes**. For marriage and job transfer migrants, their migrations are mainly oriented toward better living conditions and thus show a strong **eastward** trend. However, since job transfer migrants are subject to the strongest government control, their eastward trend was substantially weakened. For manual work & commerce migrants, while the shortage of job opportunities is the strongest origin

push factor, the availability of employment opportunities in the urban informal labor market is the most important destination pull force. Thus, their migration shows both significant **eastward** and **westward** tendencies.

4. As for migrations in the city-town-rural system, first, the government's encouragement of **downward** migrations has little effect. Second, **inter-city** migrations show a substantial **eastward** trend and represent the second largest migration flow due to the greater ease of permanent lateral migration between cities. Third, while government control on **permanent upward** migration is still effective, the temporary migration policy issued in 1984 helps make **temporary upward** migrations from rural counties to cities the largest migration stream. Finally, it is **difficult** to direct upward migration from cities to towns, because towns have much fewer economic opportunities and lower quality of life than cities.

5. With the application of the concept of the neutral migration process to the observed migrations, first, for the seven provinces containing surplus labourers and also constituting the largest net losers, not only their departure rates are higher than the corresponding neutral levels, but they also get less than their fair shares of migrants from other provinces. In this way, their **employment pressure** could be expected to be **alleviated** gradually. Second, for most eastern developed provinces, not only do they get more than their fair shares of migrants from other provinces, but also their departure rates are lower than the corresponding neutral

levels. As long as the gap of economic growth remains and the temporary migration policy is still effective, the strong **eastward** tendency would be **inevitable**. Finally, due to its remote location and low living standard, nine out of twelve remote provinces show a higher departure rate than the corresponding neutral level, reflecting their residents' strong will to depart. However, it is also a welcoming sign that seven out of twelve remote provinces attract more than their fair share of outmigrants (especially manual work & commerce outmigrants) from provinces with surplus labourers.

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Chapter 1

Introduction

1.1 Background

From the founding of the People's Republic (1949) until the late 1970's, China had been committed to a centrally planned economy. Central control had extended to planning population issues, including population migration. When allowed, migration must be compatible with the government's political and economic demands (He, 1992) which tended to shift investment and economic growth from the coastal provinces that had benefited so much from earlier Western trade to the poorer and minority nationality-dominant interior for defense and equality purposes. As a result, most interprovincial population transfers were **government-sponsored** ones (He, 1992; Banister, 1987). These include the transfer of a large number of skilled workers and specialists from state enterprises in the developed industrial areas to new industrial bases in the interior for such activities as factory construction and mining, the transfer of cadres and

intellectuals (including high school graduates) from relatively developed urban areas to poor rural areas to "learn from peasants", and the mobilization of military personnel to backward areas to support the construction there. As for **spontaneous** migration, it almost only refers to voluntary movement by rural people from densely-populated and land-shortage areas to sparsely-populated areas for farming (DIESA, 1989). Consequently, most interprovincial migrations were **downward** movement from urban areas to rural areas and **westward** movement from the densely-populated and relatively developed coast to the sparsely-populated and relatively backward interior (DIESA, 1989). Underlying these population transfers was the **household registration system**, which divides the entire population into those with urban residence or nonagricultural registration and those having rural residence or agricultural registration. All migrations were strongly controlled through this system (Banister, 1987; Goldstein, 1991). For example, the government usually forced people to move from urban to rural places or from the developed eastern provinces to less developed and minority-nationality-dominant remote provinces by cancelling their permanent registration in the original residence (Goldstein, 1985b); in contrast, residents who wanted to move from rural to urban areas or change their agricultural registration to nonagricultural registration must have a certificate of recruitment given by a city labour department, or a school enrolment notice, or a permit for inmigration issued by the city's household registrar, and must ask the household registrar of

their original residence to initiate the relocation procedure. This regulation was introduced to reduce pressures on urban (especially large cities in the eastern developed region) housing, food supplies, employment and educational facilities and to make the flow of rural people into urban areas commensurate with urban economic development. As a result, during the two decades (throughout the 1960's and most of the 1970's) of rapid population growth accompanied by a very low economic development, the Chinese government forced its rural areas to accommodate the entire surplus population (Banister, 1987).

The Chinese government announced in 1978 a rural reform program and in 1984 an economic policy to activate the internal economy and open to the world. The rural reform introduced the household responsibility system in rural areas, which offered major incentives to expand production and thus greatly stimulated the improvement in agricultural productivity. As a result, a large **surplus** of rural labour force has been released from agricultural activities. This surplus is described vividly in the following way:

> With the improvement of agricultural productivity, the size of the surplus labour force on farm has reached alarming proportions. Currently, the surplus constitutes around 30-40% of the rural population, which means 150 million surplus labourers. In areas of large surplus, the figures is as high as 60%. Following the

> implementation of the production contract system throughout the rural areas, accompanied by rural population growth, the size of the surplus will also grow (Lu and Wang, 1984).

With respect to the economic reform of 1984, which was accompanied by the **strategic shift** of socioeconomic development from the centrally administrated economy to a market economy, from rural to urban places, and from the interior to the eastern coast, urban areas especially those in the coastal provinces have attracted a large amount of investment and experienced a rapid increase of urban construction and industrial (particularly light industrial) projects which need more labourers relative to total investment (Yeung and Hu, 1992). Such a rapid development in urban places especially cities in the coastal provinces has generated a more divergent economic structure (e.g., besides the planned economy sector, there are also other kinds of state owned enterprises such as the co-operative enterprises, even foreign enterprises, collective and private enterprises) and larger urban labour market, especially the informal sector of this market, which is on a short-term basis and outside the government system of life-time security, taxation, and other forms of labour legislation (Banister, 1986).

In order to gradually transfer the surplus rural labour force to nonfarm economic activities and to respond to the increasing demands from the urban labour markets but at the same time to avoid 'over-urbanization', the Chinese

government on the one hand has put more emphasis on setting up rural nonfarm/township enterprise sector to help the surplus rural population and urges the rural population to 'leave the land but not the village' (Banister, 1986; East-West Center, 1989); on the other hand, it also permitted rural population since 1984 to be hired as contract or temporary urban labourers in cities or towns for years without being granted permanent urban labourer status. The permission is largely limited to the informal sectors of the urban labour market such as urban construction, housemaids, market vending, small-scale crafts production, and transportation of goods and people (Zhang, 1985). Also, in response to the need for strategic shift, the state no longer guarantees every adult with urban residence a job as it used to do and urges people in unprofitable state enterprises to find their own work in other enterprise sectors which have been growing rapidly since the economic reforms. In this case, the Chinese authorities have relatively relaxed the limitation on permanent interprovincial migration, especially from the administrated economy-dominant interior to the developed eastern coast (East-West Centre, 1989).

Therefore, even though migration in China is still under government control, the control has been relaxed to some extent. This change from a unique blend of policies prior to 1978 to a mixed market system since 1978 will characterize China with some new migration properties. These properties are instructive for other developing countries which are facing similar problems (e.g., rural

overpopulation, rapidly expanding metropolitan areas and inequitable regional development) and whose governments have tried to intervene directly in guiding the migration process (Kowk, 1990). From this point of view, the study of migration in China is important in both theoretical and practical aspects. Furthermore, given the substantial imbalance of population distribution among the provinces (population density in 1985 ranged from a low of 5 persons/per km^2 to a high of 1931 persons/per km^2) and between urban/rural areas (the proportion of agricultural population in 1985 was over 80%), and also the considerable disparities in socioeconomic development and government's intervention among these provinces and between the urban/rural areas, we believe that viewing China as a composite of highly divergent regions is a particularly advantageous way both to widen the study by examining the relations among the provinces and between the urban/rural areas and to provide more practical policy evaluation and evolution.

1.2 The Study

As a study on the interprovincial migration in China, this thesis seeks to answer four main questions.

1. What is the pattern of the overall interprovincial migration process in 1985-90

and how does it change from that before the economic reform? How can this change be explained with reference to the level of technological progress and development, overall economic conditions, and government policies. In other words, what are the interrelationships between interprovincial migration and the development process?

2. What are the differentials of interprovincial migration process among different groups of migrants (i.e., different sex or different migration motivations)? How can these differentials be explained with reference to the socioeconomic status of the migrants and the community characteristics associated with the provinces in which migrations took place?

3. Considering city, town, and rural county as different stages in the development process or different conditions of development, what are the differentials of interprovincial migration in these three stratified social settings and how can these differentials be explained by the development process?

4. What are the policy implications of the patterns and processes discussed?

The organization of the study is outlined as follows. Chapter 2 reviews the literature on migration in developing countries, including the conceptual and operational models of the migration process and the empirical evidence of determinants of migration process. Furthermore, due to a great deal of disagreement at a more specific level concerning the relative importance of each determinant, a development approach revealing the interrelationship between the

stages of development and migration processes is briefly discussed.

Although the models and empirical evidence in the literature provide a rationale for including certain determinants in an explanatory model of the migration process in developing countries, the selection of the determinants requires a careful examination of cultural, institutional, and economic circumstances of the system under study. Chapter 3 defines and classifies the interprovincial migrations of China, whereas Chapter 4 selects the explanatory variables of interprovincial migrations based on the socioeconomic characteristics of each province.

Chapter 5 describes the pattern of the overall interprovincial migration and the interprovincial migration by gender in 1985-90, and interprets the patterns in terms of selected development variables.

Based on the idea that the people of rural areas or the worse-off classes generally are compelled to migrate by origin-pushed factors and put more emphasis on employment (job) opportunity and income (wage) differentials, whereas the people of urban areas or the better-off classes migrate generally in response to destination-pulled factors and put more emphasis on the type of occupation and the quality of life (e.g., climate, social or family expenditure levels, and such facilities as communication, education, health, and recreation or entertainment), Chapter 6 first describes the interrelationship between (1) the socioeconomic status of migrants such as gender and urban/rural residence and

(2) their migration reasons. It then compares the interprovincial migration patterns of three distinct groups of migrants (i.e., manual work & commerce migrants, job transfer migrants and marriage migrants) and explains these patterns with reference to the socioeconomic status of migrants and the community characteristics associated with origin and destination provinces.

Given that each of city, town, and rural strata represents a different stage in the development process or a different condition of development, and that the Chinese government has placed great emphasis on directing the rural-to-urban migration away from cities to towns, instead of two-sector rural/urban analysis, which is usually adopted in the studies on migration in developing countries, Chapter 7 characterizes and interprets the various forms of interprovincial migrations within the three-stratum rural/urban settlement system (i.e., city, town, and rural county), and the migration patterns are further related to the migration policy.

In Chapter 8, the concept of a neutral migration process is applied to interpret the redistribution potential of the observed migration process, and some policy and planning implications of the research are suggested.

Finally, a brief conclusion in Chapter 9 summarizes the main findings.

Chapter 2

A Review of the Literature on Migration in Developing Countries

In order to pin down the theoretical framework for studying China's interprovincial migration processes and to select the determinants most worth exploring for their influence on these processes, a review of the literature on migration in developing countries is useful. Also, such a review helps identify areas of migration research that have not been fully developed.

2.1 Conceptual Models of the Migration Process

A significant division exists between, on the one hand, migration models derived from social physics which interpret aggregate behaviour as the outcome of impersonal macroscopic laws and, on the other hand, micro-analytical perspectives which examine individual migration behaviour as the expression of decision-making which need not be economically or spatially rational.

Two such conceptual models dealing directly with developing countries are

Brown and Moore's (1970) microlevel model and Mabogunje's (1970) macrolevel model. Hence, the discussion here on micro- and macro-level migration processes constitutes an adaptation of Brown and Moore's model and Mabogunje's model.

2.1.1 Micro perspectives of the migration process

A basic concept in the Brown and Moore model is that of place utility, which refers to an individual's (or household's) overall level of satisfaction or dissatisfaction with respect to a given location. If the place utility of the present residential site diverges sufficiently from the individual's immediate needs, that person may consider seeking a new location. Thus, migration is viewed as a process of adjustment whereby one residence or location is substituted for another in order to satisfy the needs and desires of each migrant better, that is, in order to increase the place utility experienced at the residential site.

For the ease of discussion, the migration process may be divided into two phases. Phase I is concerned with the behaviour up to the decision to seek a new residential location, whereas Phase II examines the behaviour from that point up to the decision of whether actually to relocate and, if so, where to do so.

In Phase I, the individual or household is seen as continually evaluating the congruence between its needs or expectations and the offerings associated with

the present residential site. These congruences may pertain to such things as wage levels, employment opportunities, climate, social or family relationships, and such amenities as recreation or entertainment. The disparities between needs or expectations and environmental offerings give rise to stress, which in turn leads to some coping behaviour if a threshold level is exceeded.

As one coping behaviour, once the individual or household has decided to seek a new residential location (Phase II), a search process is undertaken. One element of this is the individual's mental or cognitive map which, together with the 'need set', defines an initial search space composed of places or locales that seem generally attractive. A second element of the search process is the actual opportunities offered by each place, such as job availability and associated wages, residential availability, and the qualities of vacancies, educational opportunities, and other amenities. The characteristics of the migration opportunity set are made known through a variety of information channels :such as the media, government or private agencies, and interpersonal contacts. The third element of the search is a strategy for systematically sampling the various information channels, which implicitly would take account of the search space.

As a result of the search, the potential migrant will identify some places for serious evaluation. If they have characteristics that are congruent with the migrant's aspirations, an actual migration is likely to occur.

2.1.2 Macrolevel perspectives of the migration process

The framework of Brown and Moore, described above, identifies some basic components of the migrant's decision-making process. They include the individual migrant's needs or aspirations with respect to a residential site; the individual migrant's cognitive map; the characteristics associated with present residential sites and with migration opportunities, generally termed environmental offerings; and channels of communications. To evaluate the interrelationship between these components, society at large, and individual behaviour, we turn to Mabogunje's macrolevel model.

Mabogunje articulates his framework in terms of rural-to-urban migration. The major elements include (1) a pool of potential migrants in the rural area, viewed as a mass resource rather than as individuals; (2) two systems pertaining to migration flows, one centring on the rural area and controlling outflows and one on the urban area controlling inflows; and (3) a background environment comprising social and economic conditions, government policies, transportation and communications infrastructures, and the level of technological process and development.

With regard to the "push" side of migration, it is evident that local economic conditions would affect the pool of potential migrants. Thus, if there is much work, fewer persons will enter the migrant pool than if the opposite were true.

Also, the pool will be affected by local social practices. For example, migration would probably be less prevalent in a community that emphasized the local economy, say, through the fostering of cooperatives, than it would be in a community that placed a high value on formal education and social betterment. Other examples might include the difference of gender which imposes different effects on the migration motivation (e.g., males migrate more for employment-related reason while females migrate more for family-related reason). Finally, the characteristics both of local economic conditions and social practices generally will depend upon where the community falls along a traditional-modern continuum, and that in turn will be affected by overall economic conditions, the level of technological progress and development, and government policies.

With regard to the "pull" side of migration, wage rates and job opportunities emanating from the urban system would affect whether individuals in the pool of potential migrants in fact migrate. Other pertinent factors would be housing conditions and mechanisms for easing the transition into the urban system, such as the presence there of friends, acquaintances, and relatives, the geographical distance between rural and urban areas, and transportation networks between places. Finally, both communication/transportation networks and the urban system in general, like the rural system, are immersed in and will be affected by a larger environment composed of overall economic conditions, the levels of technological progress and development, and government policies.

Another dimension of the interrelationship between the rural and urban systems is that the characteristics of each will be affected by the migration between them. Thus, a significant out-migration from a rural area will affect the age and sex distribution of its population, as well as such economic characteristics as per capita income. Likewise, a significant in-migration to an urban area will affect its unemployment rate, living density, and housing conditions. Further, the rural system will be affected by communications and development impulses emanating from the urban area, which in turn may stimulate further rural-to-urban migration.

2.1.3 The complementarity of the Brown and Moore and Mabogunje models

The pool of potential migrants, according to Mabogunje, is composed of persons who, in Brown and Moore's (1970) terms, have entered Phase II of the migration process; that is, they have decided to seek a new residence. This decision is largely controlled by the portion of the migration system centring on the origin or rural area. Thus, the needs and aspirations of the rural population are affected by social practices there, whereas the environmental offerings of the rural residence are in part represented by its economic conditions.

Given that the match between needs and environmental offerings leads an

individual to enter the pool of potential migrants and undertake a search for a new residence, success depends in large part upon the portion of the migration system centring on the urban area. Some pertinent characteristics of this system are its offerings in terms of jobs, wage rates, housing, education, entertainment, recreation, and other amenities, which constitute the migration opportunity set in Brown and Moore's model. These characteristics are communicated through various channels, which the potential migrant would search according to a calculated strategy. The importance of each characteristic, however, would depend upon the individual's aspirations with regard to a residential site, and these aspirations, together with the potential migrant's mental map, would also be reflected in the choice of urban areas examined as alternative destination. Once the potential migrant actually transfers from the rural to an urban area, Phase II, the decision of where to relocate, would be completed.

Finally, whether the point of reference is the individual, as for Brown and Moore (1970), or the system, as for Mabogunje, all elements are affected by the general environment of social and economic conditions, government polices, transportation and communications infrastructures, and the level of technological progress and development.

2.2 Operational Models of the Migration Process

Based on the above conceptual models, some operational models on the migration in developing countries have been developed. They are identified here as the labour-force adjustment, multiple regression, human capital and contextual models.

The labour-force adjustment model (Brown and Sanders, 1981) argues that migration is a response to wage rate or employment opportunity differentials between places, which themselves result from differentials in the supply and demand for labour across space. Thus, migration is seen as an equilibrating mechanism so as to remove wage and unemployment rate differentials. Examples of the application of this model to the study of internal migration in developing countries include Falaris (1979) for Peru and Greenwood (1969, 1971) for Egypt and India.

Another model corresponding with Mabogunje in viewing migration in aggregate terms is the multiple regression model (Huw, 1990). In the basic single-equation model the dependent variable is some measure of migration (in-, out-, gross or net migration) for an area, while the hypothesized independent variables comprise a selection of demographic, social and economic variables. Compared with the labour-force adjustment model, the flexibility of the multiple regression model is its great attraction. Several of the variables from labour-force adjustment model may be adopted in multiple regression analysis. But the range of possible independent variables extends well beyond these to embrace

demographic, occupational, environmental and other measures. The flexibility is such that different sets of independent variables may be used for different sets of migration data; a variable offering a high degree of 'explanation' in one application may not be adopted in another. Such flexibility does have a cost, in that reliance is often placed more on *ad hoc* empiricism than on plausible theory. Examples of the application of the multiple regression model includes Brown (1987) for Venezuela, and Cebula (1965) for U.S.A. Generally, these applications extend the independent variables well beyond wage rate or employment opportunity to embrace those such as the quality of life, population pressure and community characteristics related to the levels of technological progress and development.

The human capital approach to migration was initiated by Sjaastad (1962) and applied to developing countries by Todaro (1971) and others. Basically, this model states that migration will occur if the **expected** present value of future earnings in the potential destination exceeds that of the origin plus the cost of migration (C(0)). For regions i and j at time t, the expected present values depend on income levels (Yi(t), Yj(t)) over the planning horizon of the potential migrant (that is, the number of years over which future earning are considered), and the probabilities of securing employment (pi(t), pj(t)). Accordingly, by applying this model to the rural-to-urban migration in developing countries, it is not unreasonable to find both high levels of rural-to-urban migration and high levels

of urban unemployment (Todaro, 1971; Godfrey, 1973; Speare, 1971). However, the application of the model to developing countries has been limited by scarce and unreliable data (Lee, 1985). The question of what constitutes rural family income is not a simple one, as people are engaged in a variety of economic activities that are neither easily captured nor easily converted into monetary terms. A major problem with unemployment rates in developing countries is their underestimation. The poor often cannot afford to be unemployed for any significant period and so they are likely to be engaged in peripheral activities and have some minimum income to meet subsistence needs and would not appear as unemployed in surveys or censuses.

Compared with the human capital model, the contextual model suggests that individual migration behaviour is strongly influenced not only by wage rate or employment opportunity differentials between the origin and potential destination, but also by social and environmental factors. Thus, it provides a theoretical basis for including a wide range of factors. Also, it allows us to examine variations among individuals from different communities as well as variations among individuals within a community (Gardner, 1981). One example of the application of the model to the study of migration behaviour in developing countries is Lee (1985) for the intention to move (or stay) of 1,185 individuals from a province in the Philippines. In her study, independent variables are proxies for a person's commitment to family, job, and place (e.g., age, sex, marital status, and

occupation); a person's resources for moving (e.g., education, migration experience, and household economic conditions); and characteristics of the community in which each person resided. The findings are that moving intentions varied directly with urban residence and population density, and inversely with the incidence of local employment opportunities and community services. A number of interaction effects were tested, but results are fragmented and difficult to summarise.

2.3 Pull and Push Factors on Migration

Based on the operational models of migration in developing countries and a number of factors related to the circumstances of developing countries, this section reviews the main factors that have been identified in previous empirical research.

2.3.1 Pull factors on migration in developing countries

The urban informal labour market

Typically, the developing countries contain a burgeoning informal sector of

the urban labour market which includes such jobs as construction, casual day labour, housemaids, market vending, small-scale crafts production, and many modes of transporting goods, people, and communication. This informal sector is generally distinguished by its noninstitutionalized character; that is, unlike the jobs in urban formal labour markets, the jobs constituting it are outside the government system of social security, taxation, and other forms of labour legislation (Brown and Sanders, 1981).

Depending upon the country, 30% to 70% of the labour force may be employed in informal-sector activities (International Labour Office, 1972), and this rate is thought to be higher among migrants in-so-far as the informal sector is a way-station for absorption into the urban formal labour sector (Yap,1975). It seems reasonable to argue, then, that opportunities in the informal sector in the urban labour market constitute a significant pull for the migrant, one at least as strong as, and in many instances greater than, the pull of the formal sector (Brown and Sanders, 1981). In this case, models of migration in developing countries should take explicit account of the pull of the urban informal sector.

The rural nonfarm/small-scale-enterprise sector

This source of employment opportunities consists of such activities as small-scale industry, traditional craft, or the processing of locally produced agricultural goods. A number of the characteristics make the sector worthy of special attention

in coming to understand migration in a developing country (Brown and Sanders, 1981). First, such employment is a widespread phenomenon. For example, in Africa, Page (1979) estimates that small and artisanal firms (employing 1-50 workers) account for as much as 95% of total manufacturing employment. Second, the rural nonfarm/small-scale-enterprise sector dominates the economic activity of small or medium-sized towns and provides a means by which agricultural households may supplement their income through part- or full-time work. The situation has also been observed in China since the late 1970's (Zhang,1985).

Thus, because much of the employment in the rural nonfarm/small-scale-enterprise sector is informal, because it provides opportunities for self-advancement and part-time supplemental employment, and because of its location in small or medium-sized towns, this sector has operated to drain off large-city-oriented migration streams, either by providing more local destinations or by decreasing migration in general (Steele 1975; Rhoda 1979). Accordingly, migration models that portray labour market conditions solely in terms of wage or job opportunity differentials of the formal sector could well be misleading, particularly since the rural nonfarm/small-scale-enterprise sector is expected to become even more significant as development progresses (Page, 1979).

<u>The role of family, acquaintances and community</u>

In general, the coverage and reach of media and institutional sources of information are limited in developing countries, and the information that is provided lacks reliability or credibility. As a result, interpersonal communications, such as family, extended family, or acquaintances, take on a critical role in the migration decision, leading to **chain migration** (Findley, 1977). An important function of these communications is to provide information on employment opportunities and often a direct opening to a job. To this point, Connell *et al* (1976) note:

> Most information is dependent on previous migration flows. ... An IDRC study of migration to five urban centres in three continents found that 80% of the migrants obtained information from relatives or friends and less than 1% from newspaper or radio.

One further aspect of the role of interpersonal communications is brought out by the distinction between active and passive migrants (Findley, 1977). The active migrant is motivated to seek economic or social betterment in a more independent manner and utilizes formal and impersonal sources of information, such as newspaper, radio, and government agencies. By contrast, the passive migrant is highly dependent upon interpersonal sources. Typically, better-off villagers tend

to use the more formal channels and poorer villagers the informal channels (Connell, 1976).

With regard to the role of the community, many empirical studies in developing countries especially Asian developing countries (Chant and Radcliffe, 1992) find that marriage migration of young females is much more prevalent in rural communities that still keep the traditional practices for bride to move to groom's residence at marriage than it is in urban communities.

The effects of class differences

The above observation that the sources of information used by more well-to-do villagers are different from those of poorer villagers reflects the more general condition that the better-off also have more access to job information, job opportunities, and education. The implication of this observation for the migration process, just as Brown and Sanders (1981) suggest, is that opportunities and constraints in the migration decision, vary by **social class**. That is, there exists fundamental differences in the factors influencing the migration process for different classes of people. The pull-based labour-force adjustment or human capital models might be appropriate for migration by the better-off villagers or more urbanized city residents, while a push-based model or one that gives more emphasis to chain aspects of migration might be more appropriate for the poorer

villagers or the less urbanized city residents. Similarly, characteristics of employment opportunities, especially those of the informal and rural nonfarm/small-scale-enterprise employment sectors, might be more significant for the poorer, more rural migrant, whereas the quality of life and the employment opportunities in the formal sector might be more significant for the better-off, more urbanized migrant.

2.3.2 Push factors on migration in developing countries

With regard to Mabogunje's conceptual model, in addition to the pull factors discussed above, push factors are also important in the migrations of developing countries. Since the effects of personal factors are much stronger on outmigration decision than on the destination choice decision (Liaw, 1990), in examining the push factors, it is useful to separate those factors pertaining to the individual migrant from those pertaining to the origin.

Individual characteristics

Age. It is a well-known fact that migration rates vary greatly across age categories, being highest in the early working years. In developing countries, it

is found that these years are primarily between the ages of 15 and 30 (Connell *et al.*, 1976). This life-cycle regularity may be related to marriage or to improving one's economic or social standing.

Family size. Family size and structure play an important role in the migration in developing countries, where migrants tend to come from larger families (Connell *et al.*, 1976). One way to view this type of migration is to consider that land or other local resources are often insufficient to support the whole family, so some members are pushed to another locale. In this way, the migration or circulation of surplus children has become a conscious strategy for increasing family income, and a rational, risk-mitigating response to resource scarcity and technological change in the origin locale.

