INTERNAL MIGRATION IN CHINA

By

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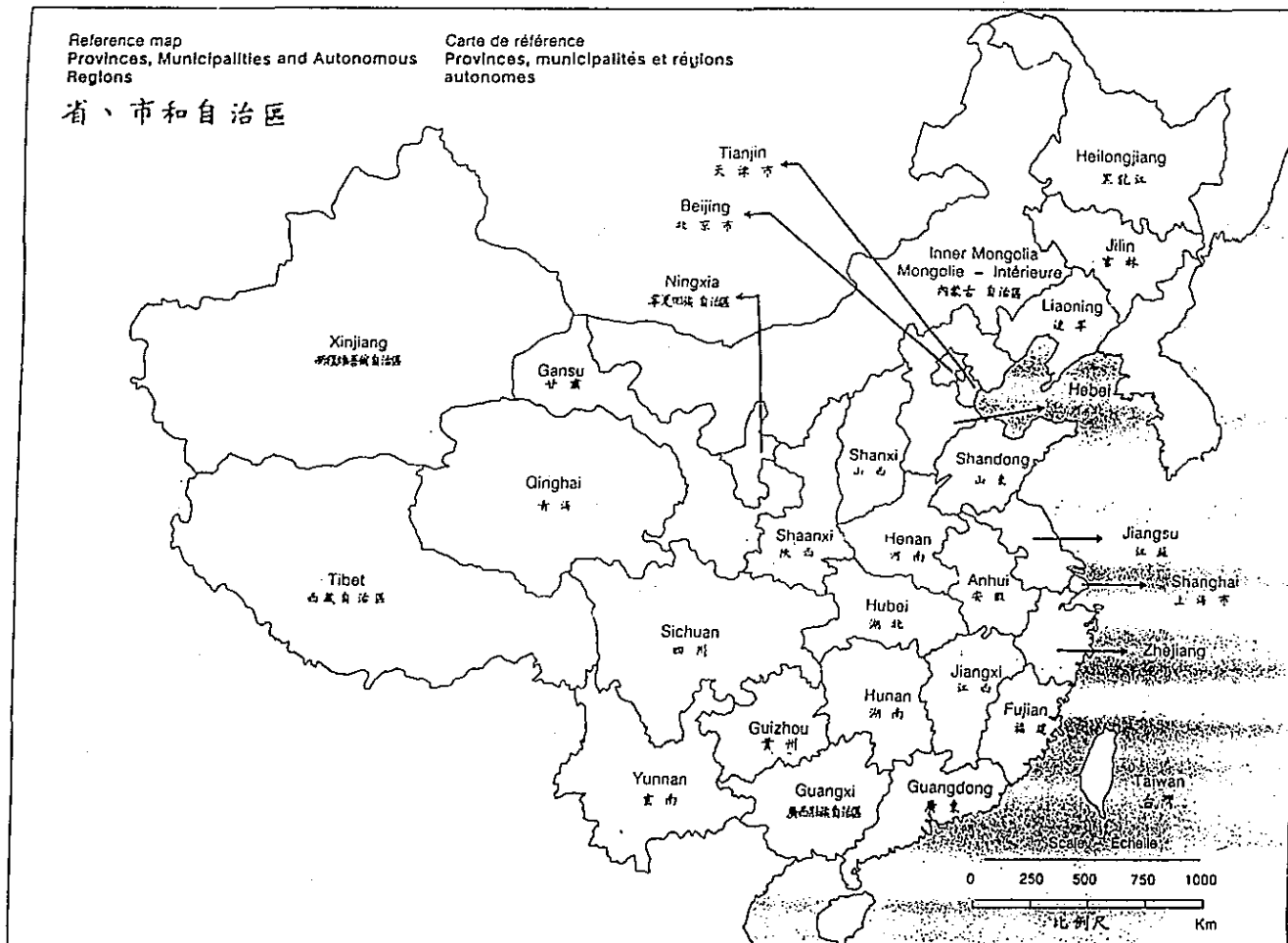(Geography)   Hamilton, Ontario

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Reference map
Provinces, Municipalities and Autonomous Regions