Sex. The sex differential in migration in developing countries does not exist a priori. Studies in some developing countries (Chant and Radcliffe, 1992; Lee, 1985) find that compared with females, males are more likely to migrate for employment- or education-related reasons than for family-related reasons, and hence the migration in these developing countries is characterized as male-dominant pattern. However, Hugo (1978) illustrates an increase in female labour force participation and female-dominant migration in Indonesia. This pattern also seems to characterize the Philippines (Lee, 1985). For this reason, in our study, we will control for sex to examine the relationships between socioeconomic variables and migration.

Household economic conditions. The influence of individual income on migration can be considered from two contrasting perspectives. One perspective is that people with relatively low incomes are more likely to move because they are more responsive to a given income differential than people with high income (Lansing and Mueller, 1967). The other perspective, just as Brown and Sanders (1981) suggest, is that people with high incomes are more likely to move because they can afford the cost of moving. Studies in many developing countries (Chant and Radcliffe, 1992) find that people with relatively low incomes are more likely to move for marriage-related reasons than people with high incomes, and that people with relatively high incomes are more likely to move for employment-related reason than people with low incomes, other things being equal.

Place characteristics

In spite of the empirical regularities linking migration with age, family size, sex, and household economic conditions, the exact way in which individual characteristics are manifest in migration streams also depends on the characteristics of the origin residence, particularly its economic opportunities and social structure. To elaborate, out-migration tends to be greater in those origins that have less available land, fewer other income-generating resources, fewer opportunities for supplementary income such as rural nonfarm sector activities, or lower quality of life. This tendency, however, is more extreme in more

stratified social settings (Brown and Sanders, 1981). In such settings, the less well-off class generally are compelled to migrate by push factors, such as the lack of economic opportunity and a lower social status in the hometown, whereas pull factors, such as economic or educational opportunity, and recreational and communicational facilities in the city, play a more significant role for the better-off.

2.3.3 Policy implications

Current migration-related policies in developing countries are formulated in response to three major problems (Lee, 1985): (1) rural overpopulation and poverty, (2) rapidly expanding metropolitan areas, and (3) inequitable regional development. The governments in most developing countries (including China) have viewed city-bound migration as a cause of urban unemployment, housing shortage, and social problems and have made various efforts to reduce the rural-to-urban migration flows.

The policies influencing internal migration flows are of two kinds: (1) policies whose objectives are to influence migration patterns directly (e.g., substitution of permanent rural-to-urban migration by temporary rural-to-urban migration, and land resettlement programs), and (2) policies that change socioeconomic

opportunity structure through various development plans. The latter type of policies focuses mainly on increasing agricultural productivity and promoting township enterprises on the assumption that the flow of rural-to-urban migration will slow down or be directed away from cities to towns with the increase of agricultural productivity and the development of township enterprises.

The effects of various development policies on migration in developing countries have been evaluated by Rhoda (1979) and Findley (1980). They find that land reform, frontier-oriented resettlement schemes, and fertility control reduce rural-to-urban migration, and explain this effect by saying that these policies are the ones that reduce origin push. On the other hand, origin push is increased, as is rural-to-urban migration, by the diffusion of agricultural mechanization and agricultural extension programs, both of which have generated more surplus of agricultural labour force, generally favoured the more elite social classes, and therefore increased social and economic disparities in rural areas. The promotion of rural nonfarm activities has tended to slow rural-to-urban migration initially, but as the workers gain experience and skills, they often migrate to larger cities as a second step. As development progresses and more and better employment opportunities are available in intermediate and small towns, however, the move to large cities become unnecessary. Education at the rural level also tends to induce rural-to-urban migration by giving the youth modern urban skills, attitudes, and values.

2.4 A Development Approach

We have so far reviewed a number of factors that affect migration in developing countries -- wage and job opportunity in the urban modern/formal sector; employment opportunities in the urban informal and rural nonfarm/small-scale-enterprise sectors; migration chains based on family and acquaintance relationship; marriage migration based on the traditional practice of rural community; individual characteristics such as age, family size, sex, and household economic condition; and push factors related to origin residence characteristics such as its economic opportunities, the pattern of resource distribution among social classes, and local social norms. It is worth noting that most aspects of the Brown and Moore and Mabogunje conceptual models are represented among these factors, and that these factors repeatedly emerge in research findings on developing countries. In spite of the apparent agreement on a general level, however, there is a great deal of disagreement at a more specific level concerning the relative importance of each factor (Swindell, 1979). Some, for example, would stress rural-urban wage differentials; others would stress chain aspects of rural-to-urban migration. Furthermore, empirical evidence is too ambiguous to support either claim.

A way out of this dilemma is returning to Mabogunje's (1970)

conceptualization of the problem within the framework of general systems theory and Zelinsky's (1971) model of the mobility transition. With the general systems theory, Mabogunje considers the migration in developing countries in the broader context of an ongoing development process, which affects the environment of social and economic conditions, government policies, infrastructure characteristics, and the level of technological progress. That is, migration is interpreted more as a socioeconomic process than merely a demographic component or an aggregation of individual movers with individual motives. From this perspective, migration can be seen as a process that is affected by different factors at different stages of development, and ambiguities in research findings are explained by reference to the development milieu characterizing a given situation. Similarly, Zelinsky has put forth his hypothesis of the mobility transition (Fig 2.1) which he sees as paralleling (and interacting with) the demographic transition.

Based on the previous work of Mabogunje and Zelinsky, Brown and Sander (1981) have put forth the **development approach** of migration. It focuses on how development affects migration and examines the role of the structures of the society in which migration occurs. According to Brown and Sander, in early traditional society, migration will be largely chain migration in nature, origin pushed, and oriented toward activities in the informal labour market. Inter-rural and rural-to-urban migrations constitute the two main streams. In the advanced

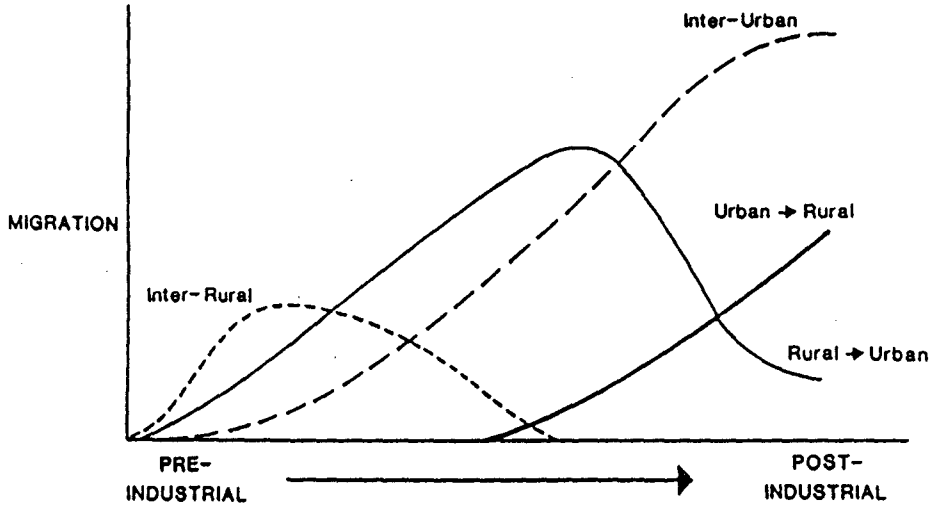

Fig. 2.1 Zeliusky's mobility transition (after Jones, 1990).

society, migrations of all social classes will be oriented toward formal/modern sector, and formal communication channels will take on a primary role as sources of information. The dominant pattern of migration will come to be inter-urban. Between the two societies is the late transitional society in which the migration patterns are mixed: while the better-off social class takes the modern patterns such as inter-urban migration, the less well-off social class will maintain the traditional ones such as inter-rural or rural-to-urban migration.

Furthermore, with the dual-economic model of development, Brown and Sander (1981) suggest that most developing countries are in the move-toward-industrialization phase, wherein two rather different mechanisms, modern and traditional, operate within the same society. As a result, migration process in these countries may vary from place to place, from time to time, and between better-off social class and worse-off social class. Given these conditions, ambiguities in research findings on internal migration in developing country settings (Findley, 1977; Connell *et al.*, 1976; Simmons *et al.*, 1977) may be attributed to the differences in level and nature of development.

One approach to break out of the ambiguities of empirical finding would be a cross-national analysis of internal migration, as in Firebaugh's (1979) census data-based study of urbanization which has given explicit attention to the development variables. Another would be a cross-sectional analysis of internal migration among subregions, among cities, towns, and rural counties, or among

different social classes within the same country, each representing different stages in the development process or different conditions of development. The latter approach is just what we intent to devote to.

Chapter 3

Sources of Data and Definition of Migrations

Before 1986, the assessment of migrations in China was largely based on the local registration statistics because of the widely held belief that since migration was largely controlled through the registration system, the local registration statistics were adequate to provide whatever information was needed (Goldstein, 1991). With these statistics, some suggestive findings (DIESA, 1989) indicate that: (1) the interprovincial migration in the 1960's and 1970's showed substantial **downward** movement from urban to rural areas and **westward** tendency from densely-populated and developed eastern areas to sparsely-populated, minority-nationality-dominant, and less developed interior areas; and (2) with respect to migration reason, except for some spontaneous migration of rural people from densely-populated and land-shortage provinces to sparsely-populated border provinces, in the 1960's and 1970's, most interprovincial migrations were **government-sponsored** ones such as job transfer and assignment.

Since 1984, however, temporary migration has increasingly become an

important mechanism of population exchange, just as stated in a scholarly article from China:

> Since the regulations issued by the State Council in 1984, people especially peasants have started to enter cities and towns to engage in trade and service and to take up industrial jobs with their own supply of food grain and housing. According to statistics, in many cities and towns their number has reached as high as 1/3 of the total population, which means that a considerable proportion of urban population is living there as temporary residents (Zhang, 1985).

Therefore, any census or survey not including direct questions about migration will undoubtedly lead to the misunderstanding of the extent and character of today's population movement in China.

In response to the need for a better data base on migration since 1984, the Population Research Centre of the Chinese Academy of Social Science (CASS) in 1986 undertook a survey in 43 cities and 31 towns selected from 16 provinces to assess the extent and patterns of migration (CASS, 1988). Also, the 1987 one-percent National Population Survey (NPS87) includes direct questions on migration (SSB, 1988). Based on these data, some researchers have undertaken

the study on recent years' migration processes of China and obtained many suggestive findings. With the data of CASS86, the important findings (Goldstein, 1991) are that for urban places, **temporary** inmigration has become numerically more important than permanent inmigration, and that a majority of those temporary inmigrants are **rural in origin**. Some main findings based on the NPS87 (Ma, 1993) document that the migration propensity for **lateral** migrations (rural-to-rural, town-to-town, and city-to-city migrations) is the highest at the city stratum and the lowest at the rural stratum; that with respect to **upward** migrations (rural-to-city, rural-to-town, and town-to-city migrations), the propensity to make rural-to-city migration is twice as high as the propensity to make town-to-city migration; and that with respect to **downward** migrations (city-to-rural, city-to-town, and town-to-rural migrations), the most unpopular migration is from cities to rural counties. However, for each set of the data, there exist some major limitations. The data of CASS86 only cover a part of urban places (74 cities and towns selected from 16 provinces) with the vast rural areas left untouched. Also, temporary migrants in the survey exclude (1) those living outside family and collective households and (2) those staying in the destination for more than one year without a permanent change in registration. According to other research (Goldstein 1991), both of the excluded types of individuals are quite numerous and also differ from the included individuals with respect to their reasons for migration, origin and characteristics. As for the data from the NPS87,

which includes migration information from 1982 to 1987, due to the urban reclassification around 1984, the study of rural-urban migrations will be distorted in some degree (Banister, 1986). Also, the relatively small sample size of interprovincial migrants limits the construction of a comprehensive picture of interprovincial migrations in the city-town-rural residence system and for different social classes. Given these limitations, it is necessary for us to get better migration data both to broaden and deepen the scope of studies.

The 10% sample of the 1990 census on the basis that all provinces are sampled at the same intensity meets this need. It contains detailed information of the sociodemocraphic characteristics of migrants such as occupation, education, gender and age, the current and previous residences by province and by urban/rural residence type (city, town and rural county), and the reason for migration. It also identifies both permanent and temporary migrations.

In this thesis, we follow the official method of defining the **population with city residence** as all **nonagricultural** persons who have their permanent residence within the boundaries of the cities and defining the **population with town residence** as **nonagricultural** persons who have their permanent residence within the boundaries of the towns. The remaining population is counted as **rural population.** As for the definition of **interprovincial** migration, persons who migrated from cities, towns or rural counties of other provinces during 1985-90 in terms of (1) a registration change to current residence or (2) an absence from

their registration places for one continuous year or more are counted as interprovincial migrants. The former are the so-called **permanent** migrants and the later **temporary** migrants. In terms of migration **reasons**, interprovincial migrations are divided into nine categories: (1) job transfer for those who officially shift their jobs (usually state jobs within the urban formal labour market and being under the government system of life-time security and other forms of labour legislation); (2) job assignment by the government for college and university graduates; (3) education for those who are pursuing higher education; (4) manual work & commerce for those who usually enter the urban informal labour markets temporarily; (5) joining relatives; (6) family moving for induced migration by the other family member(s); (7) marriage for those migrating to their marital partner's residence; (8) retirement; and (9) others. Volumes and distributions of interprovincial migrants by sex, urban/rural residence type and migration reason are shown in Table 3.1. Also, for the purpose of comparison, we have given the corresponding figures of intraprovincial migrants in the same table. With the data, we try to construct a comprehensive picture of interprovincial migrations of China between 1985-90.

Before we turn to the analyses, a limitation of the data must be pointed out. The data have been made available only in tabulated form, with the nature of the tabulations predetermined by the State Statistical Bureau (SSB, 1991). As a result, comparative evaluation of the characteristics of the different groups is restricted

Table 3.1 Volumes and distributions of 1985/90 interprovincial and intraprovincial migrants by migration reason, sex, and residence type.

I. Distribution of migrants by migration reason (%):										Volume (person)
	Job transfer	Job assignment	Manual work & commerce	Education	Joining relatives	Family moving	Marriage	Retirement	Others	
Inter-province:	14.5	4.7	29.4	7.8	10.6	10.8	14.2	1.5	6.5	1083626
Intra-province:	9.9	6.5	19.8	15.4	9.5	10.2	14.4	5.2	9.1	2300435

II. Distribution of migrants by sex (%):

	Male	Female	
Inter-province:	58.2	41.8	1083626
Intra-province:	54.4	45.6	2300435

III. Distribution of migrants by origin residence type in 1985 (%):

	City	Town	Rural county	
Inter-province:	25.3	13.9	60.8	1083626
Intra-province:	15.4	21.0	63.6	2300435

IV. Distribution of male migrants by origin residence type in 1985 (%):

	City	Town	Rural county	
Inter-province:	29.1	14.3	56.6	630448
Intra-province:	18.3	21.8	59.9	1251295

V. Distribution of female migrants by origin residence type in 1985 (%):

	City	Town	Rural county	
Inter-province:	20.0	13.3	66.7	453178
Intra-province:	11.8	20.5	67.7	1049140

Data source: State Statistical Bureau of China (SSB) (1991): "10% Sampled National Population Survey of 1990 Census".

and the extent to which this rich set of collected information can be used for analytic purpose is restricted in some degree. Another limitation is related to Tibet. Only its outmigration data are included in the SSB's publication. For this reason, only 29 provinces are included in our analyses with Tibet being excluded.

Chapter 4

The Provincial Attributes and Their Expected Effects on Migration

To provide an understanding of the background of the migration process in each province and to select factors that would affect the process, this chapter explores the basic characteristics of the provinces -- those historic, demographic, and socioeconomic forces that have helped shape the present way of life in each province.

For statistical purpose, China is usually subdivided into three regions largely based on the different levels of socioeconomic development. The three province-level municipalities, namely Beijing, Shanghai and Tianjin, which are directly under the jurisdiction of the national government, and another six coastal provinces (Liaoning, Shandong, Jiangsu, Zhejiang, Fujian and Guangdong) constitute the **eastern developed region**. Note that the coastal province of Hebei is not included in this region because of its relatively low level of economic development. Due to their remote location and hence being far away from the major markets of China, the northeast area (including Heilongjiang, Jilin, and Neimeng), the northwest area (including Xinjiang, Qinghai, Ningxia and Gansu),

the southwest area (including Guangxi, Sichuan, Guizhou and Yunnan) and the newly established province Hainan, twelve provinces all together, form the third region -- the **remote region**. The remaining eight provinces located between these two regions constitute the second region -- the **central region** (Fig. 4.1).

A set of 17 development variables is selected to characterize all 29 provinces and is shown in Table 4.1. These variables refer to many of the social, economic and demographic factors shown in earlier studies to be influential in accounting for the migration processes both in China (Banister, 1986; Hu, 1986; East-West Centre, 1989; Goldstein, 1991; He, 1992; Yang, 1992; People's Daily, 4 May, 1993) and in other developing countries (Brown and Sanders, 1981; Brown, 1987; Lee, 1985). Unlike some previous studies, which argue that composite variables (e.g., principal components) are better indicators of development (Brown, 1987), our study will include all the variables separately because some variables are expected to have different effects on migration. For the ease of presentation, the variables are grouped into three subsets: (1) those measuring the overall development level of a province; (2) those measuring the urban development level of the province; and (3) those measuring the rural development level of the province.

4.1 Variables Representing Overall Development Level of a Province

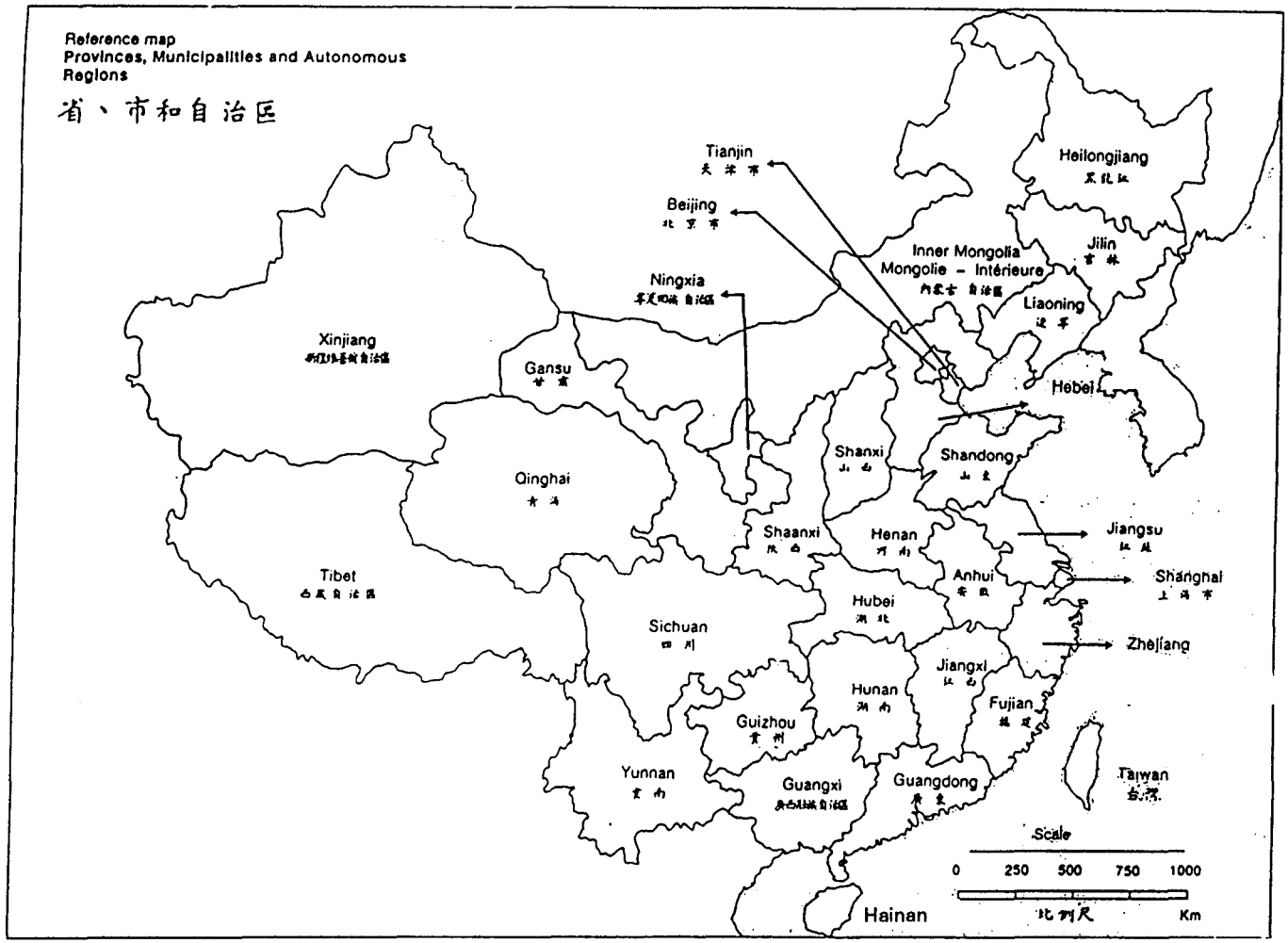

Fig. 4.1 Provinces, Municipalities and Autonomous Regions of China. (after Che_Alford, 1990).

Table 4.1 Selected demographic and socioeconomic indicators, by province: 1985 and 1987.

Province	UPOP (%)	INDUS (yuan/ person)	MLIFE* (years)	FEDU (years)	COLLEGE (No. of per 10,000 pop)	CONMUN (yuan/ person)	DENSITY (person /km²)	YOUNG* (%)	MINO* (%)	SJOB (%)	INVEST (yuan/ person)	UINC (yuan/ person)	UEXP (yuan/ person)	NFARM (%)	LAND (mu/farmer)	RINC (yuan/ person)	REXP (yuan/ person)
I. EAST REGION:																	
Beijing	59.8	3437	72.2	7.5	129	23.4	570	30.3	5.1	54.3	530	908	923	52.6	7.1	775	510
Shanghai	63.8	7089	73.1	7.1	89	12.8	1931	26.4	0.4	50.1	467	1012	992	58.7	5.1	806	779
Tianjin	55.4	3969	72.1	6.7	56	6.5	712	29.1	1.9	45.1	383	812	771	46.5	7.2	565	426
Liaoning	40.8	1949	71.9	6.5	26	4.9	252	31.9	15.6	33.9	152	689	655	28.5	8.8	486	402
Shandong	13.2	887	70.7	4.5	11	2.7	492	29.6	0.5	12.3	69	709	667	21.4	4.0	409	322
Jiangsu	16.3	1669	71.4	4.9	21	4.6	606	30.4	0.3	14.4	76	766	720	34.5	4.2	493	416
Zhejiang	15.7	1366	69.7	5.1	13	5.1	396	30.3	0.2	10.4	65	840	795	30.1	2.0	549	474
Fujian	16.5	1034	68.1	3.9	17	3.9	224	30.8	1.3	16.6	107	713	695	19.8	2.5	397	351
Guangdong	21.2	1056	71.3	5.1	19	4.3	318	29.3	1.2	16.5	187	751	741	30.6	2.7	495	388
II. CENTER REGION:																	
Hebei	13.6	786	70.9	4.9	11	2.3	295	29.5	3.9	16.6	62	683	606	19.9	3.5	385	298
Henan	11.6	518	69.9	4.5	9	1.5	464	29.6	0.7	12.9	53	611	664	12.7	3.8	329	260
Shaanxi	17.9	640	67.1	5.7	27	2.6	146	31.6	0.3	19.7	84	608	585	15.6	6.2	295	233
Shanxi	20.1	876	68.6	5.7	16	2.6	168	30.2	0.6	25.3	193	560	533	29.4	10.0	358	273
Hubei	21.3	948	67.3	5.1	23	2.5	265	31.7	3.5	20.4	93	652	644	19.7	4.1	421	335
Hunan	14.2	516	67.1	5.2	13	1.9	271	30.9	7.4	12.9	46	679	685	18.3	2.6	395	349
Anhui	13.9	538	69.1	3.6	11	1.5	371	31.1	0.5	11.9	47	584	566	12.5	3.4	369	299
Jiangxi	18.1	610	67.3	3.9	14	2.1	207	29.6	0.3	16.4	48	545	521	17.6	4.2	377	303
III. REMOTE REGION:																	
Guangxi	12.2	360	68.5	4.6	8	1.8	163	28.9	42.2	12.1	43	611	605	6.1	2.6	302	268
Sichuan	14.6	522	67.8	4.6	11	1.5	179	30.4	4.6	12.3	50	644	680	1.6	2.4	315	276
Guizhou	12.2	331	67.5	3.2	8	1.3	129	28.3	31.7	12.1	42	614	618	7.4	4.5	302	255
Yunnan	11.6	367	62.8	3.2	9	1.9	87	31.1	34.4	13.3	78	653	664	8.7	4.8	326	267
Hainan	18.7	244	64.1	4.7	7	2.3	176	29.3	16.7	33.3	192	746	711	12.3	4.7	406	319
Xinjiang	32.3	544	66.7	5.8	19	3.4	8	29.9	64.1	41.4	195	648	632	11.6	18.2	394	290
Qinghai	28.5	557	63.9	2.8	16	4.2	5	30.5	46.4	28.4	291	629	659	10.8	7.9	343	275
Ningxia	20.1	586	67.1	4.3	15	2.6	80	29.8	32.3	26.6	169	663	645	10.9	11.0	326	264
Gansu	15.2	579	69.3	3.2	14	2.3	45	32.7	8.9	16.2	80	641	625	2.1	6.1	257	204
Heilongjiang	40.3	1184	68.7	5.9	20	3.4	73	32.6	5.1	41.5	145	678	652	2.9	31.5	398	307
Jilin	36.4	1117	68.9	6.1	26	3.9	123	33.1	8.1	33.1	98	563	554	11.2	15.0	414	365
Neimeng	28.5	560	67.6	5.6	16	3.1	17	32.1	21.7	28.7	136	615	595	8.5	16.0	360	291
Whole country	19.6	925	68.8	4.8	16	2.8	110	30.3	8.1	18.1	102	685	673	18.8	4.7	398	317

*: data of 1987; Data sources: 1) *Compilation of Provinces' Historical Statistical Data (1949-1989).* 1990, China State Statistical Bureau.
2) *Tabulations of China 1% Population Sample Survey: National Volume.* 1988, China State Statistical Bureau.

Urbanization and industrialization. Two variables represent urbanization. One is urban population share (UPOP), which is a percentage obtained by dividing the population with city and town residence in a province by the provincial total population. Because of the regulation of temporary migration in 1984, an increasing proportion of population is living within urban places (cites or towns) especially big cities in the developed eastern region without their permanent registration there and hence not being counted as urban population (Zhang, 1985; Kwok, 1990). Thus, the variable UPOP would understate the level of urbanization in the eastern developed provinces where the major cities of China are concentrated (Fig. 4.2). The other one is population density (DENSITY), which is the number of persons per square kilometre of land in 1985. Studies (Poston and Gu, 1987) show that population density has a high degree of internal consistency with the level of urbanization in China, since the higher the population density in a province, the larger the number of cities especially large cities. Industrialization is represented by the per-capita industrial product (INDUS), which is defined as the 1985 industrial output value of state-owned enterprises (i.e., enterprises excluding collective and private sectors) divided by the 1985 provincial population (yuan/person). As pull factors, the three variables are expected to generate attractiveness to a province (with positive effect on inmigration and negative effect on outmigration). The variable UPOP, however, may also have a positive effect on outmigration, because it may reflect the

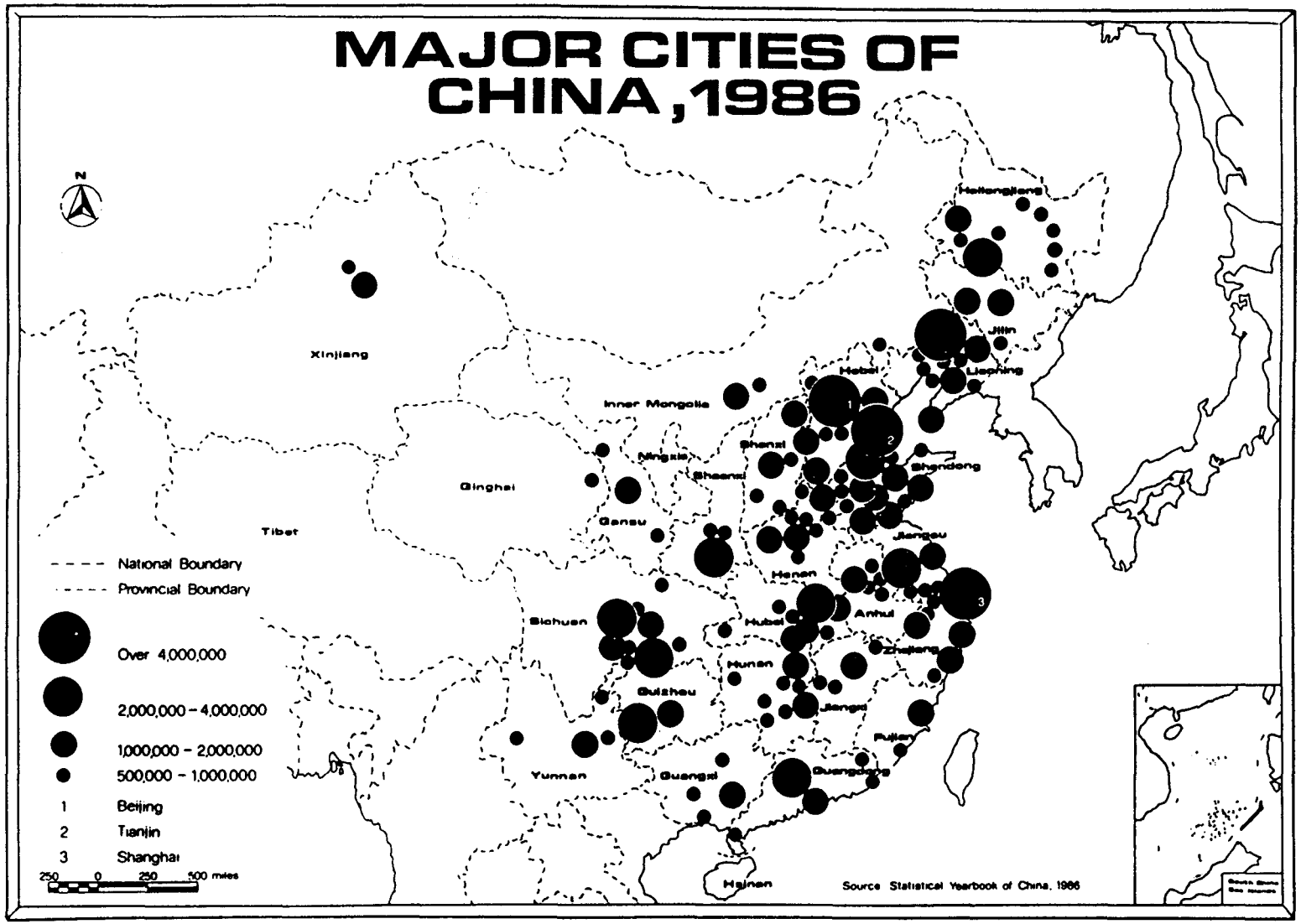

Fig. 4.2 Major cities of China, 1986.

proportion of population with better socioeconomic status, which tends to have a higher propensity to migrate.

Health, education, and communication conditions. Health, education, and communication conditions are often included in development studies as part of the interdependent system of development and can be regarded as an indicator reflecting the level of development and attractiveness of a province. In our study, we use the male life expectancy at birth (MLIFE) as the measurement of provincial health condition. Two variables reflecting the provincial education conditions are used, one showing the mean length of education for females aged 6 and over (FEDUC) and the other the number of college/university students per 10,000 population (COLLEGE). Communication conditions (COMMUN) are represented by the annual per capita expenditure for messenger services, postage, telephone, and telegram services (yuan/person). The effect of the health, education, and communication conditions is expected to be positive on inmigration but negative on outmigration. However, since better education and communication conditions may improve the knowledge about or the awareness of opportunities or amenities in alternative places of residence and increase information flows between the place of origin and the place of destination, they may also have a positive effect on the outmigration process.

Proportion of minority nationality. This variable is the percentage obtained by dividing the population of non-Han Chinese in a province by the provincial total

population (MINO). Although the Chinese government has been emphasizing the development of minority-nationality-dominant provinces in the past three decades (e.g., increasing investment to set up new cities and industrial bases, sending skilled workers and specialists there to support construction, and guaranteeing the autonomy of minority nationality), due to the remote and/or border location and poor physical environment, most provinces with a high percentage of minority nationality are characterized by sparse population and low living standards. We expected that the higher the proportion of minority nationality in a province, the less its attractiveness as a destination.

Age structure. This variable is the percentage of the provincial total population aged between 15-29 (YOUNG). From the view point of the life-cycle theory, this age group ranges from the "launching" stage to the prime childbearing stage, in which major migration-related events happen in quick successions. Thus, we expect that this variable has a positive effect on outmigration. Compared with the findings in Japan (Liaw, 1991) and the Phillipines (Lee, 1985), where the metropolitan areas have the highest proportion of young adults (aged 15-29) due to persistent positive net migration, the interesting contrast in China is that the metropolitan region has a relative shortage of young adults. For example, the average value for the eastern developed region is 29.5 percent while that for the remote region is 31.0 percent. At the provincial level, young adults represents only 26.4 percent of the population of the largest municipality Shanghai, but 32.7

percent and 32.6 percent of the population of two remote provinces Gansu and Heilongjiang. This contrast suggests that until the middle of 1980's, the polarization effect which directs migration flows from peripheral areas to the growth centers was still insignificant and the differentials of age composition among the provinces are mainly due to their difference in fertility (the less developed provinces usually have a higher proportion of young adults due to their higher fertility).

4.2 Variables Representing the Urban Development Level of a Province

Urban informal labour market. This development variable is represented by the per-capita basic construction investment (INVEST), which is the total number of provincial basic construction investment in 1985 divided by its total population of the year (yuan/person). It has been found (Yang, 1992; Kwok, 1990) that there is a high degree of internal consistency of this variable with the size of urban basic construction (such as the setting up or expansion of industrial projects and infrastructure facilities). Due to the variations in size and composition of the work force required at different stages of a project, urban basic construction usually provides more job opportunities on a short-term basis and outside the government system of social security, taxation and other forms of labour legislation, and thus

attracts more labourers from rural areas. This is also found to be true in the Phillipines (Lee, 1985) and Indonesia (Hugo, 1982). In this way, INVEST is expected to have positive effect on inmigration and negative effect on outmigration.

Urban formal labour market. This variable is represented by the percentage of total labourers employed in state owned enterprises (SJOB). In contrast to rural economic activities or urban informal labour market, jobs in this part of the labour market are authorized by the government and are linked with such benefits as permanent urban residence, lifetime job security and fixed salary, health/disability insurance and old-age pensions, better education opportunities and more varied entertainment, and highly subsidized housing and consumer goods rations. Consequently, relative to other labourers (such as rural labourers and temporary urban labourers), employees in state owned enterprises usually are associated with much better socioeconomic status. We expect that the variable SJOB has a positive effect on interprovincial outmigration since owning a state job is usually exposed to more migration opportunities.

Urban household economic condition. The household economic condition in urban areas is represented by annual per-capita income (yuan/person) of urban (city or town) residents (UINC). The influence of household economic condition on migration can be considered from two contrasting perspectives. One perspective is that provinces with relatively high urban income will encourage

inmigration of people from provinces with relatively low per capita income. The other perspective, based on the human capital approach, is that urban residents in the province with high income are more likely to outmigrate because they can afford the cost of moving.

The quality of urban life. This variable is represented by the annual per capita living expenditure (yuan/person) of urban (city or town) residents (UEXP). Provinces with high value of UEXP are expected both to keep their urban residents from outmigrating and to attract inmigrants from other provinces, other things being equal.

4.3 Variables Representing the Rural Development Level of a Province

The employment opportunities of the rural nonfarm/township enterprise sector. This is represented by the percentage of total rural labourers engaged in nonfarm rural or township enterprise sector (NFARM). The farmers who shifted to these economic activities are referred to as 'leaving the land but not leaving their villages ' (Banister, 1986). The greater the value of this variable, the higher the proportion of rural labourers released from farm land and also the more the opportunities for supplementary income in rural areas. As an indicator reflecting the profitable nonfarm employment opportunities, the effect of NFARM on

migration will be such that the province with larger value of NFARM usually has higher in- and lower out-migration rates, other things being equal.

Land availability (LAND). This variable is the total farm land in a province in 1985 divided by the number of total rural labourers engaged in farming in the same year (mu/farmer). Reflecting the level of competition for land in the rural areas, the lower the value the fewer the farm employment opportunities, and hence the greater the surplus of rural labour force. So we could argue that the effect of LAND on the outmigration of rural labourers will be negative, other things being equal.

Rural household economic condition. Similar to the urban household economic condition, rural household economic condition is represented by annual per capita income (yuan/person) of rural residents (RINC). Provinces with relatively high rural household income is expected to encourage inmigration. On the other hand, the rural people in the province with high rural income may be more likely to outmigrate because they can afford the cost of moving.

The quality of rural life. This variable is represented by the annual per capita living expenditure (yuan/person) of rural residents (REXP). Provinces with high value of REXP are expected both to keep their rural residents from outmigrating and to attract inmigration of people from other provinces, other things being equal.

4.4 Characterization of the Provinces

To provide useful information on the basic structure of the pair-wise associations among the variables discussed above, we present the zero-order correlations between these variables in Table 4.2. It indicates that most of these explanatory variables appear to be strongly correlated with each other, as one would expect given the theoretical and conceptual linkages between and among many of the socioeconomic variables. With these variables and their linkages, the basic characteristics of the provinces could be represented as follows.

The eastern developed region constitutes only 8.7% of the total area of China but nearly 32% of China's population with a density as high as 611 persons/km^2. With the highest living standards in both urban and rural areas, the best educated people and the most highly trained workers, strong technical foundation, and comparatively complete infrastructure, this region is the most developed among the three regions. Especially since the initiation of the economic reforms, through attracting the largest amount of domestic and foreign investment and setting up more diversified urban and rural economic structure, most areas in the region have experienced an economic boom and are expected to sustain fairly high levels of growth (East-West Centre, 1989). However, the relative shortage of farm land makes some provinces such as Zhejiang, Shandong, Jiangsu, and Fujian face an urgent and immediate task to transfer the surplus farm labour force to nonfarm

Table 4.2 Matrix of zero-order correlations between pairs of explanatory variables.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Province subset																
1. Percentage urban (UPOP)																
2. Per capita industrial productivity (INDUS)	0.83															
3. Male life expectancy at birth (MLIFE)	0.47	0.64														
4. Mean education length of female aged over 6 (FEDUC)	0.77	0.66	0.59													
5. No. of univ. students per 10,000 pop (COLLEGE)	0.84	0.81	0.51	0.69												
6. Per capita expense for communication (COMMUN)	0.77	0.72	0.49	0.63	0.96											
7. Population density (DENSITY)	0.54	0.91	0.51	0.46	0.62	0.54										
8. Pop percentage aged between 15-29 (YOUNG)	-0.12	-0.44	-0.23	-0.05	-0.22	-0.21	-0.61									
9. Percentage of minority nationality (MINO)	-0.05	-0.31	-0.55	-0.27	-0.21	-0.16	-0.41	-0.07								
Urban subset																
10. Percentage total laborers in state enterprise (SJOB)	0.93	0.65	0.26	0.73	0.75	0.69	0.35	-0.07	0.12							
11. Per capita basic construction investment (INVEST)	0.88	0.77	0.34	0.59	0.87	0.84	0.53	-0.34	0.03	0.86						
12. Annual per capita income of urban residents (UINC)	0.61	0.81	0.54	0.52	0.69	0.74	0.77	-0.47	-0.25	0.49	0.68					
13. Annual per capita expenditure of urban residents (UEXP)	0.61	0.79	0.46	0.48	0.73	0.77	0.75	-0.44	-0.31	0.48	0.71	0.97				
Rural subset																
14. Percentage rural laborers in nonfarming (NFARM)	0.68	0.86	0.46	0.67	0.77	0.76	0.79	-0.42	-0.46	0.52	0.72	0.79	0.75			
15. Per farmer arable land (LAND)	0.27	-0.01	-0.09	0.32	0.06	0.03	-0.55	0.31	0.27	0.49	0.18	-0.15	-0.17	-0.16		
16. Annual per capita income of rural residents (RINC)	0.78	0.88	0.63	0.71	0.84	0.86	0.78	-0.38	-0.32	0.64	0.77	0.88	0.86	0.92	-0.05	
17. Annual per capita expenditure of rural residents (REXP)	0.69	0.91	0.61	0.63	0.71	0.71	0.88	-0.44	-0.41	0.52	0.65	0.87	0.84	0.86	-0.11	0.94

Note: See table 4.1 for sources of data.

activities (Hu, 1986).

The remote region encompasses about 55% of the total area of China but only 20% of the country's total population and has a very low density (88 persons/km^2). Compared with the east developed and central regions, this region is characterized by harsh physical conditions, such as rugged and rocky landscape in the southwest area, arid to semi-arid climate in the northwest area, and the longest and coldest winter in the northeast area. With a long dry season and therefore shortage of surface water, and the most sparse population and poor urban infrastructure, the northwest area, especially Qinghai and Gansu, has long been classified as a backward one in China. However, with rich natural resources such as coal, oil, metal and nonmetal reserves, the Chinese government has invested a great deal to make it a key development area for raw material and energy (Hu, 1986). The investment has created many job opportunities relative to its sparse population. Being a part of Guangdong province before 1988, Hainan Island was the least developed area of the province and agriculture made up almost all its economy. Due to both its advantageous subtropical climate and the location near Hong Kong, in 1988 Hainan Island was made a province and declared the fifth Special Economic Zone of China (East-West Centre, 1989). Since then it has received a high share of investment and experienced the most rapid development in the remote region. With the largest amount of both cultivated and reclaimable waste land, the northeast area had long been the most

important destination of rural migrants from densely-populated provinces. However, due to the shift of growth center to the east coast and its border location, longest and coldest winter, sparse population and raw material-dominant industry, this region's economy is growing at a slower rate than that of the eastern developed region. With the highest proportion of rural population but the least developed rural economy and the lowest rural living standards, four provinces in the southwest area, i.e., Guangxi, Sichuan, Guizhou and Yunnan, are well known as poor agricultural provinces. In addition, with serious land shortage and low employment creation in both rural nonfarm and urban informal sectors, Guangxi and Sichuan also contain a large number of surplus rural labourers (Hu, 1986).

With 37% of the total area of China and about 47% of China's population (with a density of 261 persons/km^2), the central region as a whole is better developed than the remote region but much less well developed than the eastern developed region. Especially since the economic reforms of the 1980s, this region has become the base for raw material supplies and agricultural industry. For example, except for Shanxi and Hubei, which have been developed as industrial provinces (especially Shanxi, the largest energy base of China), the remaining six provinces are still largely engaged in agricultural production. The data in Table 4.1 demonstrate that except for Shanxi and Shaanxi, the remaining provinces, especially Hunan, Hebei, Henan and Anhui, are among those with the most

serious shortage of land. Given the low level of economic growth relative to the eastern developed region, employment creation for such a great of surplus rural labourers is a serious challenge facing the central region, just as described in a statement from the government of Hunan province:

> According to the statistics of the relevant departments, the province at the present has a rural population of 48.29 million and an agricultural labour force of 21.52 million, of whom 10 million are surplus, constituting 46% of the total. In the suburban districts of cities and towns, where the population is large and farmland is scarce, there is not enough farmwork to be assigned. The surplus labour there constitutes 65% of the total. The transfer to engage in industry, commerce, transport, construction, and services in urban places has become irresistible (Banister, 1986).

Chapter 5

Interprovincial Migrations: Overall and by Sex

This chapter uses correlation and multiple regression methods to study the dependence of overall and sex-specific measures of interprovincial migrations on the explanatory variables defined in Chapter 4: overall measures in section 5.1 and sex-specific measures in section 5.2. In each section, the observed migration patterns are also characterized. The main findings are summarized in section 5.3.

5.1 Overall Interprovincial Migrations

5.1.1 Bivariate analysis of overall interprovincial migrations

The zero-order correlations in Table 5.1 indicate the relationship between each of the dependent variables (i.e., interprovincial in-, out-, and net migration rates) and each of the explanatory variables for 29 provinces. A strong correlation is considered to be 0.60 and above, a moderate correlation to be 0.50-0.59, and a weak correlation to be 0.49 and below. The level of significance is not specified,

Table 5.1 Matrix of zero-order correlations between explanatory variables and overall interprovincial migration.

Explanatory variable	Inmigration rate	Outmigration rate	Net migration rate
Province subset			
1. Percentage urban (UPOP)	0.81	0.21	0.79
2. Per capita industrial productivity (INDUS)	0.63	-0.12	0.81
3. Male life expectancy at birth (MLIFE)	0.28	-0.32	0.51
4. Mean education length of female aged over 6 (FEDUC)	0.47	-0.01	0.61
5. No. of univ. students per 10,000 pop (COLLEGE)	0.75	0.09	0.93
6. Per capita expense for communication (COMMUN)	0.84	0.12	0.91
7. Population density (DENSITY)	0.04	-0.53	0.66
8. Pop percentage aged between 15-29 (YOUNG)	-0.29	0.09	-0.41
9. Percentage of minority nationality (MINO)	-0.05	0.44	-0.15
Urban subset			
10. Percentage total laborers in state enterprise (SJOB)	0.71	0.39	0.72
11. Per capita basic construction investment (INVEST)	0.94	-0.15	0.92
12. Annual per capita income of urban residents (UINC)	0.65	0.02	0.76
13. Annual per capita expenditure of urban resident (UEXP)	0.63	0.03	0.78
Rural subset			
14. Percentage rural laborers in nonfarming (NFARM)	0.69	-0.19	0.82
15. Per farmer arable land (LAND)	0.39	0.44	-0.06
16. Annual per capita income of rural residents (RINC)	0.71	-0.08	0.85
17. Annual per capita expenditure of rural resident (REXP)	0.59	-0.09	0.72

Note: See Table 3.1 and Table 4.1 for sources of data.

but generally correlation coefficients that are greater than 0.40 are statistically significant at the 2 percent level.

Most of the 17 explanatory variables show the expected relationship with the overall interprovincial **inmigration rate**. Among them, ten have strong positive relationships (higher than 0.60). We can infer from these relationships that the high inmigration of population to a province is largely due to its high level of socioeconomic development, especially the rapid growth of urban construction (INVEST) in recent years, with a correlation coefficient as high as 0.94.

Compared with the overall interprovincial inmigration rate, correlation coefficients between overall interprovincial **outmigration rate** and the explanatory variables in Table 5.1 indicate that except for provincial population density, which shows a moderate negative correlation with the outmigration process (-0.53), all variables have weak and mostly insignificant correlations. Based on the suggestion (Liaw, 1990) that outmigration process usually depends more on personal factors than does inmigration process, we expect that the further analysis of interprovincial migration by sex and by migration reasons could help reduce the difficulty in explaining outmigration rates.

With respect to the overall interprovincial **net migration** rate, the correlation coefficients in Table 5.1 show that except for three variables -- percentage of young adults (YOUNG), percentage of minority nationality (MINO) and per farmer arable land (LAND)-- which indicate weak negative relationship with the

net migration rate, all explanatory variables have a strong or moderate positive association with the net migration rate. It reflects that just like the interprovincial inmigration process, the interprovincial population redistribution strongly depends on the levels of socioeconomic development in a province: the higher the development level, the higher the net gain of population.

In summary, the bivariate analysis provides useful preliminary information on the relationship between the dependent variables and the explanatory variables. However, the effect of an explanatory variable on the dependent variable can not be easily assessed without acknowledging that the variations in the observed values of the dependent variable are also subject to the effects of other explanatory variables. To assess these relationships more fully, we now turn to multivariate analysis.

5.1.2 Multivariate analysis of the overall interprovincial migration

In order to examine the significance of each set of explanatory variables in determining the interprovincial migration levels (e.g., in-, out-, and net migration levels), the following four equations are established and tested.

(a) MV = f(PROVINCE)

(b) MV = g(URBAN)

(c) MV = h(RURAL)

(d) MV = i(PROVINCE,URBAN, RURAL)

where MV is interprovincial migration variable (in-, out, or net migration rate); f( ), g( ), h( ) and i( ) represent functions; PROVINCE includes a set of variables representing the characteristics of a province as a whole; URBAN includes a set of variables reflecting the characteristics of urban places in the province; and RURAL includes a set of variables indicating the characteristics of rural places in the province. Models (a), (b) and (c) examine the significance of the three subsets of explanatory variables, respectively. The full model (d) examines the relative importance of each explanatory variable included in the three subsets.

As shown in Table 4.2, there exists high collinearity between many of the explanatory variables. Thus, the magnitudes of most t-statistics in models (a)-(d) are expected to be too small to show the significance of the corresponding explanatory variables. For this reason, we will apply the **stepwise** procedure to the four models to bypass insignificant explanatory variables. We let the significance level to be 5 percent. The estimated results are shown in Tables 5.2, 5.3 and 5.4, where the "full model" is obtained from equation (d), and tests 1,

2, and 3 are obtained from equations (a), (b) and (c), respectively.

Discussion of results are focused on the following aspects: (1) significance of a model measured by the size of the **F-statistic** and its significance probability; (2) explanatory power of a model measured by the adjusted **R square**; and (3) the effects of individual explanatory variables and their relative importance measured by the corresponding **t-ratios.**

As for the interprovincial **inmigration** variable, tests 1,2 and 3 in Table 5.2 illustrate that each of the three subsets of explanatory variables (overall development level of a province, urban development level in the province, and rural development level in the province) contributes significantly to the explanation of the interprovincial inmigration process (the adjusted R-square ranging from 0.64 for the rural subset to 0.90 for the urban subset). However, the full model indicates that given the per capita basic construction investment and urban household income level (together they explain 90 percent of the variation in the interprovincial inmigration rate), the remaining explanatory variables are all insignificant and can only add 6 percent to the explanation of the interprovincial inmigration process. We can infer that the fast growth of urban construction and urban household income level in recent years represent the most important determinants of the interprovincial inmigration pattern in 1985-90.

Table 5.3 gives the estimated results for overall interprovincial **outmigration** rate. Compared with the estimated results for the interprovincial inmigration rate,

Table 5.2. The estimated results of overall interprovincial inmigration level: with the stepwise procedure.

Determinants	Full model Coefficient	(T)	Test 1 Province set Coefficient	(T)	Test 2 Urban set Coefficient	(T)	Test 3 Rural set Coefficient	(T)
Constant	-7.412	(-3.4)*	13.019	(2.4)	7.431	(-3.4)*	12.365	(7.3)*
Province subset								
Percentage urban (UPOP)	--		0.864	(2.6)	--		--	
Per capita industrial productivity (INDUS)	--		--		--		--	
Male life expectancy at birth (MLIFE)	--		--		--		--	
Mean lenght of education for female aged over 6 (FEDUC)	--		--		--		--	
No. of univ. students per 10,000 population (COLLEGE)	--		--		--		--	
Annual per capita expense for communication (COMMUN)	--		0.721	(3.9)*	--		--	
Population density (DENSITY)	--		--		--		--	
Percentage of population aged between 15-29 (YOUNG)	--		-3.893	(-2.7)	--		--	
Percentage of minority nationality (MINO)	--		--		--		--	
Urban subset								
Percentage total laborers in state enterprise (SJOB)	--		--		--		--	
Per capita basic construction investment (INVEST)	0.837	(11.7)*	--		0.842	(11.7)*	--	
Annual per capita income of urban residents (UINC)	0.914	(2.5)	--		0.909	(2.5)	--	
Annual per capita expenditure of urban resident (UEXP)	--		--		--		--	
Rural subset								
Percentage rural laborers in nonfarming (NFARM)	--		--		--		2.472	(6.3)*
Per farmer arable land (LAND)	--		--		--		0.464	(3.9)*
Annual per capita income of rural residents (RINC)	--		--		--		--	
Annual per capita expenditure of rural resident (REXP)	--		--		--		--	
F-statistic (prob)	127.7(0.0001)		28.9(0.0001)		127.7(0.0001)		25.8(0.0001)	
Adjusted R-square	0.90		0.73		0.90		0.64	

Note: See Tables 3.1 and 4.1 for sources of data and text for definitions of the variables. Figures in brackets are t-ratios. All t-ratios are significant at the 5% level;
* : Significant at the 1% level.

Table 5.3. The estimated results of overall interprovincial outmigration level: with the stepwise procedure.

Determinants	Full model Coefficient	(T)	Test 1 Province set Coefficient	(T)	Test 2 Urban set Coefficient	(T)	Test 3 Rural set Coefficient	(T)
Constant	5. 667 (5.0)*		5.667 (5.0)*		1.479 (3.7)*		2.011 (11.1)*	
Province subset								
Percentage urban (UPOP)	0.563 (2.3)		0.563 (2.3)		--		--	
Per capita industrial productivity (INDUS)	--		--		--		--	
Male life expectancy at birth (MLIFE)	--		--		--		--	
Mean lenght of education for female aged over 6 (FEDUC)	--		--		--		--	
No. of univ. students per 10,000 population (COLLEGE)	--		--		--		--	
Annual per capita expense for communication (COMMUN)	--		--		--		--	
Population density (DENSITY)	-0.182 (-3.9)*		-0.182 (-3.9)		--		--	
Percentage of population aged between 15-29 (YOUNG)	--		--		--		--	
Percentage of minority nationality (MINO)	--		--		--		--	
Urban subset								
Percentage total laborers in state enterprise (SJOB)	--		--		0.298 (2.3)		--	
Per capita basic construction investment (INVEST)	--		--		--		--	
Annual per capita income of urban residents (UINC)	--		--		--		--	
Annual per capita expenditure of urban resident (UEXP)	--		--		--		--	
Rural subset								
Percentage rural laborers in nonfarming (NFARM)	--		--		--		--	
Per farmer arable land (LAND)	--		--		--		0.243 (2.5)	
Annual per capita income of rural residents (RINC)	--		--		--		--	
Annual per capita expenditure of rural resident (REXP)	--		--		--		--	
F-statistic(prob)	8.7(0.0013)		8.7(0.0013)		4.9(0.0349)		6.3(0.0188)	
Adjusted R-square	0.35		0.35		0.12		0.16	

Note: See tables 3.1 and 4.1 for sources of data and text for definitions of the variables. Figures in brackets are t-ratios. All t-ratios are significant at the 5% level;
*: Significant at the 1% level.

the low power of place attributes in explaining the interprovincial outmigration process (the adjusted R square ranging from 0.12 to 0.35) suggests that in addition to the place attrbutes, outmigration process may also depend on personal factors. Therefore, as an alternative, classifying migrants according to their personal characteristics seems necessary for us to explain the interprovincial outmigration process more effectively.

With respect to the interprovincial **net migration**, Table 5.4 shows that all the three subsets of explanatory variables (including per capita basic construction investment, post-secondary education opportunities, and rural household income level) contribute significantly to the explanation. The three significant variables explain 91 percent of the variation in the interprovincial net migration rates. The results suggest that taking a province as a whole, the gain of population is mainly attributed to the rich job opportunities in urban informal labour markets, the developed post-secondary education facilities, and the better rural household economic conditions. It is worth noting that the most important explanatory variable is a proxy for the job opportunities in urban informal labour markets.

5.1.3 Patterns of the overall interprovincial migration

Of the 10% sampled total population (113,187,605 people), 1,083,626 made

Table 5.4. The estimated results of overall interprovincial net migration level: with the stepwise procedure.

Determinants	Full model		Test 1 Province set		Test 2 Urban set		Test 3 Rural set	
	Coefficient	(T)	Coefficient	(T)	Coefficient	(T)	Coefficient	(T)
Constant	-17.723	(-4.4)*	55.811	(2.7)	-33.576	(-4.0)*	-36.861	(-7.3)*
Provinve subset								
Percentage urban (UPOP)	--		--		--		--	
Per capita industrial productivity (INDUS)	--		--		--		--	
Male life expectancy at birth (MLIFE)	--		--		--		--	
Mean lenght of education for female aged over 6 (FEDUC)	--		--		--		--	
No. of univ. students per 10,000 population (COLLEGE)	0.183	(2.7)	0.502	(13.6)*	--		--	
Annual per capita expense for communication (COMMUN)	--		--		--		--	
Population density (DENSITY)	--		--		--		--	
Percentage of population aged between 15-29 (YOUNG)	--		-2.094	(-3.1)*	--		--	
Percentage of minority nationality (MINO)	--		--		--		--	
Urban subset								
Percentage total laborers in state enterprise (SJOB)	--		--		--		--	
Per capita basic construction investment (INVEST)	0.064	(5.3)*	--		0.092	(7.3)*	--	
Annual per capita income of urban residents (UINC)	--		--		--		--	
Annual per capita expenditure of urban resident (UEXP)	--		--		0.041	(2.7)	--	
Rural subset								
Percentage rural laborers in nonfarming (NFARM)	--		--		--		--	
Per farmer arable land (LAND)	--		--		--		--	
Annual per capita income of rural residents (RINC)	0.052	(2.2)	--		--		0.101	(8.4)*
Annual per capita expenditure of rural resident (REXP)	--		--		--		--	
F-statistic(prob)	126.5(0.0001)		112.6(0.0001)		88.1(0.0001)		71.3(0.0001)	
Adjusted R-square	0.91		0.89		0.86		0.70	

Note: See Table 3.1 and 4.1 for sources of data and text for definitions of the variables. Figures in brackets are t-ratios. All t-ratios are significant at the 5% level;

* : Significant at the 1% level.

an interprovincial migration during the period between July 1st, 1985 and June 30th, 1990, with the interprovincial migration rate being 10.4/1000. Compared with the interprovincial migration rates of some other developing countries (e.g., 65/1000 in Peru in 1976-81 (Aihara, 1991) and 41/1000 in Thailand in 1975-80 (Goldstein, 1986), the interprovincial migration level of China is very low. It is also lower than the corresponding intraprovincial migration rate of China (20.3/1000). Such a low level can be attributed to both the still effective government control on migration (especially interprovincial migration) and the lower level of socioeconomic development. However, compared with the interprovincial migration level of China in the past 30 years (1954-84), which was estimated to be about 25-30 million people (DIESA, 1989), the absolute volume is so large that about 10 million people made an interprovincial migration in the recent five years.

As shown in Table 5.5, relatively high **inmigration** rates are observed in the eastern developed region (except for Zhejiang and Shandong) and four remote provinces (Hainan, Xinjiang, Qinghai and Ningxia), with the three municipalities having the largest values. A significant similarity of the provinces with high interprovincial inmigration rates is their relatively large share of per capita basic construction investment. The consistency of the observed interprovincial inmigration pattern with the estimated results of regression analyses suggests that the rapid growth of urban construction since the economic reforms is one of the

Table 5.5 The observed patterns of the 1985/90 overall interprovincial migration in China: by province.

Province	Out-rate (per 1000)	In-rate (per 1000)	Net-rate (per 1000)	Gross-rate (per 1000)	Migration efficiency (percent)
I. EAST REGION:					
Beijing	12.8	69.4	56.6	82.3	68.8
Shanghai	12.4	54.1	41.7	66.4	62.8
Tianjin	10.7	38.6	27.9	49.3	56.7
Liaoning	7.4	14.0	6.7	21.4	31.0
Shandong	6.8	8.0	1.2	14.8	7.8
Jiangsu	9.5	13.5	4.0	23.0	17.6
Zhejiang	15.5	8.0	-7.5	23.6	-31.9
Fujian	8.4	10.9	2.5	19.3	13.1
Guangdong	4.0	18.6	14.6	22.6	64.6
II. CENTER REGION:					
Hebei	12.0	7.5	-4.5	19.5	-23.3
Henan	7.5	6.4	-1.1	13.9	-7.7
Shaanxi	11.1	10.1	-0.9	21.2	-4.4
Shanxi	8.6	10.3	1.6	18.9	8.6
Hubei	7.1	8.4	1.3	15.4	8.4
Hunan	9.0	4.4	-4.5	13.4	-33.9
Anhui	10.5	6.7	-3.8	17.3	-22.0
Jiangxi	8.0	6.5	-1.5	14.6	-10.1
III. REMOTE REGION:					
Guangxi	14.2	4.1	-10.1	18.3	-55.3
Sichuan	12.6	4.4	-8.3	17.0	-48.8
Guizhou	10.4	6.7	-3.7	17.1	-21.6
Yunnan	8.0	6.9	-1.1	14.9	-7.1
Hainan	18.7	22.4	3.7	41.0	9.0
Xinjiang	20.1	24.7	4.6	44.8	10.4
Qinghai	24.1	25.7	1.6	49.8	3.1
Ningxia	13.4	18.8	5.4	32.3	16.7
Gansu	13.2	7.9	-2.7	21.1	-25.0
Heilongjiang	18.0	10.0	-7.9	28.0	-28.3
Jilin	15.1	11.1	-4.0	26.1	-15.3
Neimeng	13.9	11.9	-1.9	25.8	-7.4
Minimum	4.0	4.1	-10.1	13.4	-55.3
Maxmum	24.1	69.4	56.6	82.3	68.8
Whole country	10.4	10.4	0.0	20.7	0.0

Note: see Table 3.1 for sources of data.

most important factors inducing the interprovincial inmigration in today's China.

Compared with the interprovincial inmigration pattern, the **outmigration** pattern is relatively complicated: while the highest outmigration rates cluster in the remote region (especially Qinghai, Xinjiang, Hainan and Heilongjiang), relatively high values can also be found in the other two regions. In contrast, the relatively low outmigration rates are found not only in the eastern developed region but also in the other two regions. Correspondingly, both the correlation and multiple regression analyses indicate that unlike what we expected, the selected development variables are rather weak in explaining the variation in this observed pattern.

With respect to the observed interprovincial **net migration** pattern, Table 5.5 indicates that the provinces with net gain of population include: (1) except for Zhejiang, all provinces in the eastern developed region, (2) four key development provinces (Hainan, Xinjiang, Qinghai and Ningxia) in the remote region, and (3) two central industrial provinces (Hubei and Shanxi). According to the regression analysis, the net gain of population in a province is largely due to its large share of investment, well developed post-secondary education facilities, and high rural household income level. With high values in all the three explanatory variables, five eastern developed provinces -- the three municipalities plus Guangdong and Liaoning-- constitute the largest and also the most efficient net gainers. Furthermore, comparison of the correlation coefficients of net migration rate with

inmigration rate (0.96) against that with outmigration rate (-0.07) and comparison of the standard deviation of inmigration rate (15/1000) against that of outmigration rate (5/1000) suggest that the observed interprovincial population redistribution is mainly determined by inmigration process, that is, migrants from different provinces concentrated into only a few attractive provinces.

Finally, compared with the interprovincial migration patterns of the 1960s and 1970s, which are characterized as substantial **downward** movement from urban to rural areas and **westward** tendency from densely-populated/developed eastern provinces to sparsely-populated/less developed western border provinces (DIESA, 1989), the strong **urban-ward** movement and **eastward** tendency to the developed eastern region characterize the interprovincial migration process of 1985-90. Such a change in interprovincial migration pattern implies that with the relaxation of the government's planning and intervention and the strategic shift from administered economy to market economy, interprovincial migration is becoming more important as a response to the substantial socioeconomic inequalities among the provinces and between the rural and urban areas.

5.2 Interprovincial Migration by Sex

5.2.1 Multivariate analysis of the interprovincial migration by sex

For the purpose of examining the relationships between explanatory variables and the interprovincial migration process of each gender, in this section, we use sex-specific migration rates as the dependent variables and introduce a dummy variable to distinguish **male** migrants and **female** migrants. The value is represented as 1 if the migrants are males. Also, for every explanatory variable, we have created the corresponding interaction variable, which is the explanatory variable times the dummy variable. With the stepwise regression, we obtain the estimated results in Tables 5.6, 5.7, and 5.8.

As for the sex-specific interprovincial **inmigration** variable, tests 1, 2, and 3 in Table 5.6 show that all the three subsets of variables (including per capita basic construction investment and household incomes in both urban and rural areas) significantly contribute to the explanation. The differences between the two sexes lie in (1) that industrialization (INDUS), per capita basic construction investment (INVEST), arable farm land (LAND) and percentage of minority nationality (MINO) tend to have stronger effects on males, whereas rural household economic condition (RINC) tend to have a stronger effect on females; and (2) that in the context of several rural variables (the share of rural nonfarm labourers (NFARM), arable farm land (LAND) and rural household income (RINC)), males tend to have higher inmigration level than females. The analysis suggests that while for both male and female migrants, their interprovincial inmigration level is strongly dependent on the level of socioeconomic

Table 5.6. The estimated results for sex-specific interprovincial inmigration rate: with the stepwise procedure.

Determinants	Full model Coefficient(T)	Test 1 Province set Coefficient(T)	Test 2 Urban set Coefficient(T)	Test 3 Rural set Coefficient(T)
Constant	-7.014 (-3.5)*	1.245 (11.0)*	-6.51 3(-3.3)*	3.742 (1.8)
Male	--	--	--	0.362 (3.2)*
Province subset				
Male*Per capita industrial productivity (INDUS)	--	0.013 (2.2)	--	--
Annual per capita expense for communication (COMMUN)	--	0.894 (9.5)*	--	--
Male*Percentage of minority nationality (MINO)	0.012 (2.3)	0.022 (4.0)*	--	--
Urban subset				
Per capita basic construction investment (INVEST)	0.782 (12.8)*	--	0.818 (13.2)*	--
Male*Per capita basic construction investment (INVEST)	--	--	0.092 (5.4)*	--
Annual per capita income of urban residents (UINC)	0.948 (3.0)*	--	0.786 (2.6)	--
Rural subset				
Percentage rural laborers in nonfarming (NFARM)	--	--	--	1.414 (2.1)
Male*Per farmer arable land (LAND)	--	--	--	0.361 (4.0)*
Annual per capita income of rural residents (RINC)	0.303 (3.2)*	--	--	0.843 (2.8)*
Male*Annual per capita income of rural residents (RINC)	-0.012 (-3.8)*	--	--	--
F-statistic(prob)	95.8(0.0001)	52.1(0.0001)	117.7(0.0001)	17.3(0.0001)
Adjusted R-square	0.87	0.72	0.85	0.57

Note: See Table 3.1 and 4.1 for sources of data and text for definitions of the variables. Figures in brackets are t-ratios. All t-ratios are significant at the 5% level;
* : Significant at the 1% level.

Table 5.7. The estimated results for sex-specific interprovincial outmigration rate: with the stepwise procedure.

Determinants	Full model Coefficient(T)	Test 1 Province set Coefficient(T)	Test 2 Urban set Coefficient(T)	Test 3 Rural set Coefficient(T)
Constant	3.084 (14.7)*	3.341 (16.4)*	2.202 (27.1)*	-4.414 (-0.9)
Male	--	--	0.543 (2.2)	-0.611 (-2.7)
Province subset				
Male*No.of college students in per 10,000 pop (COLLEGE)	--	0.023 (4.6)*	--	--
Population density (DENSITY)	-0.182 (-4.5)*	-0.241 (-6.0)*	--	--
Urban subset				
Male*Percentage total laborers in state enterprise (SJOB)	0.014 (3.4)*	--	0.022 (3.8)*	--
Male*Annual per capita income of urban residents (UINC)	0.489 (3.0)*	--	0.841 (2.6)	--
Rural subset				
Percentage rural laborers in nonfarming (NFARM)	--	--	--	-1.056 (-3.4)*
Per farmer arable land (LAND)	--	--	--	0.259 (3.5)*
Annual per capita income of rural residents (RINC)	--	--	--	-0.461 (-3.7)*
Male*Annual per capita income of rural residents (RINC)	--	--	--	0.012 (3.2)*
F-statistic (prob)	31.9 (0.0001)	28.7 (0.0001)	14.1 (0.0001)	9.0 (0.0001)
Adjusted R-square	0.53	0.44	0.26	0.45

Note: See table 3.1 and 4.1 for sources of data and text for definitions of the variables. Figures in brackets are t-ratios. All t-ratios are significant at the 5% level;
*: Significant at the 1% level.

Table 5.8. The estimated results for sex-specific interprovincial net migration rate: with the stepwise procedure.

Determinants	Full model Coefficient(T)	Test 1 Province set Coefficient(T)	Test 2 Urban set Coefficient(T)	Test 3 Rural set Coefficient(T)
Constant	30.224 (0.9)	-28.217 (-1.1)	-33.677 (-4.7)*	-2.713 (-0.2)
Male	--	--	--	--
Province subset				
Male life expectancy at birth (MLIFE)	0.121 (4.3)*	0.321 (5.0)*	--	--
Male*Male life expectancy at birth (MLIFE)	-0.084 (-2.8)*	-0.043 (-2.7)*	--	--
No.of college students in per 10,000 pop (COLLEGE)	0.309 (6.8)*	0.388 (9.3)*	--	--
Male*No.of college students in per 10,000 pop (COLLEGE)	--	0.241 (3.6)*	--	--
Urban subset				
Per capita basic construction investment (INVEST)	--	--	0.073 (6.3)*	--
Male*Per capita basic construction investment (INVEST)	0.062 (5.7)*	--	0.042 (3.8)*	--
Annual per capita expenditure of urban residents (UEXP)	--	--	0.039 (3.2)*	--
Rural subset				
Percentage rural laborers in nonfarming (NFARM)	0.289 (3.1)*	--	--	0.302 (3.4)*
Annual per capita income of rural residents (RINC)	--	--	--	0.183 (6.9)*
F-statistic (prob)	95.1 (0.0001)	79.3 (0.0001)	87.2 (0.0001)	57.2 (0.0001)
Adjusted R-square	0.87	0.83	0.82	0.66

Note: See table 3.1 and 4.1 for sources of data and text for definitions of the variables. Figures in brackets are t-ratios. All t-ratios are significant at the 5% level;
* : Significant at the 1% level.

development in the destination, for males such dependency is more on the economic prospects associated with industrialization, urban construction investment and arable farm land, but for females it is dependent more on better living conditions associated with urban places and Han-dominant province.

Table 5.7 shows the estimated results for sex-specific interprovincial **outmigration** variable. Compared with the overall interprovincial outmigration variable in Table 5.3, the result of the sex-specific regression reveals more statistical significance. This is especially true for the variables associated with the rural subset (the adjusted R square is 0.45 for the sex-specific model but only 0.16 for the overall model). Among the explanatory variables which significantly influence the outmigration propensities, population density (DENSITY) as a proxy for urbanization and the share of rural nonfarm labourers (NFARM) have negative effects on the outmigration rates both of males and females. However, the proportions of college/university students (COLLEGE) and state-job owners (SJOB), and the level of urban household income (UINC) significantly enhance the outmigration propensity of males only. Furthermore, in the context of two significant urban variables (the proportion of state job owners (SJOB) and the urban household incomes (UINC)), males tend to have stronger outmigration propensity than females (test 2), but in the context of several rural variables (the share of rural nonfarm labourers (NFARM), arable farm land (LAND) and rural income (RINC)), males tend to have weaker outmigration propensity than females

(test 3). These results suggest that as a personal factor, gender has helped clarify the effects of local socioeconomic conditions on the interprovincial outmigration process.

The estimated results for the sex-specific interprovincial **net migration** (Table 5.8) illustrate that with high values in both F-statistic and the adjusted R square, all three subsets of explanatory variables significantly contribute to the explanation of the interprovincial redistributions of males as well as females. However, provinces with high proportion of college/university students (COLLEGE) and large share of per capita basic construction investment (INVEST) tend to have larger net gain of male migrants, whereas provinces with better health condition (MLIFE) usually show larger net gain of female migrants. It suggests that the redistribution of males depends more on employment- or education-related factors but that of females depends more on the factors relative to the living conditions.

5.2.2 Patterns of the interprovincial migration by sex

Table 5.9 shows the observed patterns of interprovincial migration for males and females, respectively. Among the 1,083,626 interprovincial migrants, males constitute 58.2% and females 41.8%. Also, as indicated in Table 5.9, for almost

Table 5.9 The observed patterns of the 1985/90 interprovincial migration for different sex in China: by province.

Province	Out rate (1/1000)		In rate (1/1000)		Net rate (1/1000)		Gro-rate (1/1000)		Mig- efficiency (1/100)	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
I. EAST REGION:										
Beijing	18.1	7.1	90.3	47.2	72.1	40.0	108.4	54.4	66.5	73.6
Shanghai	18.5	5.9	69.4	37.9	51.0	31.9	88.0	43.8	57.9	73.0
Tianjin	13.5	7.8	43.9	33.1	30.5	25.3	57.4	40.9	53.1	62.0
Liaoning	8.8	5.9	16.4	11.5	7.6	5.6	25.2	17.5	30.3	32.1
Shandong	8.7	4.8	7.4	8.5	-1.3	3.7	16.1	13.4	-8.3	27.9
Jiangsu	12.6	6.2	14.0	13.0	1.4	6.8	26.7	19.2	5.2	35.5
Zhejiang	19.6	11.2	8.3	7.7	-11.3	-3.5	28.0	18.9	-40.4	-18.6
Fujian	11.7	4.9	12.5	9.3	0.8	4.4	24.2	14.1	3.2	31.1
Guangdong	5.7	2.3	17.3	20.0	11.7	17.8	23.0	22.3	50.8	79.6
II. CENTER REGION:										
Hebei	15.2	8.6	6.8	10.2	-8.5	1.6	22.0	18.9	-38.6	8.5
Henan	9.1	5.8	7.3	5.5	-1.8	-0.3	16.5	11.2	-10.9	-2.7
Shaanxi	12.1	10.0	13.0	7.1	0.9	-2.9	25.0	17.1	3.6	-16.9
Shanxi	10.5	6.6	12.4	7.9	1.9	1.3	22.9	14.6	8.3	8.8
Hubei	7.8	6.3	10.8	5.8	3.0	-0.6	18.6	12.1	16.3	-4.6
Hunan	9.4	8.5	5.0	3.9	-4.4	-4.7	14.3	12.4	-30.9	-37.7
Anhui	13.0	7.9	6.4	7.1	-6.6	-0.8	19.5	14.9	-33.9	-5.4
Jiangxi	9.4	6.5	8.4	4.5	-0.9	-2.0	17.8	11.1	-5.3	-18.4
III. REMOTE REGION:										
Guangxi	11.0	17.7	5.4	2.7	-5.6	-15.0	16.4	20.4	-34.5	-73.8
Sichuan	13.6	11.6	5.3	3.3	-8.3	-8.3	18.9	14.9	-43.9	-55.5
Guizhou	6.5	14.7	8.8	4.4	2.4	-10.2	15.3	19.1	15.6	-53.6
Yunnan	5.3	10.9	9.7	4.1	4.3	-6.7	15.0	14.9	28.8	-45.3
Hainan	19.8	14.5	28.8	15.4	9.0	-2.0	48.6	32.9	18.5	-6.2
Xinjiang	22.2	17.8	30.9	18.1	8.7	0.3	53.1	35.9	16.4	0.9
Qinghai	26.7	21.3	34.8	15.8	8.1	-5.5	61.5	37.1	13.1	-14.7
Ningxia	15.4	11.4	19.1	18.5	3.7	7.1	34.5	29.9	10.8	23.9
Gansu	15.7	10.5	8.2	7.5	-7.5	-2.9	23.9	18.0	-31.1	-16.3
Heilongjiang	17.5	18.5	12.5	7.4	-4.9	-11.0	30.0	25.9	-16.4	-42.6
Jilin	15.5	14.6	13.5	8.5	-2.0	-6.1	29.0	23.1	-6.7	-26.6
Neimeng	13.7	14.0	13.0	10.8	-0.8	-3.2	22.7	24.8	-2.9	-12.7
Minimun	5.3	2.3	5.0	2.7	-11.3	-15.0	14.3	11.1	-43.9	-73.8
Maxmun	26.7	21.3	90.3	47.2	72.1	40.0	108.4	54.4	66.5	79.6
Whole country	11.7	8.9	11.7	8.9	0.0	0.0	23.4	17.9	0.0	0.0

Note: see table 3.1 for sources of data.

all provinces males show a larger **gross** migration rate than females. It reflects that being better equipped in respect of education, training and access to work, males in China still have greater propensities to make interprovincial migrations than females.

Similar to the overall interprovincial inmigration pattern, relatively high **inmigration** rates for both males and females are also observed in the eastern developed region (except for Zhejiang and Shandong) and four remote provinces (Hainan, Xinjiang, Qinghai and Ningxia). In addition, there exist some differences between the two groups. For females, the high inmigration rates are more concentrated in the east developed region and the provinces neighbouring the eastern developed region and with relatively better household economic conditions (such as Hebei); for males, the high rates are also observed in other provinces with large share of basic construction investment but relatively poor living conditions, such as Shanxi and the three provinces in the northeast area. Just as discussed before, these differences reflect the more dependency of males' inmigration process on employment opportunities and that of females' on the living conditions.

The **outmigration** patterns of males and females show interesting contrasts. For females, the lowest outmigration rates are all located in the eastern developed region, whereas the highest values are all observed in the remote region; for males, in each region, we could find not only high outmigration rates but also

low outmigration rates. Based on the regression analysis before, we could interpret these contrasts as follows. Since the outmigration propensity for females is largely dependent on local living conditions, the low living standards in the remote region push females to move out to better places, whereas the high quality of life in the eastern developed region is indicative of stability for the females. In contrast, given that the outmigration propensity for males are more influenced by personal factors and socioeconomic prospects in the potential destination, their outmigration therefore shows a relatively complicated pattern.

With respect to the observed sex-specific interprovincial **net migration** rates, we find that for females, except for two central provinces (Hebei and Shanxi) and two remote provinces (Ningxia and Xingjiang) which show a low gain, the largest and the most efficient net gainers are all concentrated in the eastern developed region, especially the three municipalities (i.e., Beijing, Shanghai and Tianjin) and Guangdong; for males, among the 17 net gainers, although 7 of them are located in the eastern developed region, 6 of them can also be found in the remote region, especially Hainan, Xingjiang and Qinghai. According to the results of the regression analysis, while the interprovincial redistribution of female population depends more on the living conditions and hence shows a strong **eastward** tendency, the interprovincial redistribution of males is more influenced by employment-related factors and therefore also shows a substantial **westward** tendency. Furthermore, the correlation coefficients of net migration rate with in-

and out-migration rates are 0.97 and -0.07 for males (or 0.92 and -0.53 for females), and the standard deviations of in- and out-migration rates are 19/1000 and 6/1000 for males (or 10/1000 and 5/1000 for females), suggesting that while the males' interprovincial redistribution mainly depends on their inmigration process (that is, males from different provinces move to a few attractive ones), the females' interprovincial redistribution also depends on their outmigration process and hence relatively, more females to the attractive provinces are from those with sparse population, remote location and agriculture-dominant economy.

5.3 Summary

Compared with the interprovincial migration patterns of the 1960s and 1970s, which are identified as substantial **downward** movement from urban to rural areas and **westward** tendency from densely-populated/developed eastern provinces to sparsely-populated/less developed western border provinces (DIESA, 1989), the strong **urban-ward** movement and **eastward** tendency to the developed eastern region characterize the interprovincial migration pattern of 1985-90. This change of interprovincial migration pattern implies that with the relaxation of the government's planning and intervention and the shifts of economic activities from the interior to the east and from rural to urban areas, interprovincial migration is

becoming more important as a response to the substantial socioeconomic inequalities among the provinces and between the rural and urban areas.

Comparison of the interprovincial migrations between males and females suggests the followings. First, for both males and females, while their interprovincial **inmigration** patterns are mainly determined by the socioeconomic development in the destination provinces (especially the growth of urban construction and high level of household incomes) and are therefore quite similar, females are more inclined to provinces with better living condition but males are more oriented toward provinces with better economic prospects. Second, being better equipped than females in respect of education, training and access to work, males in China have greater propensities to make interprovincial migrations than females and their outmigration propensities are more influenced by their personal factors and socioeconomic prospects in destination than by the socioeconomic conditions in the origin. Correspondingly, the interprovincial **outmigration** patterns of the two groups show interesting contrasts: for females, the lowest outmigration rates are all located in the eastern developed region, whereas the highest outmigration rates are all observed in the remote region due to the former's highest quality of life and the latter's poorest living conditions of the three regions; for males, in each region, we can find both high and low outmigration rates since for males with different personal factors (such as high/low education, high/low income, employee of state enterprise/temporary

labourer, or urban resident/rural resident), the same local conditions may mean different opportunities/constraints to their outmigration. Third, for males, because their interprovincial redistribution is mainly determined by those factors relative to employment opportunities and the inmigration process, their redistribution pattern shows not only a strong **eastward** tendency but a substantial **westward** tendency as well; for females, because their interprovincial redistribution significantly depends on those factors related to living conditions and also the outmigration process, their interprovincial redistribution pattern displays an unidirectional **eastward** tendency.

Chapter 6

Interprovincial Migrations: by Migration Reasons

This chapter includes four sections. With correlation regression method, section 1 focuses on a comparative evaluation of the relationship between the characteristics of different groups of migrants and their corresponding migration reasons. Section 2 uses multiple regression methods to study the dependence of reason-specific measures of interprovincial migrations on the explanatory variables defined in Chapter 4. The observed reason-specific interprovincial migrations are characterized in section 3. The main findings are summarized in section 4.

6.1 Why Do People Choose Different Migration Reasons?

Among the nine migration reasons mentioned in chapter 3, the most substantial differences are: (1) whether or not the migration was accompanied by a change in registration residence, that is, whether it was a **permanent** or

temporary migration, and (2) whether the migration was induced directly by **employment-related** purpose or by **family-related** purpose. With these two differences, we reclassify migration into four types: type I, permanent employment-related migrations, including those due to job transfer, job assignment, education, and retirement; type II, permanent family-related migrations, including those due to family moving and marriage; type III, temporary employment-related migrations, that is, those due to manual work & commerce; and type IV, temporary family-related migrations, that is, those due to joining relatives.

Based on the suggestion (Hugo, 1982) that migration motivation is clearly influenced by personal factors (such as gender, occupation, and urban/rural residence) and the broader structural forces (such as socioeconomic development, cultural norm and government policy) which constrain the options available to individuals and therefore ultimately determine the overall pattern of movement, in this section, we focus on a comparative evaluation of the relationship between the characteristics of different groups of migrants and their corresponding migration reasons. The data which are available only in tabulated form have prevented us from making a direct evaluation. As an alternative, we measure the correlation coefficients of inmigration rates, outmigration rates, and net migration rates, respectively, between each migration reason and migrants' sex-and-residence type. A similar migration propensity between migrants with certain sex-

and-residence type and those choosing a certain migration reason is identified if the correlation coefficients of both their inmigration rates and outmigration rates show a strong positive relationship (higher than 0.45).

The estimated results in Table 6.1 suggest that: (1) manual work & commerce is mainly chosen by rural males and also is their most important choice; (2) joining relatives is a main choice for both rural males and rural females; (3) marriage migration is chosen almost only by rural females and together with joining relatives constitutes their two important migration reasons; (4) job transfer is mainly chosen by town and especially city males; and (5) family moving is mainly chosen by town and especially town female residents.

Also, the correlation coefficients of inmigration rates, outmigration rates, and net migration rates, respectively, between different migration reasons indicate the following. First, there is a very strong positive correlation between migration for job transfer and that for family moving. The correlation coefficient of their inmigration rates is 0.67 and the corresponding figures for their out- and net migration rates are 0.84 and 0.82, respectively. Second, strong positive correlation also exists between migration for manual work & commerce and that for joining relatives. The correlation coefficients of their in-, out- and net migration rates are 0.72, 0.63 and 0.78, respectively.

From the above relationships, we could make the following interpretations.

1. In order to keep the benefits associated with permanent urban residency or

Table6.1 Correlation cofficients of inmigration rates, outmigration rates, and net migration rates, respectively, between migration reasons and sex-residence for interprovincial migration of China: 1985-90.

Reason		City male			City female			Town male			Town female			Rural male			Rural female		
		in	out	net	in	out	net	in	out	net	in	out	net	in	out	net	in	out	net
Job transfer	in	0.74			0.17			0.70			0.22			0.71			0.73		
	out		0.75			0.59			0.74			0.58			-0.03			-0.11	
	net			0.68			0.61			0.45			0.41			0.31			0.41
Manual work & commerce	in	0.49			0.41			0.92			0.88			0.68			0.67		
	out		-0.03			0.10			0.24			0.22			0.63			0.27	
	net			0.63			0.43			0.85			0.71			0.79			0.65
Joinning relatives	in	0.33			0.30			0.63			0.68			0.69			0.86		
	out		0.03			0.07			0.04			0.30			0.56			0.56	
	net			0.62			0.41			0.65			0.67			0.72			0.78
Family moving	in	0.33			0.36			0.68			0.73			0.69			0.76		
	out		0.61			-0.07			0.67			0.82			0.22			0.22	
	net			0.38			0.68			0.48			0.81			0.30			0.53
Marriage migration	in	0.30			0.30			0.51			0.64			0.25			0.63		
	out		0.03			-0.07			0.23			0.01			-0.05			0.64	
	net			0.46			0.60			0.38			0.51			0.21			0.75

Data source: State Statistical Bureau of China (SSB) (1991): "10% Sampled National Population Survey of 1990 Census".

nonagricultural registration (i.e., the better access to urban schools, state jobs with lifetime job security, fixed salaries, health insurance, disability and old-age pensions, highly subsidized housing, and food rations), urban (city or town) residents usually prefer a permanent migration, using such reasons as job transfer or family moving. In contrast, because of (1) the stringent policy control on permanent inmigration of rural residents to urban places (especially to cities) and on a change of agricultural registration to nonagricultural registration and (2) the strong desire to take advantage of opportunities in urban places, rural residents usually have to make a temporary migration using such reasons as manual work & commerce or joining relatives, which permit them to stay in urban places for years.

2. In China, while employment-related migrations such as those due to job transfer or manual work & commerce constitute the main stream of male migrants, family-related migrations such as those due to family moving or marriage are usually chosen by female migrants. This is consistent with the empirical findings in many developing countries (Chant and Radcliffe, 1992; Hugo, 1978) that there is some intrinsic relationship between gender and migration reason.

3. Marriage migration is chosen almost only by rural females, suggesting that just like the practices in many other developing, particularly Asian developing, countries (Chant and Radcliffe, 1992), the traditional practices in China that bride

must move to groom's residence at marriage is very common in the rural areas.

4. The very strong positive correlation between migration for job transfer and that for family moving suggests that as an effective method of making permanent upward migration but at the same time being beyond the government's control on this kind of migration, family moving could be a good reason for town residents, especially town females, to change their permanent registration residence to cities where one or more of their family member(s) has (have) made a job transfer.

5. In most developing countries, it has been found (Chant and Radcliffe, 1992) that after a rural resident moves to an external labour market, the ties between him/her and his/her rural relatives or friends are often maintained over long distance and over long periods through visits, remittances, exchange of information and so on. Therefore, it is not surprising that in China, joining relatives is another important migration reason for rural residents. Moreover, the significant positive correlation of in-, out- and net-migration levels between manual work & commerce migrants and those for joining relatives suggests that the latter is partly induced by rural, especially rural male, migrants for manual work & commerce, who provide money to help the migrants at the point of departure or host migrant relatives in the area of destination.

Distribution of migrants by migration reasons in Table 3.1 shows that migrations most relevant to the young labour force stage and the stage of established status in labour force and family (i.e., job transfer, job assignment,

manual work & commerce, education and marriage) constitute over 70% of all kinds of migration. Of particualr importance are the migrations due to manual work & commerce, job transfer, and marriage, which make up about 60% of all kinds of interprovincial migration. With respect to employment- and education-related migrations, both manual work & commerce and job transfer migrants have much stronger propensity to make interprovincial than intraprovincial migration (44% against 29%), whereas migrants for education and retirement prefer intraprovincial to interprovincial migration (21% against 9%).

To study the effects of place attributes on the reason-specific migration rates, we will concentrate on the three most important reasons: (1) **manual work & commerce**, (2) **marriage** and (3) **job transfer**.

6.2 Multivariate Analysis of the Interprovincial Migrations for Different Reasons

For the purpose of examining the relationships between the explanatory variables and the reason-specific interprovincial migration rates, we introduce two dummy variables to distinguish (1) manual work & commerce migrants, (2) job transfer migrants and (3) marriage migrants. The first dummy variable assumes the value of 1 if the reason is job transfer, whereas the second dummy variable assumes the value of 1 if the reason is manual work & commerce. In other

words, the reference reason is marriage. Also, for every variable representing a place attrbute, we have created two interaction variables, which are the explanatory variable times the two dummy variables.

With the stepwise procedure, the estimated results of multivariate analysis between the explanatory variables (including dummy variables and interaction variables) and reason-specific interprovincial in-, out- and net migration rates are shown in Tables 6.2, 6.3, and 6.4, respectively.

The estimated results between the explanatory variables and the reason-specific interprovincial **inmigration** rate (Table 6.2) indicate the following features.

1. Each of the three subsets of explanatory variables (the characteristics of destination province as a whole, the characteristics of urban places in the province and the characteristics of rural places in the province) has a strong explanatory power (the adjusted R square ranging from 0.51 for the rural subset to 0.69 for the urban subset), suggesting that interprovincial inmigrations of people with different motivations are all influenced by the characteristics of the destination province, particularly the characteristics associated with its urban places.

2. According to the full model, share of construction investment (INVEST) has significant positive effect on the inmigration rate for every reason, whereas percentage of minority nationality (MINO) shows a negative impact on the inmigration rate for every reason. However, the influences of the remaining

Table 6.2. The estimated results for reason-specific interprovincial inmigration rate: with the stepwise procedure.

Determinants	Full model Coefficient(T)	Test 1 Province set Coefficient(T)	Test 2 Urban set Coefficient(T)	Test 3 Rural set Coefficient(T)
Constant	-2.312 (-6.5)*	-0.612 (-4.4)*	-9.489 (-3.3)*	1.703 (0.4)
Manu.& Com. migrants	--	--	--	--
Job Transfer migrants	--	--	--	--
Province subset				
Job Trans.*No.of college students in per 10,000 pop (COLLEGE)	--	0.022 (4.6)*	--	--
Annual per capita expense for communication (COMMUN)	--	0.636 (5.9)*	--	--
Job Trans.*Population density (DENSITY)	0.013 (3.4)*	0.014 (2.1)	--	--
Percentage of minority nationality (MINO)	-0.072 (-2.2)	--	--	--
Manu.& Com.*Percentage of minority nationality (MINO)	0.024 (3.5)*	0.031 (5.3)*	--	--
Urban subset				
Per capita basic construction investment (INVEST)	0.586 (7.3)*	--	0.407 (4.1)*	--
Manu.& Com.*Per capita basic construction investment (INVEST)	0.043 (5.8)*	--	0.013 (7.3)*	--
Annual per capita income of urban residents (UINC)	--	--	1.224 (2.6)	--
Job Tanns.*Annual per capita expenditure of urban residents (UEXP)			1.004 (2.8)	
Rural subset				
Percentage rural laborers in nonfarming (NFARM)	--	--	--	2.217 (6.6)*
Job Trans.*Per farmer arable land (LAND)	-0.041 (-3.3)*	--	--	--
Annual per capita income of rural residents (RINC)	--	--	--	0.465 (2.7)*
F-statistic (prob)	43.1 (0.0001)	36.5 (0.0001)	54.5 (0.0001)	21.6 (0.0001)
Adjusted R-square	0.75	0.63	0.69	0.51

Note: See Table 3.1 and 4.1 for sources of data and text for definitions of the variables. Figures in brackets are t-ratios. All t-ratios are significant at the 5% level;
*: Significant at the 1% level.

Table 6.3. The estimated results for reason-specific interprovincial outmigration rate: with the stepwise procedure.

Determinants	Full model Coefficient(T)	Test 1 Province set Coefficient(T)	Test 2 Urban set Coefficient(T)	Test 3 Rural set Coefficient(T)
Constant	-8.408 (-5.4)*	-6.503 (-0.5)	3.371 (5.7)*	-5.145 (-0.9)
Manu.& Com. migrants	--	--	--	--
Job Transfer migrants	--	--	--	--
Province subset				
Per capita industrial productivity (INDUS)	--	-0.436 (-3.6)*	--	--
Male life expectancy at birth (MLIFE)	--	-0.801 (-2.7)*	--	--
Manu.& Com.*Male life expectancy at birth (MLIFE)	--	0.152 (2.3)	--	--
Job Trans.*No.of college students in per 10,000 pop (COLLEGE)	--	0.019 (5.3)*	--	--
Population density (DENSITY)	--	-0.218 (-3.4)*	--	--
Manu.& Com.*Population density (DENSITY)	0.011 (2.6)	0.011 (2.6)	--	--
Percentage of minority nationality (MINO)	--	0.037 (3.6)*	--	--
Manu.& Com.*Percentage of minority nationality (MINO)	--	-0.021 (-2.3)	--	--
Urban subset				
Job Trans.*Percentage total laborers in state enterprise (SJOB)	0.028 (4.2)*	--	0.058 (5.1)*	--
Per capita basic construction investment (INVEST)	--	--	-0.481 (-3.8)*	--
Manu.& Com.*Per capita basic construction investment (INVEST)	-0.072 (-7.3)*	--	-0.032 (-2.8)*	--
Job Trans.*Annual per capita expenditure of urban residents (UEXP)	--	--	-0.012 (-2.8)*	--
Rural subset				
Percentage rural laborers in nonfarming (NFARM)	-2.423 (-6.9)*	--	--	-2.131 (-5.6)*
Per farmer arable land (LAND)	--	--	--	0.024 (2.4)
Manu.& Com.*Per farmer arable land (LAND)	-0.056 (-4.4)*	--	--	-0.062 (-3.4)*
Manu.& Com.*Annual per capita income of rural residents (RINC)	0.032 (2.2)	--	--	--
Annual per capita expenditure of rural residents (REXP)	--	--	--	-0.021 (-2.7)*
Manu.& Com.*Annual per capita expenditure of rural residents (REXP)	--	--	--	0.013 (4.9)*
F-statistic (prob)	19.5 (0.0001)	11.1 (0.0001)	12.8 (0.0001)	11.5 (0.0001)
Adjusted R-square	0.62	0.51	0.45	0.50

Note: See table 3.1 and 4.1 for sources of data and text for definitions of the variables. Figures in brackets are t-ratios. All t-ratios are significant at the 5% level;
*: Significant at the 1% level.

Table 6.4. The estimated results for reason-specific interprovincial net migration rate: with the stepwise procedures

Determinants	Full model Coefficient(T)	Test 1 Province set Coefficient(T)	Test 2 Urban set Coefficient(T)	Test 3 Rural set Coefficient(T)
Constant	8.031 (0.9)	-0.607 (-1.3)	-9.672 (-4.6)*	-4.745 (-2.9)*
Manu.& Com. migrants	--	--	--	-9.262 (-3.6)*
Job Transfer migrants	--	--	--	--
Province subset				
Manu.& Com.*Percentage urban (UPOP)	--	0.046 (4.8)*	--	--
Male life expectancy at birth (MLIFE)	0.072 (5.5)*	--	--	--
Manu.& Com.*Male life expectancy at birth (MLIFE)	-0.024 (-6.4)*	--	--	--
No.of college students in per 10,000 pop (COLLEGE)	--	0.042 (3.1)*	--	--
Annual per capita expense for communication (COMMUN)	0.131 (2.3)	--	--	--
Manu.& Com.*Annual per capita expense for communication (COMMUN)	0.402 (2.2)	1.173 (9.5)*	--	--
Population density (DENSITY)	0.033 (3.3)*	--	--	--
Manu.& Com.*Percentage of minority nationality (MINO)	--	0.131 (4.3)*	--	--
Job Trans.*Percentage of minority nationality (MINO)	-0.052 (-2.8)*	-0.062 (-2.3)	--	--
Urban subset				
Manu.& Com.*Per capita basic construction investment (INVEST)	0.058 (9.8)*	--	0.055 (12.5)*	--
Annual per capita expenditure of urban residents (UEXP)	--	--	0.012 (3.8)*	--
Job Trans.*Annual per capita expenditure of urban residents (UEXP)	--	--	0.011 (5.9)*	--
Rural subset				
Annual per capita income of rural residents (RINC)	--	--	--	0.094 (6.2)*
Manu.& Com.*Annual per capita income of rural residents (RINC)	--	--	--	-0.078 (-4.6)*
F-statistic (prob)	65.0 (0.0001)	44.2 (0.0001)	91.5 (0.0001)	28.9 (0.0001)
Adjusted R-square	0.80	0.72	0.75	0.59

Note: See Table 3.1 and 4.1 for sources of data and text for definitions of the variables. Figures in brackets are t-ratios. All t-ratios are significant at the 5% level;
* : Significant at the 1% level.

variables on the three groups of migrants show substantial differences in the following ways. First, while large share of investment increases inmigrations of all the three groups of migrants, its impact is most significant on manual work & commerce migrants. Second, while the share of minority nationality has negative effect on all reason-specific inmigrations, its effect is stronger for job transfer migrants and marriage migrants and weaker for manual work & commerce migrants. These results reflect that compared with marriage or job transfer migrants, manual work & commerce migrants are more likely to go to destinations with more employment opportunities, especially those in urban informal labor market. Third, the inmigration of job transfer migrants is subject to the positive effect of urbanization (DENSITY) and the negative effect of arable farm land (LAND), whereas the inmigrations of manual work & commerce migrants and marriage migrants are not significantly affected by these variables. Given that owning a state job is usually associated with better socioeconomic conditions (such as permanent urban residence and a lifetime job security, health and disability insurance, better education opportunity and more varied entertainment, and highly subsidized housing and consumer goods), it is not surprising that compared with marriage migrants and manual work & commerce migrants, job transfer migrants are more likely to go to destinations with higher urbanization.

The estimated results for reason-specific interprovincial **outmigration** rate

reveal the following features (Table 6.3).

1. Each of all the three subsets of explanatory variables performs much better on the reason-specific interprovincial outmigration rate than on the overall interprovincial outmigration rate reported in Chapter 5 (the adjusted R squares are 0.51 against 0.35, 0.45 against 0.12, and 0.50 against 0.16, respectively). In other words, the control for migration reason has improved the explanatory power of the place attributes substantially.

2. According to the full model, percentage share of rural nonfarm laborers (NFARM) is the only variable that has a significant effect on the outmigration rate for all three reasons, with the effect being negative. The effects of the remaining explanatory variables show interesting contrasts among the three reasons. First, while the outmigration of manual work & commerce migrants is subject to the positive effect of population density (DENSITY), the outmigrations of job transfer migrants and marriage migrants are not significantly affected by this variable. While construction investment (INVEST) and arable farm land (LAND) are the two variables which have significant negative impacts upon the outmigration of manual work & commerce migrants, their effects are negligible for both job transfer and marriage migrants. These results suggest that compared with job transfer or marriage migrants, the interprovincial outmigration propensities of manual work & commerce migrants are dependent more on the employment opportunities of origin provinces. Second, high percentage of state

job owners (SJOB) significantly increases the outmigration propensity of job transfer migrants, but its impact is negligible for manual work & commerce and marriage migrants. In contrast, the outmigration of manual work & commerce is subject to the positive effect of rural household income (RINC), whereas the outmigrations of job transfer migrants and marriage migrants are not significantly affected by this variable. These results suggest that while owning a state job is indicative of resources to provide more migration opportunities for job transfer migrants, the better rural household economic conditions are indicative of resources to enhance people's outmigration for manual work & commerce.

The estimated results for the reason-specific interprovincial **net migration** rate show the features as following (Table 6.4).

1. With high values in both F-statistics and adjusted R squares, the three subsets of explanatory variables significantly contribute to the explanation of the reason-specific net migration rate. However, in the context of one significant rural variable (i.e., the rural household income (RINC)), manual work & commerce migrants tend to have much lower net migration rate than job transfer migrants and marriage migrants (Test 3).

2. The full model reveals the following. First, health condition (MLIFE), communication facilities (COMMUN) and population density (DENSITY) have significant positive effects on all reason-specific net migrations. However, the effect of health condition is stronger for both job transfer and marriage migrants

and weaker for manual work & commerce migrants, whereas the effcet of communication facilities is much stronger for manual work & commerce migrants than for both job transfer and marriage migrants. Second, construction investment (INVEST) has a strong positive effect on the net migration of manual work & commerce migrants, but its effect is negligible for both job transfer and marriage migrants. Third, the net migration of job transfer migrants is subject to the negative effect of percentage share of minority nationality (MINO), whereas the net migrations of manual work and marriage migrants are not significantly affected by this variable.

Conclusively, the results of the multivariate analysis show **fundamental** difference in the factors influencing the interprovincial migration rates for different reasons. First, for marriage and particularly job transfer migrants, the migration process is substantially oriented toward better living conditions which are associated with Han-dominant provinces and developed urbanization (DENSITY) and better health (MLIFE) conditions. Second, for manual work & commerce migrants, large share of investment (INVEST) constitutes the strongest pull force in destinations, whereas high percentage of rural laborers in non-farm sectors (NFARM), large share of investment (INVEST) and large arable farm land (LAND) are associated with low outmigration propensities, and higher rural household income (RINC) is indicative of resources to stimulate their outmigration. In short, the interprovincial migration process of manual work &

commerce migrants is substantially oriented toward employment opportunities (particularly those in urban informal labour markets).

6.3 Patterns of Interprovincial Migrations for Different Reasons

Table 6.5 shows the observed patterns of interprovincial migration of the three groups of migrants, respectively. Comparison of **gross migration** rates among the three groups indicates that except for two remote agricultural provinces (Guizhou and Yunnan), where the interprovincial gross migration rate of marriage migrants has the largest values, manual work & commerce migrants show the highest mobility. In addition, comparison of the 1985-90 interprovincial migration with that of 1982-87, which was still dominated by planned migration (such as job transfer) and family-related migrations (such as family moving, marriage and joining relatives) (Table 6.6), spontaneous migrations relative to employment (i.e., manual work & commerce) come out to be the largest interprovincial migration flow in 1985-90, more than two times of that for job transfer. It implies that as the external structural forces, the rapid development of market economy and the corresponding adjustment of migration policies in recent years have greatly changed the interprovincial migration pattern, and spontaneous employment-related migrations constitutes the dominant interprovincial migration stream.

Table 6.5 The observed patterns of the 1985/90 reason-specific interprovincial migrations.

Province	Outmigration rate (per 1000)			Inmigration rate (per 1000)			Net migration rate (per 1000)			Gross migration rate (per 1000)			Migration efficiency (percent)		
	M & C	Job	Marrg	M & C	Job	Marrg	M & C	Job	Marrg	M & C	Job	Marrg	M & C	Job	Marrg
I. EAST REGION:															
Beijing	0.4	4.3	0.3	31.0	7.8	3.9	30.6	3.4	3.6	31.5	12.1	4.2	97.2	28.6	85.4
Shanghai	1.4	1.9	0.2	19.3	10.1	1.7	17.9	8.1	1.5	20.8	12.0	1.9	86.1	67.8	75.2
Tianjin	0.6	2.2	0.7	7.7	3.5	3.7	7.1	1.2	3.0	8.3	5.7	4.4	85.8	21.8	66.8
Liaoning	0.7	1.6	0.7	3.2	1.4	1.8	2.5	-0.2	1.1	3.8	3.0	2.5	65.9	-8.0	44.0
Shandong	1.9	0.8	0.6	0.8	1.5	1.6	-1.1	0.7	1.0	2.6	2.3	2.2	-40.0	31.3	44.8
Jiangsu	4.1	1.3	0.7	2.7	2.2	3.3	-1.4	0.9	2.6	6.8	3.4	4.0	-20.8	26.8	64.6
Zhejiang	9.7	1.1	0.5	1.5	1.5	1.9	-8.2	0.5	1.4	11.2	2.6	2.4	-73.5	17.9	59.2
Fujian	3.7	1.5	0.3	3.7	1.6	2.5	0.0	0.1	2.3	7.4	3.1	2.8	0.4	3.2	82.0
Guangdong	1.1	1.0	0.2	11.0	1.9	2.0	9.9	0.9	1.7	12.1	2.9	2.2	81.9	32.1	78.9
II. CENTER REGION:															
Hebei	3.9	2.0	1.2	0.8	1.2	2.9	-3.1	-0.8	1.7	4.7	3.2	4.1	-67.4	-24.1	40.1
Henan	2.7	0.8	0.8	1.0	1.7	1.0	-1.7	0.8	0.2	3.7	2.5	1.7	-45.0	34.0	13.4
Shaanxi	1.5	1.8	1.8	2.4	1.7	0.6	0.9	-0.1	-1.2	4.0	3.5	2.4	23.5	-2.9	-50.1
Shanxi	0.8	2.8	0.6	4.4	0.9	1.4	3.6	-1.9	0.8	5.2	3.6	2.0	69.2	-51.8	40.0
Hubei	1.6	1.1	1.4	2.7	1.4	1.0	1.0	0.3	-0.4	4.3	2.5	2.4	23.8	12.2	-16.7
Hunan	3.9	0.9	1.3	0.9	1.1	1.0	-3.0	0.2	-0.3	4.9	2.0	2.3	-62.7	10.0	-13.0
Anhui	4.3	1.6	1.3	0.8	1.1	1.5	-3.5	-0.5	0.2	5.2	2.8	2.8	-68.2	-17.9	7.1
Jiangxi	2.8	1.3	0.9	2.2	1.2	0.7	-0.6	-0.0	-0.2	4.9	2.5	1.5	-11.7	-0.9	-15.7
III. REMOTE REGION:															
Guangxi	6.7	1.1	3.8	1.2	1.0	0.3	-5.5	-0.2	-3.5	7.9	2.1	4.1	-70.0	-8.3	-85.0
Sichuan	5.7	0.7	3.0	0.3	1.4	0.7	-5.4	0.7	-2.4	5.9	2.1	3.7	-91.0	32.5	-64.0
Guizhou	1.4	1.2	5.3	3.4	0.5	0.6	2.0	-0.7	-4.6	4.7	1.8	5.9	42.4	-39.3	-78.4
Yunnan	0.3	1.4	4.1	3.6	0.8	0.8	3.3	-0.6	-3.3	3.9	2.2	4.9	85.9	-26.7	-67.3
Hainan	2.3	5.1	0.9	11.9	1.1	2.1	9.7	-4.0	1.3	14.2	6.1	3.0	68.2	-65.6	42.3
Xinjiang	0.6	6.2	0.8	9.7	0.6	2.1	9.1	-5.5	1.4	10.3	6.8	2.9	87.9	-81.2	46.9
Qinghai	0.7	6.3	1.8	11.1	2.4	1.3	10.6	-3.8	-0.5	11.7	8.7	3.1	90.5	-44.2	-16.1
Ningxia	0.8	2.8	1.6	5.0	1.4	2.5	4.2	-1.5	0.9	5.7	4.2	4.0	73.7	-35.0	22.3
Gansu	2.5	2.7	1.9	1.6	0.9	0.8	-0.9	-1.8	-1.1	4.0	3.7	2.7	-21.8	-49.1	-39.4
Heilongjiang	1.1	2.5	1.7	3.1	0.6	1.1	2.0	-1.9	-0.7	4.2	3.2	2.8	46.6	-60.9	-24.9
Jilin	1.6	2.1	1.8	1.7	0.9	1.1	0.2	-1.3	-0.7	3.3	3.0	2.8	5.2	-42.3	-24.8
Neimeng	1.5	2.2	2.3	2.8	0.8	1.4	1.3	-1.4	-0.9	4.3	3.1	3.7	29.2	-45.1	-24.3
Minimun	0.3	0.7	0.2	0.3	0.5	0.3	-8.2	-5.5	-4.6	2.6	1.8	1.5	-91.0	-81.2	-85.0
Maxmun	9.7	6.3	5.3	31.0	10.1	3.9	30.6	8.1	3.6	31.5	12.1	5.9	97.2	67.8	85.4
Whole country	3.1	1.5	1.5	3.1	1.5	1.5	0.0	0.0	0.0	6.1	3.0	2.9	0.0	0.0	0.0

Note: (1) see Table 3.1 for sources of data; (2) M & C - manual work & commerce; Job - job transfer; Marrg - marriage.

Table 6.6. Comparing the distributions of interprovincial migrants by migration reason between 1982/87 and 1985/90 (%).

Migration reason	1982-1987	1985-1990
Job transfer	20.6	14.5
Job assignmant	5.1	4.7
Education	8.7	7.8
Manual work & commerce	8.2	29.4
Joining relatives	13.3	10.6
Family moving	19.8	10.8
Marriage	15.8	14.2
Retirement	2.6	1.5
Others	6.1	6.5
Total	100	100

Data sources: (1) "1% National Population Survey in 1987 in China"
(2) "10% Sampled National Population Survey of 1990 Census"
State Statistical Bureau of China (SSB).

The observed interprovincial **in-** and **out-migration** patterns of the three groups of migrants show the following features.

1. For manual work & commerce migrants, the highest inmigration rates are located in four eastern developed provinces (i.e., the three municipalities plus Guangdong), four remote provinces (Hainan, Xingjiang, Qinghai and Ningxia) and one central industrial province (Shanxi). According to the regression analysis before, it is obviously because these provinces have the largest share of basic construction investment in the 29 provinces and therefore provide more temporary job opportunities for manual work & commerce. In contrast, the highest outmigration rates are found in two eastern developed provinces (Zhejiang and Jiangsu), three central provinces (Hebei, Hunan and Anhui) and two remote provinces (Guangxi and Sichuan) where, based on the regression analysis, both the shortage of farm land and fewer opportunities in urban informal labour market cause a large number of surplus labourers to move out for manual work and commerce.

2. For job transfer migrants, except for one remote province (Qinghai), the high inmigration rates are largely concentrated in the eastern developed region due to their high urbanization and living standard. As for their interprovincial outmigration rate, the high values are found not only in most remote provinces and one central province Shanxi, but also in the three municipalities. With the regression analysis, such an outmigration pattern could be interpreted as follows.

First, in most remote provinces and one central province (Shanxi), their large share of state job owners is indicative of resources to stimulate such outmigration. Second, in the three municipalities, due to their strongest connections with other provinces and the largest share of state job owners, job transfer migrants on the one hand are exposed to the most outmigration opportunities, and on the other hand are most subject to be transferred by the government to other provinces. With respect to one remote province, Qinghai, its high inmigration rate of job transfer migrants (only next to the three municipalities) may reflect that the Chinese government still urges state job owners to relocate in backward provinces as it used to do. However, its highest outmigration rate of job transfer migrants in the 29 provinces (nearly three times of its inmigration level) suggests that such a government intervention is somehow against the people's will. By means of job transfer, people in the backward provinces still tend to change their permanent residence to other relatively developed provinces.

3. For marriage migrants, while all provinces in the eastern developed region show a high inmigration rates due to its best living standard and economic conditions in the three regions, relatively high values are also found in one central province (Hebei) and three remote provinces (Hainan, Xingjiang and Ningxia). The high inmigration rate in Hebei may be due to its relatively better living standard beyond the eastern developed region and an advantageous location just neighbouring two municipalities Beijing and Tianjin. The high inmigration rates

in the three remote provinces might be due to their large share of basic construction investment, which has an indirect attraction to marriage migrants. As for the outmigration pattern of marriage migrants, the highest values are all located in the remote region while the lowest values are largely concentrated in the eastern developed region. Such a contrast, according to the regression analysis, is undoubtedly due to the increasing gap of socioeconomic development between these two regions; while higher urbanization, better health services and living conditions are indicative of stability for marriage migrants in the eastern developed region, isolated location and poor economic conditions are indicative of push forces on marriage migrants in the remote region.

With respect to the observed interprovincial **net migration** patterns of the three groups of migrants, the net migration rate of job transfer migrants shows a much stronger association with their inmigration rate than with their outmigration rate (correlation coefficients are 0.78 and -0.41, respectively). The corresponding figures are 0.83 and -0.91 for marriage migrants, and 0.95 and -0.67 for manual work & commerce migrants. It reflects that while the interprovincial redistribution of job transfer migrants is more determined by their inmigration process, the effect of outmigration process on the interprovincial redistribution of manual work & commerce and particularly marriage migrants is also very significant. Further comparison of the observed net migration rates among the three groups of migrants shows the following characteristics.

1. For all three groups of migrants, the three municipalities are among the largest gainers, suggesting that the interprovincial population redistribution toward the most developed areas is a substantial characteristic of interprovincial migration in today's China. This tendency is more significant for marriage migrants and job transfer migrants: all the eastern developed provinces (except for Liaoning for job transfer migrants) are the net gainers while almost all remote provinces are net losers.

2. In the remaining provinces, a gainer of manual work & commerce migrants usually shows a loss for job transfer migrants or vice versa. In the eastern developed region, Zhejiang, Shandong and Jiangsu (especially Zhejiang) lose manual work & commerce migrants due to both their relatively low share of investment and shortage of farm land, but have a gain of job transfer migrants because of their high urbanization and living standard. Being the largest heavy industrial province of China, Liaoning has relatively low urban living standard (UEXP) (even lower than several remote provinces) and large share of state job owners. Consequently, Liaoning turns out to be the only net loser of job transfer migrants in the eastern developed region. In contrast, the high share of its investment is not only indicative of stability for manual work & commerce outmigrants but also induces manual work & commerce inmigrants for higher-paying job opportunities. In the remote region, all provinces (except Guangxi, Sichuan and Gansu) are net gainers of manual work & commerce migrants. On

the one hand, the relative ease of finding employment opportunities due to the sparse population and the lack of awareness of the opportunities in other places might be indicative of stability for manual work & commerce outmigrants, on the other hand, the large share of investment in many provinces such as Hainan, the northwest area and the northeast area is indicative of resources to attract manual work & commerce migrants. In contrast, the large share of state job owners accompanied by the sparse population, remote location, poor physical conditions and living standards causes all provinces (only except for Sichuan) in the region to lose job transfer migrants. With the most dense population and highest urbanization in the remote region, Sichuan is the only remote province with net gain of job transfer migrants, but a large loser of manual work & commerce migrants due to both its low share of investment and serious shortage of farm land. In the central region, with dense population, advantageous geographic location (just in the centre of the country) and developed transportation, Henan and Hunan constitute the net gainers of job transfer migrants; in contrast, the serious shortage of land accompanied by small opportunities to transfer this surplus result in their net loss of manual work & commerce migrants. Being the largest coal industrial base of China and therefore facing the demands for industrial expansion and urban construction, Shanxi gains the largest number of manual work & commerce migrants in the central region, but also loses the largest number of job transfer migrants due to the coal industry-dominated

economy and less developed urban services. These distinct differentials between job transfer migrants and manual work & commerce migrants reflect that as a permanent relocation and with lifetime job security and fixed salaries, job transfer migrants naturally evaluate their migration decision more on the improvement of living standards (such as better education, more varied entertainment and higher quality of urban life); as a temporary movement, however, manual work & commerce migrants usually value the availability of higher-paying job opportunities as more important.

3. Comparison of the migration efficiency among the three groups of migrants indicates that the three municipalities and Guangdong in the eastern developed region constitute the most efficient gainers of manual work & commerce migrants, but the least efficient gainers of job transfer migrants (the migration efficiencies are 97% against 29% in Beijing, 86% against 68% in Shanghai, 86% against 22% in Tianjin and 82% against 32% in Guangdong). It might suggest that while the developed urban informal labour markets in these four developed provinces induce manual work & commerce migrants to enter and stay as temporary employees permitted by the 1984 migration policy, the attempt for the government to constrain the most serious "over-urbanization" in these four provinces makes the job transfers to these provinces under the most strict limitation and the job transfer from these provinces under the greatest "encouragemet".

6.4 Summary

With the analysis of reason-specific interprovincial migrations, we could conclude that the choice of different migration reasons and their corresponding migration patterns substantially depend on the **personal attributes** and the broader **structural forces** that constrain the options available to individuals and hence show the following features.

1. While **urban residents** tend to choose reasons that usually induce **permanent** migrations in order to keep the benefits associated with urban residency, due to the policy control on rural residents' permanent inmigration to urban places especially to cities, **rural residents** tend to be restricted to take those corresponding to **temporary** migration such as manual work & commerce or joining relatives to stay in urban places for years. While **employment-related** reasons are the main choice of **male** migrants, **females**' migration is usually initiated with **family-related** reasons, especially the marriage reason for rural females. While town residents, especially town females, tend to choose **family moving** as a good reason to change their registration residence to cities where one or more of their family member(s) make(s) a **job transfer**, the migration for **joining relatives** is usually induced by rural, especially rural male, migrants for **manual work & commerce**, who later provide money to help other migrants at the point of departure or host migrant relatives in the area of destination.

2. There exist differentials in the factors influencing reason-specific interprovincial migration and therefore in their corresponding interprovincial migration patterns. First, for marriage and particularly job transfer migrants, the migration process is substantially oriented toward better living conditions, which are associated with Han-dominant provinces, high urbanization (DENSITY) and better health (MLIFE) conditions. Consequently, their interprovincial migration patterns show a strong **eastward** tendency. However, since job transfer migrants are strongly subject to government control, the eastward tendency of job transfer migrants is substantially weakened. Secondly, for manual work & commerce migrants, while the shortage of farm land and fewer job opportunities in urban informal labour markets constitute two most important origin push factors, the availability of employment opportunities in urban informal labour markets in destinations constitutes the most significant pull factor. Thus, their interprovincial migration pattern is characterized as from provinces with both low investment and shortage of farm land to those with rich employment opportunity in urban informal labour markets and therefore shows both significant **eastward** and **westward** tendencies.

Chapter 7

Interprovincial Migrations in the City-Town-Rural County System

The analyses in Chapters 5 and 6 have shown us some features of the interprovincial migration processes for different gender and different migration reasons. In this chapter, we aim at investigating interprovincial migration processes within the **city-town-rural country residence system** and interpreting these processes with a view to the socioeconomic development, cultural norm and migration policies.

7.1 General Features

Based on the measures of net migration, gross migration and migration efficiency, we could infer the features of the interprovincial population redistribution in the city-town-rural county residence system as follows (Table 7.1).

1. While rural counties are the net **losers** (-6.5/1000), both cities and towns are net **gainers**. But cities' net gain (16.4/1000) is much larger than that of towns'

Table 7.1 The observed interprovincial net, gross migration rates and migration efficiency in the city-town-rural county system in 1985/90: by provinve.

Province	Net migration rate (per 1000)			Gross migration rate (per 1000)			Migration efficiency (percent)		
	City	Town	Rural	City	Town	Rural	City	Town	Rural
I. EAST REGION:									
Beijing	70.0	193.9	8.8	105.8	225.9	14.9	66.2	85.9	59.2
Shanghai	50.0	73.5	25.8	86.4	97.8	33.1	57.8	75.1	78.0
Tianjin	37.7	23.5	6.8	60.4	82.8	20.9	62.5	28.4	32.4
Liaoning	13.1	6.1	-2.1	28.4	16.1	15.2	46.2	37.2	-12.9
Shandong	15.3	2.7	-7.1	24.3	9.3	13.3	63.1	29.3	-53.3
Jiangsu	33.6	12.8	-3.3	60.7	32.7	13.2	55.3	39.1	-24.2
Zhejiang	17.9	-3.4	-16.1	37.0	18.5	21.5	48.3	-18.5	-74.1
Fujian	19.0	4.7	-2.9	44.1	17.9	13.1	42.9	26.2	-23.2
Guangdong	49.8	50.7	-0.6	61.8	70.5	4.5	80.7	71.9	-13.2
II. CENTER REGION:									
Hebei	11.2	-0.3	-7.2	49.6	16.1	16.1	22.7	-2.1	-45.3
Henan	16.3	9.9	-4.5	40.7	26.7	9.1	40.1	35.6	-49.5
Shaanxi	12.7	4.4	-6.6	55.3	19.6	11.7	22.9	20.6	-56.7
Shanxi	4.9	4.5	-2.3	39.7	13.1	11.6	12.3	34.4	-20.0
Hubei	12.7	6.3	-4.2	35.5	19.9	6.7	35.7	31.3	-62.8
Hunan	6.8	0.1	-7.9	27.7	11.1	10.8	24.5	0.9	-74.1
Anhui	10.9	-2.8	-6.2	35.4	46.2	12.1	30.7	-6.1	-50.8
Jiangxi	4.1	1.9	-3.3	29.2	24.1	9.7	13.9	7.7	-33.8
III. REMOTE REGION:									
Guangxi	5.6	-0.3	-17.5	26.2	10.9	19.4	21.4	-2.5	-90.2
Sichuan	4.6	-0.2	-11.9	23.2	17.6	15.7	19.6	-1.1	-76.7
Guizhou	12.8	0.6	-8.4	39.0	18.9	11.7	32.8	3.3	-71.4
Yunnan	6.2	13.5	-4.7	28.2	33.1	9.4	22.1	40.6	-50.1
Hainan	61.4	16.1	1.2	548.2	129.6	19.4	11.2	12.3	5.6
Xinjiang	3.7	-3.1	6.8	74.2	73.8	22.7	4.9	-4.1	30.0
Qinghai	-18.4	5.3	5.3	143.1	68.5	22.1	-12.8	8.5	24.0
Ningxia	15.2	38.4	-2.9	58.7	88.3	14.2	26.1	43.5	-20.2
Gansu	-1.7	4.2	-8.6	36.7	29.6	12.9	-4.7	14.2	-66.3
Heilongjiang	3.3	-7.9	-16.3	33.9	23.1	26.6	9.2	-34.7	-61.4
Jilin	10.1	-3.2	-16.3	37.9	17.6	23.1	22.3	-18.2	-70.8
Neimeng	7.8	-1.3	-6.7	37.4	32.9	18.2	20.8	-3.8	-36.7
Minimun	-18.4	-7.9	-17.5	23.2	9.3	4.5	-12.8	-34.7	-90.2
Maxmun	70.0	193.9	25.8	548.2	225.9	33.1	80.7	85.9	78.0
Whole country	16.4	4.9	-6.5	41.6	23.1	13.3	39.4	21.5	-49.0

Note: see Table 3.1 for source of data.

(4.9/1000). In addition, the great magnitude of migration efficiency in the city-town-rural county system (39% for cities, 22% for towns, and -49% for rural counties) reflects that cities, particularly those in the eastern developed region, are the most efficient gainers, while rural counties constitute the most efficient losers. Within individual provinces, the following three points are worth mentioning. First, cities in all provinces, except for those in two backward remote provinces (Qinghai and Gansu), are the net gainers, especially those in the five eastern developed provinces (i.e., the three municipalities, Guangdong and Jiangsu) and one remote province Hainan. Since the Chinese government declared Hainan (one of the least developed provinces) a new Special Economic Zone in 1988, this province, particularly its cities, has induced many inmigrants from other provinces. Second, except for four border provinces (i.e., Xinjiang, Neimeng, Heilongjiang and Jilin) and five provinces with surplus rural labourers (i.e.,Zhejiang, Anhui, Guangxi, Sichuan and Hebei), towns in all provinces are also net gainers. The gains by towns are particularly large in Beijing, Shanghai and Guangdong, where the net gain of towns is even larger than that of cities (for example, the contrast in Beijing is 193.9/1000 against 70.0/1000). Third, compared with cities and towns, rural counties in all provinces (except for the three municipalities and the three remote provinces of Xinjiang, Qinghai and Hainan) are net losers. This is especially true in Guangxi, Sichuan, Zhejiang, Heilongjiang and Jilin, where there is large surplus of rural labourers or the

living conditions in the rural places are relatively poor.

2. For cities (or towns), the correlation coefficients of net migration rate with in- and out-migration rates are 0.68 (or 0.96 for towns) and 0.31 (or -0.23 for towns), whereas the corresponding coefficients for rural counties are 0.86 and -0.74, respectively. In other words, while the population redistribution in cities as well as towns is mainly determined by inmigration process, the population redistribution in rural counties also strongly depends on outmigration. This difference might suggest that compared with urban areas, the lack of lifetime job security and poor living conditions in rural areas produce much stronger push on rural people's outmigration to urban areas. It also suggests that, unlike their urban counterparts whose migrations are usually permanent ones and hence are controlled more seriously by the authorities in both their origin and destination, rural residents have benefited from the 1984 change in the policy on the temporary migration to urban places, which gives them greater ease to leave for their expected destinations.

3. A high positive correlation coefficient between in- and out-migration rates is found for cities (0.94), while the corresponding coefficients for towns (0.36) and rural counties (-0.35) are quite small. This difference perhaps could be interpreted as follows. First, relative to town and especially rural county, city's superiority in its socioeconomic opportunities (such as more employment and post-secondary education opportunities and higher quality of life) has induced the highest

inmigration, especially since 1984 when some rural residents are able to remain in cities temporarily for years. Second, as temporary city residents, when ending contract jobs or reaching the deadline of staying with urban relatives, many inmigrants of cities have to return to their registration places; as post-secondary education pursuers, after finishing their education, they will be assigned new jobs elsewhere; with better socioeconomic status than town and especially rural residents, city residents usually are exposed to more migration opportunities. Consequently, cities have a relatively high outmigration rate. The strong positive association between inmigration and outmigration rates in cities also implies that the gross migration level of cities is large. Table 7.1 shows that the gross migration rates for cities, towns and rural counties are 41.6/1000, 23.0/1000, and 13.3/1000, respectively, reflecting that at the top of the city-town-rural county residence system, cities have the highest level of population exchange.

Finally, the above analyses suggest that the 1985-90 interprovincial population redistribution shows a substantial **rural-to-urban** tendency. Taking both the temporary migration to urban places for less than one year and the intraprovincial rural-to-urban migration into consideration, which have been found numerically more important (Goldstein, 1991; Banister, 1986), this rural-to-urban tendency will be much more significant.

7.2 Downward, Upward and Lateral Interprovincial Migrations in the City-Town-Rural County System

To achieve a better understanding of the interprovincial migration process in the city-town-rural county residence system, we treat each of the provinces as a designated province and classify migrations into three broad types. Type A includes **downward outmigrations** from the designated province to other provinces (i.e., from the cities in the designated province to the towns or rural counties in other provinces, and the towns in the designated province to the rural counties in other provinces) and **upward inmigrations** from other provinces into the designated province (i.e., from the towns or rural counties in other provinces to the cities in the designated province, and rural counties in other provinces to towns in the designated province). Type B includes **upward outmigrations** from the designated province to other provinces (i.e., from the rural counties in the designated province to the cities or towns in other provinces, and towns in the designated province to cities in other provinces) and **downward inmigrations** from other provinces into the designated province (i.e., from the cities in other provinces to the towns or rural counties in the designated province, and from the towns in other provinces to the rural counties in the designated province). type C includes **lateral** (city-city, town-town, and rural-rural) **outmigrations** from the designated province to other provinces and **lateral inmigrations** from other

provinces into the designated province. Each type is subdivided into three patterns according to the three possible pairs of origin and destination strata. The nine migration patterns are shown in Table 7.2 for the whole country and for the individual designated provinces in Table 7.3.

7.2.1 Type A: **Downward outmigration** and **upward inmigration** processes

Taking the country as a whole, the figures in Table 7.2 indicate the following. First, for all three patterns of Type A migrations, downward outmigration rates have a much lower value than the corresponding upward inmigration rates. Second, while towns in the designated province are the net gainers of rural residents from other provinces (7.4/1000), cities in the designated province are the net gainers of town and especially rural residents from other provinces (1.9/1000 and 14.4/1000, respectively). Third, downward outmigrants represent only 8.7% of all interprovincial outmigrants.

As for different provinces, Table 7.3 shows the following. First, in pattern I (cities in designated province versus towns in the rest of the system), six remote provinces (Hainan, Qinghai, Xinjiang, Gansu, Heilongjiang and Guizhou) are the only provinces where cities are the net losers of their residents to towns, reflecting that although cities as a whole have much higher level of development

Table 7.2 Indices of the 1985/90 lateral, upward and downword interprovincial migrations in the city-town-rural system of China.

Type		Pattern	Origin	Dest.	Migration rate (‰)	Std. Dev. (‰)	Net migration rates (‰)	Migration efficiency (%)	Gross migration rates (‰)	Distribution of migrants (%)
A. Downward outmigration from designated province and upward inmgration to designated province.	I	1) Outmigration from cities in designated province to towns of other provinces.	Cities	Towns	2.12	12.20	1.95	31.6	6.19	4.3
		2) Inmigration from towns of other provinces into cities in designated province.	Towns	Cities	4.07	5.80				
	II	1) Outmigration from cities in designated province to rurals of other provinces.	Cities	Rurals	1.40	2.90	14.43	83.7	17.24	2.8
		2) Inmigration from rurals of other provinces into cities in designated provinces	Rurals	Cities	15.84	31.00				
	III	1) Outmigration from towns in designated province to rurals of other provinces.	Towns	Rurals	1.07	1.20	7.40	77.5	9.54	1.6
		2) Inmigration from rurals of other provinces into towns in designated province.	Rurals	Towns	8.47	24.20				
B. Upward outmigration from designated province and downward inmigration to designated province.	IV	1) Outmigration from towns in designated province to cities of other provinces.	Towns	Cities	5.27	7.00	-2.43	-29.9	8.11	8.2
		2) Inmigration from cities of other provinces into towns in designated province.	Cities	Towns	2.84	10.10				
	V	1) Outmigration from rurals in designated province to cities of other provinces.	Rurals	Cities	5.46	2.40	-4.99	-83.3	5.63	31.7
		2) Inmigration from cities of other provinces into rurals in designated province.	Cities	Rurals	0.47	0.73				
	VI	1) Outmigration from rurals in designated province to towns of other provinces.	Rurals	Towns	2.12	1.60	-1.85	-77.2	2.39	12.9
		2) Inmigration from towns of other provinces into rurals in designated province.	Towns	Rurals	0.27	0.50				
C. Lateral outmigration from designated province and lateral inmigration to designated province.	VII	1) Outmigration from cities in designated province to cities of other provinces.	Cities	Cities	8.92	28.90	0.00	0.0	17.84	17.8
		2) Inmigration from cities of other provinces into cities in designated province.	Cities	Cities	8.92	17.10				
	VIII	1) Outmigration from towns in designated province to towns of other provinces.	Towns	Towns	2.62	4.30	0.00	0.0	5.24	4.2
		2) Inmigration from towns of other provinces into towns in designated province.	Towns	Towns	2.62	8.40				
	IX	1) Outmigration from rurals in designated province to rurals of other provinces.	Rurals	Rurals	2.65	1.50	0.00	0.0	5.30	16.5
		2) Inmigration from rurals of other provinces into rurals in designated province.	Rurals	Rurals	2.65	5.10				

Data source: State Statistical Bureau of China (SSB) (1991): "10% Sampled National Population Survey of 1990 Census".

Note: The denominator used to compute the migration rates is the size of the stratum-specific population of the designated province.

Table 7.3. Net migration rates of downward, upward and lateral interprovincial migrations in the city-town-rural system (1/1000) in 1985-90: by province.

Province	TYPE A Pattern I (C:T)	Pattern II (C:R)	Pattern III (T:R)	TYPE B Pattern IV (T:C)	Pattern V (R:C)	Pattern VI (R:T)	TYPE C Pattern VII (C:C)	Pattern VIII (T:T)	Pattern IX (R:R)
I. EAST REGION:									
Beijing	5.2	52.6	116.2	39.8	-1.5	-0.1	12.2	37.8	10.2
Shanghai	11.3	30.3	28.5	18.2	2.7	2.1	8.2	26.8	21.0
Tianjin	5.6	21.3	28.3	-5.5	-4.1	-0.5	10.9	0.8	11.3
Liaoning	2.3	11.2	6.4	-1.4	-4.6	-0.8	-0.4	1.0	3.4
Shandong	3.4	6.4	2.0	-0.3	-6.2	-1.3	5.5	1.0	0.4
Jiangsu	3.6	21.7	10.6	1.1	-4.3	-0.9	8.3	1.1	1.8
Zhejiang	1.7	11.1	2.2	-4.0	-10.3	-3.9	5.5	-1.6	-2.0
Fujian	1.0	15.2	6.4	-1.8	-4.1	-1.8	2.8	0.1	1.8
Guangdong	3.4	36.2	49.0	-2.6	-0.8	-0.6	10.2	4.3	0.8
II. CENTER REGION:									
Hebei	2.2	11.1	3.5	-4.1	-7.7	-1.1	-2.1	0.3	1.6
Henan	3.7	8.8	7.5	-1.2	-3.8	-0.9	3.8	0.8	0.2
Shaanxi	2.0	14.9	4.5	-1.2	-3.4	-1.8	-9.2	0.9	-1.5
Shanxi	0.1	15.3	5.2	-1.4	-3.8	-0.8	-10.8	0.7	2.2
Hubei	1.3	13.2	7.3	-0.9	-2.8	-0.8	-1.8	-0.1	-0.6
Hunan	1.4	6.7	1.7	-1.5	-4.8	-2.3	-1.3	-0.2	-0.9
Anhui	1.5	7.2	7.6	-9.7	-4.8	-1.2	2.2	-0.7	-0.2
Jiangxi	0.5	7.8	6.4	-3.7	-2.9	-1.3	-4.2	-0.8	0.9
III. REMOTE REGION:									
Guangxi	1.3	6.7	2.4	-2.0	-7.3	-7.4	-2.5	-0.7	-2.9
Sichuan	1.0	3.4	0.7	-0.3	-5.9	-2.8	0.1	-0.6	-3.3
Guizhou	-0.1	18.8	4.8	-3.3	-2.7	-2.2	-5.9	-0.9	-3.6
Yunnan	0.1	9.6	14.1	-1.9	-1.8	-1.2	-3.5	1.2	-1.8
Hainan	-33.9	160.8	59.8	-28.3	-3.6	-3.9	-65.6	-15.5	8.7
Xinjiang	-7.4	29.7	25.7	-17.3	-3.9	-1.1	-18.6	-11.4	11.9
Qinghai	-15.6	40.0	20.5	-10.7	-1.8	-0.3	-42.8	-3.8	7.4
Ningxia	0.1	25.1	40.0	-4.4	-2.9	-1.2	-9.9	2.9	1.2
Gansu	-1.7	8.2	8.2	-3.4	-3.8	-2.0	-8.3	-0.7	-2.8
Heilongjiang	-0.2	11.8	3.2	-7.7	-9.0	-5.0	-8.5	-3.5	-2.4
Jilin	2.2	12.4	3.4	-5.4	-10.2	-3.5	-4.4	-1.2	-2.6
Neimeng	1.5	3.6	10.1	-8.4	-5.1	-2.4	-7.3	-3.0	0.9
Minimun	-33.9	3.4	0.7	-28.3	-10.2	-7.4	-65.6	-15.5	-3.6
Maxmun	11.5	160.8	116.2	39.8	2.7	2.1	12.2	37.8	21.0
Whole country	2.0	14.4	7.4	-2.4	-4.7	-1.9	0.0	0.0	0.0

Note: (1) See Table 3.1 for source of data; (2) See text for the defination of Pattern I - Pattern IX.

than towns, quite a few cities in the remote region are still less developed than some towns in the other two regions. Second, in patterns II (cities versus rural counties) and III (towns versus rural counties), all provinces have positive net migration rates, that is, in the exchange of interprovincial migrants, cities and towns in all provinces are the net gainers against the rural counties in the rest of the system, reflecting the great gap of socioeconomic development between urban and rural areas in China.

7.2.2 Type B: **Upward outmigration** and **downward inmigration** processes

Taking the country as a whole, we find from Table 7.2 the following. First, for all three patterns of type B migrations, upward outmigration rates are greater than the corresponding downward inmigration rates. Second, while towns in the designated province are the net losers of their residents to cities in other provinces (-2.4/1000), rural counties in the designated province are the net losers of their residents to towns and especially cities in other provinces (-1.9/1000 and -5.0/1000, respectively). Third, upward outmigrants represent as much as 52.8% of all interprovincial outmigrants.

With respect to different provinces, Table 7.3 indicates the following. First, in pattern IV (towns versus cities), provinces with positive net migration rates

include only Beijing, Shanghai and Jiangsu, especially Beijing and Shanghai, that is, the towns in these three provinces only are the net gainers of city residents from other provinces due to their high levels of development of towns. second, in patterns V (rural counties versus cities) and VI (rural counties versus towns), all provinces, except for Shanghai, have negative net migration rates, that is, rural counties in all provinces except for Shanghai are the net losers of their residents to cities or towns in other provinces.

7.2.3 Type C: **Lateral outmigration** and **lateral inmigration** processes

From Table 7.3 we find the following. First, in the inter-city as well as inter-town migrations, the net gainers of city as well as town residents are largely located in the eastern developed region while the net losers are mainly observed in the remote region. Such an eastward tendency of urban population is undoubtedly due to the increasing gap of urban development between the east and the interior. Second, the redistribution of rural population due to inter-rural migration shows (1) vary large gains in the rural areas of the three municipalities and three remote provinces (Hainan, Xingjiang and Qinghai) and (2) moderate losses in the rural areas of the provinces with large surplus of rural labourers (such as Zhejiang), or with poor rural living conditions (such as Guizhou,

Yunnan, Gansu, Heilongjiang, Jilin and Shaanxi), or with both (i.e., Sichuan and Guangxi).

7.3 Comparing Migration Patterns in the City-Town-Rural county System

Given the huge rural population base and substantial gap in economic development and life quality between urban and rural areas, massive urbanward migration has become a nearly universal phenomenon observed in most developing countries (Goldscheider, 1984; Potter and Unmin, 1989). While this rural-to-urban migration improves labor productivity, it also causes housing shortages, unemployment and overburdened infrastructure in urban areas. With the attempt to sustain the economic growth on the one hand and to control the urban problems on the other, the Chinese government has prescribed "**strict control** of permanent upward migrations to large cities, **rational arrangement** of lateral migrations, and **encouragement** of downward migrations" (Goldstein, 1985a). By comparing all the migration patterns in the city-town-rural county system with this migration policy, some general characteristics could be stated as follows.

1. Urban places (especially cities) in China have been characterized by more economic opportunities, higher incomes, better housing and sanitation facilities,

more varied entertainment and greater availability of consumer goods. Moreover, China's policies have often served to accentuate these differences through establishing the government-funded health care, old-age pension and guaranteed employment systems and highly subsidized housing and food rations only in the urban areas. As a result, among all the migration patterns discussed above, downward migrations, particularly those from cities(or towns) to rural counties show the lowest migration rates: outmigration rates of city (or town) residents from the designated province to rural counties in other provinces is 1.4/1000 (or 1.1/1000) and rural counties' inmigration of city (or town) residents from other provinces is 0.5/1000 (or 0.3/1000).

2. As shown in Table 7.4, cities in almost all provinces have much higher inmigration rates of rural residents than that of city and especially town residents from other provinces and this difference is most significant in two types of areas. One type is the eastern developed region particularly the three municipalities and Guangdong, where the concentration of investment and high living standards induce the largest inflow of rural people who are permitted to stay there temporarily. For example, in these four provinces, the percentages of job transfer inmigrants (permanent inmigrants) and manual work & commerce inmigrants (temporary inmigrants) are 11% against 45%, 19% against 36%, 9% against 20% and 10% against 59%, respectively. Especially in Guangdong, the temporary inmigrants who entered into the province in 1990 constitute 5.3% of the total

Table 7.4. Interprovincial inmigration to cities and towns in the designated province in 1985-90 (1/1000): by province.

Province	Total inmigration to cities	Inmigration of city pop to cities	Inmigration of town pop to cities	Inmigration of rural pop to cities	Total inmigration to towns	Inmigration of rural pop to towns
I. EAST REGION:						
Beijing	87.9	25.8	7.8	54.3	209.9	117.1
Shanghai	68.2	18.8	14.0	35.4	85.7	37.1
Tianjin	49.1	17.5	6.8	24.8	53.2	30.7
Liaoning	20.8	5.3	3.6	11.9	11.0	6.9
Shandong	19.8	8.6	4.2	7.0	6.0	2.4
Jiangsu	47.1	18.3	5.8	23.1	22.8	11.5
Zhejiang	27.4	11.9	3.5	12.0	7.6	3.5
Fujian	31.5	11.2	3.5	16.8	11.3	7.1
Guangdong	55.8	14.2	4.7	36.9	60.6	50.0
II. CENTER REGION:						
Hebei	30.4	11.7	5.7	13.0	7.8	4.1
Henan	28.5	12.8	5.6	10.1	18.1	8.3
Shaanxi	34.0	12.2	4.9	16.9	11.8	5.4
Shanxi	22.3	3.6	2.3	16.5	8.7	5.6
Hubei	24.1	7.0	2.9	14.2	13.1	8.3
Hunan	17.2	6.4	3.0	7.8	5.6	2.6
Anhui	23.2	11.1	3.2	8.9	21.7	8.1
Jiangxi	16.7	5.3	2.4	8.9	13.0	8.0
III. REMOTE REGION:						
Guangxi	15.9	4.7	3.4	7.8	5.3	3.0
Sichuan	13.9	7.4	2.3	4.2	8.7	2.1
Guizhou	25.9	3.4	2.3	20.2	9.7	6.4
Yunnan	17.2	3.7	2.1	11.5	23.3	10.3
Hainan	304.8	97.5	33.0	174.3	72.8	62.4
Xinjiang	38.9	3.5	1.7	33.7	35.4	26.4
Qinghai	62.4	6.3	5.2	50.9	37.2	25.2
Ningxia	37.0	6.3	3.7	27.0	63.4	30.4
Gansu	17.5	5.4	1.7	10.4	16.9	9.8
Heilongjiang	18.5	2.7	2.6	13.1	7.5	5.2
Jilin	24.0	6.1	4.5	13.4	7.2	4.7
Neimeng	22.6	3.9	4.2	14.5	15.8	12.4
Minimum	13.9	2.7	1.7	4.2	5.3	2.1
Maxmum	304.8	97.5	33.0	174.3	209.9	117.1
Whole country	29.0	8.9	4.1	15.8	14.0	8.5

Note: see Table 3.1 for source of data.

provincial population in 1990 while the permanent inmigrants who also entered the province in 1990 represent only 0.8% (He, 1992). The other type of areas includes most of the remote provinces and one central province (Shanxi), where the remote location and low quality of city life are unable to attract the urban residents in other provinces but the availability of urban employment opportunities attracts rural residents from other provinces to take a new chance. For example, in seven remote provinces (i.e., Hainan, Xinjiang, Qinghai, Heilongjiang, Ningxia, Guizhou and Yunnan) and one central province (Shanxi), among the nine migration reasons, the percentage of inmigrants for manual work & commerce is 54%, 40%, 44%, 27%, 31%, 37%, 50% and 52%, respectively. Although the upward interprovincial outmigration rate of rural residents to cities (5.5/1000) is similar to that of town residents to cities (5.3/1000), the rural-to-city migration flow is three times the town-to-city migration flow since the rural population is three times the town population. These results suggest that while the government's control on the permanent upward migrations particularly those to large cities in the eastern developed region is still effective, **temporary upward** migration from rural counties to cities has become numerically the most important population movement in today's China (the share of such kind of migrants is 31.7%).

3. In order to direct the massive rural-to-urban migrations away from cities (especially large cities) and at the same time to help a large portion of agricultural

population become nonagricultural population, the Chinese government increased the number of towns from 2,874 in 1980 to 6,211 in 1984 and correspondingly, the share of town population in the total urban population rose from 29.7% in 1980 to 41.1% in 1984 (CFEPH, 1988). Even more enticingly, many rural-to-town migrants are able to secure permanent registration in towns (Banister, 1986). However, Tables 7.4 and 7.5 show that except for the four most developed eastern provinces (i.e., the three municipalities and Guangdong), where their towns have higher inmigration rate of rural residents than their cities, both the towns' inmigration rate of rural residents from other provinces (8.5/1000) and rural residents' outmigration rate to towns in other provinces (2.1/1000) are much smaller than those of cities (the corresponding values are 15.8/1000 and 5.5/1000, respectively). These comparisons show that it is **difficult** to direct the rural-to-urban upward migration away from cities to towns. This is also proven true in other developing countries (De Jong and Gardner, 1981).

4. With respect to the interprovincial lateral migrations, interprovincial **inter-city** migrations constitute the second largest share of all interprovincial migrations (17.8%), and the inter-city migrations are characterized by a substantial **eastward** tendency. It reflects (1) the increasing gap of urban development between the interior and the east, and (2) the relative ease of making permanent lateral migration between cities (Goldstein, 1991).

Table 7.5 Interprovincial outmigration of rural people to cities, towns or rural counties in other provinces in 1985-90 (1/1000): by province.

Province	Total outmigration of rural pop	Outmigration of rural pop to cities	Outmigration of rural pop to towns	Outmigration of rural pop to rural
I. EAST REGION:				
Beijing	3.1	2.0	0.5	0.6
Shanghai	3.6	1.4	0.3	1.9
Tianjin	7.1	4.7	1.2	1.1
Liaoning	8.6	5.0	1.6	1.9
Shandong	10.2	6.5	1.7	2.0
Jiangsu	8.6	5.5	1.2	1.9
Zhejiang	18.7	10.6	4.2	3.9
Fujian	8.1	4.4	2.3	1.4
Guangdong	2.5	1.0	0.8	0.7
II. CENTER REGION:				
Hebei	11.6	8.6	1.4	1.6
Henan	6.7	4.3	1.1	1.3
Shaanxi	9.2	3.9	2.0	3.3
Shanxi	7.0	4.0	1.1	1.8
Hubei	5.5	2.9	0.8	1.7
Hunan	9.4	5.0	2.5	2.0
Anhui	9.1	5.2	1.3	2.6
Jiangxi	6.5	3.3	1.6	1.6
III. REMOTE REGION:				
Guangxi	18.5	7.9	7.6	3.5
Sichuan	13.8	6.5	3.0	4.4
Guizhou	10.0	2.9	2.4	4.8
Yunnan	7.1	2.0	1.3	3.7
Hainan	10.1	4.8	4.4	2.0
Xinjiang	8.0	4.1	1.5	2.4
Qinghai	8.3	3.2	1.6	3.5
Ningxia	8.5	3.2	1.3	4.0
Gansu	10.7	4.1	2.2	4.5
Heilongjiang	21.4	9.1	5.3	7.0
Jilin	19.7	10.4	3.9	5.4
Neimeng	12.4	5.3	2.7	4.5
Minimum	2.5	1.0	0.3	0.6
Maxmum	21.4	10.6	7.6	7.0
Mean	9.8	4.9	2.2	2.8
Whole country	9.9	5.5	2.1	2.7

Note: see Table 3.1 for source of data.

7.4 Summary

The 1985-90 interprovincial population redistribution shows a significant **rural-to-urban** tendency. Further study on **downward, upward** and **lateral** interprovincial migration processes in the city-town-rural residence system suggests the following.

1. The government's encouragement of **downward** migration especially from cities (or towns) to rural counties has **little** effect.

2. Due to the increasing gap of socioeconomic development of cities between the interior and the east and the greater ease of permanent lateral migration between cities relative to the stringent control on permanent upward migrations, **inter-city** migration shows a substantial **eastward** tendency and constitutes the second largest migration flow of all the migration patterns (only next to that of the rural-to-city migration flow). In contrast, the very low **inter-town** migration level reflects that the level of development of towns is generally low, and that the socioeconomic connection among towns of different provinces is very weak.

3. While the government's control on the **permanent upward** migration (especially those to large cities in the eastern developed region) is still effective, the new policy permitting rural residents to stay in urban places for years made **temporary upward** migration from rural places to cities (especially those with the largest share of investment, namely, the three municipalities and Guangdong

in the eastern developed region and Hainan, Qinghai, Xinjiang and Ningxia in the remote region) the most important interprovincial migration stream.

4. It is **difficult** for the government to try to direct upward migration from cities to towns, because towns have much fewer economic opportunities and lower quality of life than cities.

Chapter 8

Application of the Concept of Neutral Migration Process to the Analysis of Interprovincial Migrations

The main research questions to be answered in this chapter are the following two. For an area with net loss of population, is the net outmigration mainly due to people's strong will to depart or its inability to attract a large share of migrants? In contrast, for an area with net gain of population, is the net inmigration mainly due to its people's strong will to stay or its power to attract many migrants? Answers to these questions may reveal the mechanisms regulating the migration processes and their population redistribution patterns and hence help policy makers design suitable stradegies both to direct population migration process and adjust population redistribution.

8.1 Definition and Method

At the microlevel, the migration process can be decomposed into two levels:

a **departure process** whereby a potential migrant decides to outmigrate or stay, and a **destination choice process** whereby a migrant chooses a specific destination. The former could be described by a departure probability, and the latter by a set of destination choice probabilities. At the macrolevel, these probabilities correspond to the outmigration rate and destination choice proportions, respectively. To provide answers to the above-mentioned questions, the concept of neutral migration process was introduced by Liaw (1991) on the basis of this two-level decomposition of the migration process.

8.1.1 The neutral migration process

For an observed initial population distribution and an observed interprovincial migration process of a system with R provinces, the **neutral** migration process is defined as a **theoretical** process satisfying the following three conditions: (1) the destination choice pattern of migrants from any province does not affect the relative population distribution among the remaining R-1 provinces; (2) the departure rate of any province is such that the initial population distribution between the origin province and the rest of the system is maintained; and (3) the overall migration level of the whole system is identical to that of the observed migration process.

To satisfy condition (1), the neutral destination choice proportion of out-migrants from any province i for any destination j in the system is specified as:

$$p[j|i] = k[j]/(K-k[i]), \quad \text{for } j \neq i, \qquad (1)$$

where K is the observed total population of the system, and k[i] and k[j] are the observed populations of provinces i and j. To satisfy condition (2), the neutral departure rate of any province i is specified as:

$$p[i] = c(K-k[i]), \qquad (2)$$

where c is a positive constant yet to be determined. It turns out that to satisfy condition (3), this constant has to be

$$c = m/\{\sum_{l=1}^{R} k[l](1-k[l]/K)\}, \qquad (3)$$

where m is the observed overall migration level(that is, the observed number of interprovincial migrants divided by the observed total population)(for details, see Liaw, 1991).

8.1.2 The method assessing the relative importance of the observed departure and destination choice process

The process to assess the relative importance of the observed departure process against the observed destination choice process is as follows. First, we compute the destination choice proportions and departure rates of the neutral migration process from the observed initial population distribution (P0) and the observed overall mobility level. Secondly, we combine the observed departure rates with the destination choice proportions of the neutral migration process and apply them to the observed initial population distribution to yield the first projected population distribution (P1). The difference (**D10**) between P1 and P0 is then interpreted as the redistribution potential of the observed departure process. Thirdly, we combine the departure rates of the neutral migration process with the observed destination choice proportions and again apply them to the observed initial population distribution to generate the second projected population distribution (P2). The redistribution potential of the observed destination choice process is then described by the difference (**D20**) between P2 and P0. Fourthly, we apply both observed departure rates and observed destination choice proportions to the observed initial population distribution to obtain the third projected population distribution (P3). The difference (**D30**) between P3 and P0 represents the joint effect of the observed departure and destination choice

processes. Finally, we compare D30 against D10 and D20 to complete the assessment (Liaw, 1991).

To measure the difference between any two population distributions, we use a vector representing the algebraic difference between them as well as the dissimilarity index.

8.2 Comparing the Effects of the Observed Departure and Destination Choice Processes on the Interprovincial Migration

Applying the procedure discussed above to the 1985-90 interprovincial migration processes of China, we obtain the **differences** between each of the three projected population distributions and the initial population distribution (Table 8.1) and the **deviation** of their observed migration processes from the neutral migration process (Table 8.2).

In terms of the **difference** between each of the three projected population distributions and the initial population distribution (Table 8.1), the difference P1-P0 indicates that the observed departure process is in favour of all eastern developed provinces (except for Beijing, Shanghai and Zhejiang), four central provinces (Shaanxi, Shanxi, Hubei and Jiangxi) and three remote provinces (Guizhou, Yunnan and Gansu) at the expense of five provinces with surplus rural

Table 8.1 The differences between projected population distributions and the 1985 initial population distribution: overall population.

Province	1985 distribution (%)	Projected differences (%)		
	P0	P1-P0	P2-P0	P3-P0
I. EAST REGION:				
Beijing	0.92	-0.002	0.055	0.053
Shanghai	1.16	-0.002	0.050	0.048
Tianjin	0.77	0.000	0.022	0.022
Liaoning	3.53	0.011	0.005	0.017
Shandong	7.36	0.026	-0.023	0.003
Jiangsu	5.94	0.004	0.019	0.023
Zhejiang	3.85	-0.021	-0.007	-0.029
Fujian	2.60	0.006	0.002	0.008
Guangdong	5.98	0.039	0.043	0.082
II. CENTER REGION:				
Hebei	5.31	-0.010	-0.011	-0.021
Henan	7.38	-0.009	-0.010	-0.020
Shaanxi	2.87	0.002	-0.005	-0.003
Shanxi	2.51	0.005	-0.002	0.003
Hubei	4.72	0.016	-0.008	0.009
Hunan	5.38	-0.007	-0.021	-0.028
Anhui	4.89	-0.002	-0.018	-0.020
Jiangxi	3.31	0.008	-0.011	-0.003
III. REMOTE REGION:				
Guangxi	3.70	-0.015	-0.018	-0.033
Sichuan	9.75	-0.031	-0.054	-0.085
Guizhou	2.84	0.003	-0.012	-0.009
Yunnan	3.26	0.008	-0.014	-0.005
Hainan	0.57	-0.005	0.024	0.019
Xinjiang	1.30	-0.013	0.025	0.012
Qinghai	0.39	-0.015	0.016	0.001
Ningxia	0.40	-0.001	0.013	0.012
Gansu	1.95	0.003	-0.009	-0.006
Heilongjiang	3.17	-0.025	0.012	-0.013
Jilin	2.20	-0.011	0.011	-0.009
Neimeng	1.91	-0.016	0.010	-0.004
Dissimilarity index		0.152	0.237	0.291

Note: see Table 3.1 for source of data.

Table 8.2 Deviation of the observed departure rate & destination choice propensity from those of neutral migration process: overall population.

ORIGIN	DEPRATE(%	DESTINATION(%)																											
		D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	D20	D21	D22	D23	D24	D25	D26	D27	D28	D29
EAST REGION:																														
1.BEIJING	0.2		4.0	4.6	-0.1	1.4	1.7	-1.2	-0.6	1.4	8.8	-0.3	1.1	0.2	-1.2	-2.5	0.3	-1.5	-2.7	-4.1	-2.0	-2.4	-0.2	-0.8	-0.1	-0.1	-0.7	-2.0	-0.8	-0.2
2.SHANGHAI	0.2	3.1		0.7	-2.4	-4.9	40.2	10.7	0.5	0.6	-4.6	-6.3	-2.0	-2.3	-3.0	-4.5	0.9	-1.7	-3.3	-7.7	-2.5	-2.4	-0.4	-0.7	-0.1	-0.1	-1.5	-2.9	-1.9	-1.6
3.TIANJIN	-0.1	16.7	2.9		-0.4	-4.0	-2.1	-2.2	-1.0	-2.9	35.5	-4.8	-1.2	-0.2	-3.1	-4.5	-3.2	-2.6	-3.3	-7.8	-2.7	-2.7	-0.4	-1.0	-0.2	-0.3	-1.5	-2.3	-1.0	0.2
4.LIAONING	-0.3	5.8	1.7	2.9		2.1	-1.8	-2.1	-1.7	-3.0	2.2	-3.3	-1.1	-1.5	-3.1	-3.9	-2.9	-2.6	-3.1	-5.9	-2.6	-3.0	-0.4	-1.1	-0.1	-0.1	-1.1	11.0	12.6	6.2
5.SHANDONG	-0.3	7.9	1.2	6.1	6.9		2.0	-2.8	-1.4	-5.3	-0.9	-0.6	-1.2	-0.1	-2.5	-5.3	-2.3	-3.0	-3.7	-9.2	-2.3	-2.9	-0.5	1.5	0.4	0.2	-0.6	11.6	6.7	-0.1
6.JIANGSU	-0.1	5.1	31.0	0.5	-1.0	-2.2		1.6	0.1	-3.0	-4.5	-5.0	-0.3	-1.6	-1.3	-5.0	4.8	-1.2	-3.5	-8.1	-2.3	-2.8	-0.3	2.2	0.7	0.2	-0.7	1.3	-1.0	-1.1
7.ZHEJIANG	0.5	1.9	14.2	0.2	-0.1	-4.3	3.6		4.7	0.2	-3.7	-4.3	-0.8	1.9	-1.4	-3.7	0.1	4.3	-2.7	-8.5	-1.3	-1.1	0.1	0.7	1.1	0.6	0.3	-0.8	-0.6	-0.2
8.FUJIAN	-0.2	2.6	3.4	0.5	-2.2	-2.5	2.0	5.4		15.7	-3.9	-5.4	-1.1	-0.5	-1.6	-2.5	-1.3	12.2	-2.4	-7.8	-2.0	-2.8	1.9	0.8	-0.3	-0.3	-1.6	-2.2	-1.0	-1.7
9.GUANGDON	-0.6	1.7	2.2	0.7	-2.8	-6.0	-2.4	-1.9	3.6		-4.7	1.9	-1.4	-2.4	-0.8	4.2	-3.9	1.4	8.9	-6.5	-1.4	-0.7	20.5	-1.1	-0.3	-0.4	-1.7	-3.2	-1.5	-1.9
CENTRAL REGION:																														
10.HEBEI	0.2	32.8	1.6	15.1	0.3	-3.2	-4.2	-3.4	-2.3	-4.5		-3.4	-0.8	5.0	-3.4	-4.9	-3.6	-3.0	-3.5	-7.8	-2.8	-3.1	0.5	1.7	1.1	0.8	-1.4	-1.1	-1.0	4.1
11.HENAN	0.3	8.4	0.5	1.3	-1.0	-3.5	-0.4	-2.9	-2.2	-0.9	-1.4		4.0	4.7	8.1	-4.6	-0.7	-2.7	-3.4	-6.7	-2.5	-2.7	0.2	8.1	1.8	1.2	1.2	-1.3	-1.3	-1.1
12.SHAANXI	-0.1	4.1	1.9	0.8	-1.5	-0.8	0.2	-2.1	-1.8	-3.0	0.4	4.3		1.0	1.2	-4.4	-1.9	-3.0	-3.2	-3.1	-2.5	-2.8	-0.5	5.0	3.8	4.1	6.5	-2.9	-1.5	1.6
13.SHANXI	-0.2	10.3	5.7	4.5	-2.0	2.9	-2.4	-1.2	-1.3	-4.3	7.3	3.8	4.5		-3.1	-4.4	-2.3	-2.7	-3.4	-5.0	-2.7	-3.1	-0.6	-0.7	0.1	0.2	-0.6	-2.6	-0.8	4.1
14.HUBEI	-0.3	4.9	2.2	1.5	-0.8	-5.3	2.7	-1.1	-0.7	6.7	-2.9	4.1	0.1	-1.8		5.0	-0.1	0.9	-2.2	-3.0	-2.0	-2.5	0.2	0.4	-0.2	-0.3	-1.5	-1.4	-1.4	-1.7
15.HUNAN	0.3	1.0	0.1	0.4	-2.7	-6.8	-2.3	-1.3	-0.9	35.0	-4.2	-6.1	-2.1	1.1	2.4		-3.3	1.6	4.3	-7.5	1.3	0.5	1.8	0.7	0.1	0.3	-1.5	-3.1	-1.8	-1.9
16.ANHUI	0.2	4.3	21.8	0.5	-1.8	-5.4	21.9	1.9	-1.6	-4.5	-4.3	-1.8	-1.2	0.9	-0.9	-4.4		0.7	-3.6	-8.9	-2.5	-3.1	0.3	0.6	0.1	0.1	-1.5	-0.7	-1.6	-1.6
17.JIANGXI	-0.3	0.9	7.1	0.5	-2.4	-6.1	3.6	9.8	13.0	14.6	-5.0	-6.4	-1.9	-2.2	-0.1	-0.5	0.1		-1.7	-8.6	-2.1	-2.9	0.1	-1.1	-0.3	-0.4	-1.6	-2.9	-1.5	-1.7
REMOTE REGION:																														
18.GUANGXI	0.4	-0.1	-0.6	-0.1	-3.4	-6.6	-4.0	-1.9	0.8	60.5	-1.4	-6.9	-2.8	0.1	-3.8	-2.5	-4.6	-2.6		-7.9	-1.8	-2.3	5.0	0.2	0.1	0.2	-1.9	-3.2	-1.9	-2.0
19.SICHUAN	0.5	2.6	1.0	0.1	-1.9	-4.5	0.9	-2.3	2.1	2.7	-0.4	-4.3	-0.1	0.4	2.0	-3.1	-2.4	-2.7	-3.5		5.2	6.0	0.7	7.4	1.3	0.9	-0.9	-2.3	-1.8	-1.1
20.GUIZHOU	-0.1	-0.2	0.8	-0.3	-2.7	-2.6	9.1	2.4	4.8	2.7	-1.0	-3.9	-2.4	-1.4	-3.5	1.7	-0.7	-2.0	0.4	4.3		5.4	-0.4	-1.2	-0.4	-0.4	-2.0	-3.1	-1.6	-1.9
21.YUNNAN	-0.3	-0.1	0.5	-0.1	-3.3	2.1	6.2	0.5	-1.3	-0.4	-1.6	-2.5	-1.8	-2.0	-3.2	-1.9	2.4	-2.8	-1.6	18.0	3.4		-0.4	-1.2	-0.4	-0.4	-1.8	-3.2	-1.3	-1.9
22.HAINAN	0.8	-0.3	0.1	-0.3	-3.1	-6.4	-2.9	-3.0	-1.2	69.6	-5.0	-6.1	-2.7	-2.5	-4.1	-1.0	3.8	-2.9	0.3	-8.4	-2.7	-2.5		-1.3	-0.3	-0.4	-1.9	-3.1	-2.2	-1.9
23.XINJIANG	0.9	1.3	7.5	1.6	-2.6	0.9	7.0	-1.4	-2.0	-4.6	-1.5	5.0	6.2	-1.7	-0.4	-3.0	-1.6	-3.0	-3.0	2.6	-2.7	-3.1	-0.4		0.5	0.3	4.0	-3.1	-1.2	-1.5
24.QINGHAI	1.3	1.4	3.1	0.8	-1.8	1.4	4.3	-0.4	-2.1	-4.3	-0.4	3.4	7.0	-1.8	-2.2	-4.0	-1.8	-2.9	-2.4	0.5	-2.5	-3.0	-0.5	3.4		0.5	9.9	-3.0	-1.0	-1.5
25.NINGXIA	0.3	2.5	1.1	1.9	-1.1	-3.6	-1.4	-0.4	-2.3	-4.8	-2.4	1.3	13.4	-2.0	-3.1	-5.1	-3.5	-3.1	-3.2	-4.6	-2.7	-3.3	-0.5	12.9	1.3		10.4	-3.0	1.0	4.2
26.GANSU	-0.1	1.5	1.8	1.0	-1.8	-0.9	1.4	-2.0	-2.3	-4.7	-2.0	-0.5	10.5	-1.3	-3.4	-4.8	-3.4	-3.0	-3.2	-4.8	-2.8	-3.1	-0.4	15.4	6.8	6.2		-2.7	-0.7	3.3
27.HNJIANG	0.7	2.3	0.5	2.7	21.1	14.9	-2.2	-2.4	-2.4	-5.2	2.0	-4.4	-2.3	-2.2	-3.9	-4.9	-4.0	-3.1	-3.5	-8.4	-2.7	-3.2	-0.5	-1.2	-0.3	-0.3	-1.7		8.3	6.8
28.JILIN	0.4	3.0	0.1	1.3	20.3	11.4	-3.1	-3.2	-2.3	-4.5	-0.4	-5.4	-2.2	-2.2	-3.9	-5.0	-4.1	-2.8	-3.3	-8.1	-2.7	-3.0	-0.5	-1.1	-0.3	-0.3	-1.5	19.3		4.4
29.NEIMENG	0.3	4.9	-0.2	3.8	15.5	9.0	-3.6	-2.9	-2.1	-5.2	-0.2	-5.2	-0.7	10.0	-3.8	-4.2	-4.2	-3.2	-3.4	-7.7	-2.7	-3.3	-0.5	-1.0	-0.3	1.2	-1.2	8.1	4.8	

Note: 1) the numbers for destination are correspondable to those of origin; 2) see Table 3.1 for sources of the data.

labourers in the eastern and central regions (i.e., Zhejiang in the eastern developed region and Hebei, Henan, Hunan and Anhui in the central region), the whole remote region (except for Guizhou, Yunnan and Gansu) and two largest municipalities (Beijing and Shanghai). With the largest proportion of state job owners and the most highly educated persons in Beijing and Shanghai, the high observed departure level in these two municipalities might be because (1) residents in these two municipalities are exposed to the most migration opportunities and (2) outmigration from these two municipalities through job transfer/assignment and education is just what the government urges. From the difference P2-P0 we see that the observed destination choice process is in favour of the whole eastern developed region (only except for Zhejiang and Shandong) and seven out of twelve remote provinces (i.e., Hainan, Xingjiang, Qinghai, Ningxia and the three provinces in the northeast) at the expense of the remaining provinces. Finally, the difference P3-P0 reflects the joint effect of the observed departure and destination choice processes on the interprovincial population redistribution. While it shows a strong eastward tendency, four out of twelve remote provinces (i.e., Hainan, Xingjiang, Qinghai and Ningxia) also have net gains. In contrast, among the fifteen provinces with net loss, seven of them characterized by surplus rural labourers (i.e., Zhejiang, Hebei, Henan, Hunan, Anhui, Guangxi and Sichuan) show much higher net loss than the remaining eight provinces.

Comparison of the dissimilarity indices in Table 8.1 indicates that the redistribution potential of the observed migration process depends more strongly on the observed destination choice process than on the observed departure process.

In terms of the **deviation** of the observed migration process from neutral migration process (Table 8.2), we find the following features.

1. For the three provinces with the greatest increases in population shares (Guangdong, Beijing and Shanghai), the departure and destination choices play different roles. For Guangdong, the large net gain is due to both its very strong power to retain its own residents and its strong attractiveness to the outmigrants from the southern provinces. For Beijing and Shanghai, the large net gains result completely from their extremely strong power to attract the outmigrants from many other provinces, because their residents do have relatively strong propensities to outmigrate. The implication is that while the most economic opportunities and highest living standard in these two largest municipalities attract many inmigrants, the two municipalities are also under the most stringent government's control by urging their residents to outmigrate.

2. For the four remote provinces with net gains in population share (Hainan, Xingjiang, Qinghai and Ningxia), their deviations of the observed departure rate from the corresponding neutral level show the highest values of all the provinces, reflecting their residents' strongest will to be uprooted due to their remote

location and low living standard. Their population gains are due to their significant attractiveness to the outmigrants from provinces containing a large number of surplus rural labourers (such as Hebei, Henan, Anhui, Hunan, Zhejiang, Shandong, Jiangsu, Sichuan and Guangxi).

3. Among the fifteen provinces with net loss of population, those with large surplus of rural labourers (i.e., Zhejiang, Hebei, Henan, Hunan, Anhui, Sichuan and Guangxi) not only fail to get their 'fair' share of migrants from most other provinces but also are quite incapable of retaining their own residents. The destination of the migrants from these seven provinces is toward not only most eastern developed provinces but also the four remote provinces and one central province (Shanxi). The percentage shares of the outmigrants from these losing provinces by the manual work & commerce reason are very high (48% in Sichuan, 50% in Guangxi, 45% in Hunan, 42% in Anhui, 39% in Henan, 33% in Hebei and 67% in Zhejiang). In contrast, the net loss of population in the five provinces characterized by low quality of life, especially in the rural areas (i.e., Guizhou, Yunnan, Gansu, Shaanxi and Jiangxi), is only due to their failure to get the 'fair' share of migrants from most other provinces and hence their net loss of population is much lower than that in the former seven provinces. The destinations of the outmigrants from these five provinces are largely concentrated in the eastern developed region. For four of these five provinces, the percentage shares of their outmigrants by the family-related reasons (i.e., joining relatives,

family moving and marriage) are much higher than the shares by manual work & commerce (61% against 13% in Guizhou, 63% against 3% in Yunnan, 38% against 19% in Gansu, and 41% against 14% in Shaanxi). The results suggest that compared with poor **living conditions** (especially in the rural areas), the shortage of **employment opportunity** is the more important **departure reason** for people in a province.

4. As for the remaining net losers (i.e., Heilongjiang, Jilin and Neimeng in the northeast), Table 8.2 shows that the departure rate of their population has a large positive deviation from the corresponding neutral levels. Meanwhile, the observed destination choice pattern indicates that two eastern developed provinces Shandong and Liaoning constitute the most attractive destinations for the outmigrants from these three remote provinces. Given that (1) among the population in the three provinces there is a high proportion of previous inmigrants from Shandong and Liaoning (He, 1992) and (2) the family-related outmigration is much higher than employment-related outmigration (the values are 60% against 6% in Heilongjiang, 54% against 10% in Jilin and 57% against 13% in Neimeng), the high departure rates of these three remote provinces could be interpreted as the increased tendency to make **return** migration due to the increasing gap of socioeconomic development between them and the two eastern developed provinces.

8.3 Conclusions and Policy Implications

Based on the above analyses, some conclusions could be stated as follows.

1. For the seven provinces which contain a large number of surplus labourers and also constitute the largest net losers (i.e., Zhejiang, Hebei, Henan, Hunan, Anhui, Guangxi and Sichuan), their departure rates are higher than the corresponding neutral levels. Since the seven provinces also tend to attract less than their 'fair' share of migrants from most other provinces, it could be expected that the **employment pressure** in these provinces will be **alleviated** gradually.

2. For most eastern developed provinces, they not only get more than their 'fair' shares of outmigrants from other provinces but also have departure rates that are lower than the corresponding neutral levels. As for Beijing and Shanghai, although their departure rates are higher than the corresponding neutral level, their strongest attractiveness to the outmigrants from other provinces makes them the second and third largest net gainers, respectively (only next to Guangdong). In other word, as long as the gap of economic growth between these developed provinces and others remains and the temporary migration policy issued in 1984 is still effective, the strong **eastward** tendency of population in China would be **inevitable.**

3. Due to its remote location and low living standards, the whole remote region (except for Guizhou, Yunnan and Gansu) shows departure rates thta are higher

than the corresponding neutral levels (especially Qinghai, Xingjiang, Hainan and Heilongjiang), reflecting its residents' strong propensities to outmigrate. However, for the Chinese policy-makers who are facing the tension of transferring the great surplus rural labour force to nonagricultural economic sectors on the one hand and controlling 'over-urbanization' in the eastern developed region on the other, it might be **encouraging** that seven out of twelve remote provinces (particularly Xingjiang and Hainan) constitute another important destination for the outmigrants (especially for manual work & commerce outmigrants) from provinces with surplus labourers.

Chapter 9

Conclusions

Compared with the interprovincial migration patterns of the 1960s and 1970s, which are identified as substantial **downward** movement from urban to rural areas and **westward** tendency from densely-populated/developed eastern provinces to sparsely-populated/less developed western border provinces, interprovincial migrations of China in 1985-90 are characterized by much stronger **urban-ward** movement and **eastward** tendency. This change implies that, with the relaxation of the government's intervention and the shifts of economic activities from the interior to the east and from rural to urban areas, interprovincial migrations are becoming more important as a response to the substantial socioeconomic inequalities among the provinces and between the rural and urban areas.

Comparison of the interprovincial migrations between males and females suggests the following. First, for both groups, their interprovincial **inmigration** patterns are mainly determined by the socioeconomic development in destination provinces and are therefore quite similar. However, females are more inclined to provinces with better living condition, whereas males are more oriented toward

provinces with better economic prospects. Second, being better equipped than females in respect of education, training and access to work, males in China have greater propensities to make interprovincial migrations than females, and their outmigration propensities depend more on personal attributes and socioeconomic prospects in the destination than on original socioeconomic, especially living, conditions. Correspondingly, the interprovincial **outmigration** patterns of the two groups show interesting contrasts: for females, the lowest outmigration rates are all located in the eastern developed region, but the highest outmigration rates are all observed in the remote region, because the former has the highest quality of life and the latter has the poorest living conditions of the three regions; for males, in each region, we can find both high and low outmigration rates since for males with different personal factors (such as high/low education, high/low income, employee of state enterprise/temporary labourer, or urban resident/rural resident), the same local conditions may mean different opportunities/constraints to their outmigration. Third, for males, because their interprovincial net migration rates are mainly determined by inmigration rates and by employment opportunities, their redistribution pattern shows not only a strong **eastward** but also a substantial **westward** tendency; for females, because their interprovincial net migration rates depend moderately on outmigration rates and on living conditions, their interprovincial redistribution pattern displays an unidirectional **eastward** tendency.

With respect to reason-specific interprovincial migrations, we found that the choices of different migration reasons and their corresponding migration patterns substantially depend on the **personal attributes** (such as gender and urban/rural residency) and the broader **structural forces** (such as the socioeconomic development, migration policies and cultural norm) that constrain the options available to individuals. While **urban residents** tend to choose reasons that usually induce **permanent** migration in order to keep the benefits associated with urban residency, due to the policy of control on rural residents' permanent inmigration to urban places (especially to cities), **rural residents** are largely restricted to take those corresponding to **temporary** migration (such as manual work & commerce or joining relatives) to stay in urban places for years. While **employment-related** reasons are the main choices of **male** migrants, **females'** migration is usually initiated with **family-related** reasons, especially the marriage reason for rural females. While town residents, especially town females, tend to choose **family moving** as a good reason to change their registration residence to cities where one or more of their family member(s) has (have) made a **job transfer**, the migration for **joining relatives** is usually induced by rural, especially rural male, migrants for **manual work & commerce**, who later provide money to help the migrants at the point of departure or host migrant relatives in the area of destination.

Correspondingly, there exist differentials in the factors influencing the

interprovincial migrations of the three groups of migrants (i.e., manual work & commerce migrants, job transfer migrants and marriage migrants) and therefore in their corresponding interprovincial migration patterns. First, for marriage and particularly job transfer migrants, migration is substantially oriented toward better living conditions, which are associated with Han-dominant provinces, higher urbanization and better health conditions, and thus their interprovincial migrations show a strong **eastward** tendency. However, since job transfer migrants are subject to the strongest government's control in all the migration reasons, their eastward tendency has been substantially weakened. Second, for manual work & commerce migrants, while the shortage of farm land and fewer job opportunities in urban informal labour markets constitute the two most important origin push factors, the availability of employment opportunities in urban informal labour markets in destinations constitutes the strongest pull factor. Thus, their interprovincial migration process is characterized as from provinces with both low investment and shortage of farm land to those with rich employment opportunity in urban informal labour markets and therefore shows both significant **eastward** and **westward** tendencies.

As for interprovincial migrations within the urban/rural settlement system, the 1985-90 interprovincial population redistribution shows a significant **rural-to-urban** tendency. Further study on **downward**, **upward** and **lateral** interprovincial migrations in the system suggests the following. First, the government's

encouragement of **downward** migration especially from cities (or towns) to rural counties has **little** effect, because there exists a great gap of socioeconomic development between urban and rural areas in China. Second, due to (1) the increasing gap of socioeconomic development of cities between the interior and the east and (2) the greater ease of permanent lateral migration between cities relative to the stringent control on permanent upward migrations, **inter-city** migration shows a substantial **eastward** tendency and constitutes the second largest migration flow of all the migration patterns. In contrast, the very low **inter-town** migration level reflects that (1) the level of development of towns is generally low and (2) the socioeconomic connection among towns of different provinces is very weak. Third, while the government's control on the **permanent upward** migration (especially those to large cities in the eastern developed region) is still effective, the temporary migration policy issued in 1984 help make **temporary upward** migration from rural places to cities the largest interprovincial migration stream. Finally, it is **difficult** for the government to try to direct upward migration from cities to towns, because towns have much fewer economic opportunities and lower quality of life than cities.

Better insights into the mechanisms regulating the interprovincial migrations of China in 1985-90 and their population redistributions have been achieved by using the concept of neutral migration process. The findings are summarized as the following. First, for the seven provinces which contain a large number of

surplus labourers and also constitute the largest net losers (i.e., Zhejiang, Hebei, Henan, Hunan, Anhui, Guangxi and Sichuan), not only their departure rates are higher than the corresponding neutral levels, but also they get less than their 'fair' shares of migrants from most other provinces. As long as these high departure rates continue, it could be expected that the **employment pressure** in these provinces will be **alleviated** gradually. Second, for most eastern developed provinces, not only they get more than their 'fair' shares of outmigrants from other provinces, but also their departure rates are lower than the corresponding neutral levels. As long as the gap of economic growth between these developed provinces and others remains and the temporary migration policy issued in 1984 is still effective, the strong **eastward** tendency of population in China would be **inevitable**. Third, due to its remote location and low living standards, nine out of twelve remote provinces show higher departure rates than the corresponding neutral levels, reflecting their residents' strong will to depart. However, for the Chinese policy-makers who are facing the tension of transferring the great surplus rural labour force to nonagricultural economic sectors on the one hand, and controlling 'over-urbanization' in the eastern developed region on the other, it might be a **welcoming** sign that seven out of twelve remote provinces (particularly Xingjiang and Hainan) attract more than their fair share of outmigrants (especially manual work & commerce outmigrants) from provinces with surplus labourers. Finally, we found that the redistribution potential of the

interprovincial migration process depends more on the destination choice process than on the departure process.

Overall, interprovincial migrations in China have undergone fundamental changes. First, temporary interprovincial migration from rural to urban areas (particularly to cities) for manual work & commerce has become the most important mechanism of population exchange. Second, inter-city interprovincial migration constitutes the second largest interprovincial migration flow and shows a substantial eastward trend. In other words, the two main trends of government's sponsored migrations in the 1960s and 1970s (westward to less developed interior and downward to less urbanized areas) have been totally reversed. The introductions of market system since the later 1970s and temporary migration policy in 1984 as well as the increasing socioeconomic inequalities between the west and the east and between rural and urban areas are responsible to theses fundamental changes.

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Appendix

In this thesis, we use a five-year migration period from July 1, 1985 to June 30, 1990. The overall interprovincial inmigration rate, outmigration rate, net migration rate, gross migration rate and migration efficiency, *inr(i), outr(i), netr(i), gror(i)* and *eff(i)* are computed as follows:

$$inr(i) = (IN(i)/P(i))*1000 \qquad (i = 1, 2,...29)$$

$$outr(i) = (OUT(i)/P(i))*1000 \qquad (i = 1, 2,...29)$$

$$netr(i) = inr(i)-outr(i) \qquad (i = 1, 2,...29)$$

$$gro(i) = inr(i)+outr(i) \qquad (i = 1, 2,...29)$$

$$eff(i) = [(inr(i)-out(i))/gro(i)]*100\% \qquad (i = 1, 2,...29)$$

where IN(i) is the number of inmigrants into province i between July 1 of 1985 and June 30 of 1990, OUT(*i*) is the number of outmigrants from province *i*

between July 1 of 1985 and June 30 of 1990, and P(*i*) is the population size of province *i* in 1985.

The sex-specific interprovincial inmigration rate, outmigration rate, net migration rate, gross migration rate and migration efficiency, *inr(s,i)*, *outr(s,i)*, *netr(s,i)*, *gror(s,i)* and *eff(s,i)* are computed as follows:

$$inr(s,i) = (IN(s,i)/P(s,i))*1000 \qquad (i = 1, 2,...29)$$

$$outr(s,i) = (OUT(s,i)/P(s,i))*1000 \qquad (i = 1, 2,...29)$$

$$netr(s,i) = inr(s,i)-outr(s,i) \qquad (i = 1, 2,...29)$$

$$gro(s,i) = inr(s,i)+outr(s,i) \qquad (i = 1, 2,...29)$$

$$eff(s,i) = [(inr(s,i)-out(s,i))/gro(s,i)]*100\% \qquad (i = 1, 2,...29)$$

where s stands for sex (1 = male, 2 = female).

The reason-specific interprovincial inmigration rate, outmigration rate, net migration rate, gross migration rate and migration efficiency, *inr(r,i)*, *outr(r,i)*, *netr(r,i)*, *gror(r,i)* and *eff(r,i)* are computed as follows:

$$inr(r,i) = (IN(r,i)/P(i))*1000 \qquad (i = 1, 2,...29)$$

$$outr(r,i) = (OUT(r,i)/P(i))*1000 \qquad (i = 1, 2,...29)$$

$$netr(r,i) = inr(r,i)-outr(r,i) \qquad (i = 1, 2,...29)$$

$$gro(r,i) = inr(r,i)+outr(r,i) \qquad (i = 1, 2,...29)$$

$$eff(r,i) = [(inr(r,i)-out(r,i))/gro(r,i)]*100\% \qquad (i = 1, 2,...29)$$

where *r* stands for migration reason (1 = manual work & commerce, 2 = job transfer, 3 = marriage).

In the city-town-rural county system, interprovincial inmigration rate, outmigration rate, net migration rate, gross migration rate and migration efficiency, *inr(d,i), outr(o,i), netr(d,i) (or netr(o,i)), gror(d,i) (or gror(o,i))* and *eff(d,i) (or eff(i,o))* are computed as follows:

$$inr(d,i) = (IN(o,d,i))/P(d,i))*1000 \qquad (i = 1, 2,...29)$$

$$outr(o,i) = (OUT(o,d,i))/P(o,i))*1000 \qquad (i = 1, 2,...29)$$

$$netr(o,i) = inr(d,i) - outr(o,i) \qquad (i = 1, 2,...29)$$

$$gror(o,i) = inr(d,i) + outr(o,i) \qquad (i = 1, 2,...29)$$

$$eff(o,i) = [(inr(d,i) - out(o,i))/gro(o,i)]*100\% \qquad (i = 1, 2,...29)$$

where o is the permanent residence type before migration (1 = city, 2 = town, 3 = rural county); d is the residence type of destination (1 = city, 2 = town, 3 = rural county).

The unit of the migration rates are **per thousand in five years** and the unit of migration efficiency is **percent in five years.**