Carte de référence
Provinces, municipalités et régions autonomes

省、市和自治区

Tianjin
天津市

Heilongjiang
黑龙江

Beijing
北京市

Jilin
吉林

Inner Mongolia
Mongolie – Intérieure
内蒙古 自治区

Ningxia
宁夏回族 自治区

Liaoning
辽宁

Xinjiang
新疆维吾尔自治区

Gansu
甘肃

Hebei

Shanxi
山西

Shandong
山东

Qinghai
青海

Shaanxi
陕西

Henan
河南

Jiangsu
江苏

Tibet
西藏自治区

Anhui
安徽

Shanghai
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湖北

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四川

Zhejiang

Jiangxi
江西

Hunan
湖南

Fujian
福建

Guizhou
贵州

Yunnan
云南

Guangxi
广西壮族自治区

Guangdong
广东

Taiwan
台湾

Scale / Échelle

0   250   500   750   1000

比例尺   Km

Source: "Population Profile of China", by Janet Che_Alford. Toronto: Thompson Educational Publishing, Inc. 1990.

Abstract

Using the micro data of China's 1987 National Population Survey, this thesis is one of the first comprehensive studies of internal migration in China. Migration is still under government control in China, despite its growing importance in the nation's development. An understanding of China's migration process and its relationship with development is strongly needed.

The thesis has four main parts, integrated in such a way that the migration process in China can be viewed from various important aspects. The first part is the characterization and interpretation of the migrations in the three strata (city, town and rural county) of China's urban/rural settlement system. Migration in China has several distinct characteristics, including very low migration level, large sex differential, unusual age patterns, and very high migration efficiency.

The second part is the explanation of the migration behaviors of Chinese young adults aged 17-29 by personal factors and ecological variables. A multivariate framework (nested logit model) has been extended so that the highly selective migration behaviors can be explained in a broad context of urbanization and interregional population redistribution. The major finding is that despite government migration control, the migration behaviors of

Chinese young adults in the mid-1980s were clearly responsive to market forces in a sensible way.

The third part focuses on the education selectivity in the migrations of the Chinese young adults and its effects. The better educated Chinese young adults were more prone to migrate and this selectivity has decreased the quality of the human capital of rural areas, but has not improved the human capital of cities.

The last part turns to the problem of spousal residence separations in China. The surprisingly high incidence of such separation among the married Chinese young adults was a result of the government migration control and other factors.

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Chapter 1

Introduction

1.1. Background

Economic reform has brought rapid economic growth to China since the late 1970s. Whether the growth can be sustained into the future will depend mainly on the development of a market system. In 1992, China officially announced that the ultimate goal of its economic reform is to establish such a system. Because of its critical role in developing an efficient labor market, migration becomes increasingly important in China.

However, China has to face the typical problems of the developing countries such as large income disparities, severe unemployment and underemployment, and overburdened urban infrastructure. Migration is usually considered by the planners as a main source of these problems. For example, a potential massive rural-urban migration in response to the large urban/rural income differentials may put heavy pressure on urban employment and infrastructure. And urban/rural disparities can be further enlarged because of the migrations of the better educated from rural areas.

How China dealt with these problems in the 1960s and early 1970s under Mao's regime may not be even imagined by the other countries. In

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addition to suppressing rural-urban migrations, the government sent millions

of school graduates from city to countryside to ease the severe urban

unemployment problem, and dispatched millions of skilled workers and

technicians from the more developed coastal region to the interior land to

achieve a balanced regional growth for strategic reasons. The problems,

however, deteriorated and the economy nearly collapsed in the middle of the

1970s.

Migration is now still under government control, although the control

has been relaxed to some extent, and government has stopped sponsoring

massive migrations since 1978. It might be true that a moderate control

would be helpful for maintaining a stable environment for economic

development. However, as development proceeds, migration becomes

increasingly important and the conflict between the control and the

development would increase.

There have been few comprehensive studies of internal migrations in

China. The understanding of the migration process in the country is quite

limited. Thus, policy evaluation and evolution become extremely difficult in

this respect. On the one hand, short-term side effects of migrations could be

overstated, whereas many long-run positive effects of migrations are not

recognized. For example, because of the one-child policy, the aging process

in the urban areas of China would be even faster than what has happened in

Japan. However, such a process can be slowed down by rural-urban migrations because a majority of such migrations are made by the young adults. In addition, the remittances sent by the young migrants from urban areas can be an important source of rural prosperity. On the other hand, the negative effects of the migration control (e.g. human costs) can be overlooked. A good example of this is the high incidence of spousal residence separation, which has been a social problem for decades but has never been seriously considered as a problem rooted in the government migration control.

1.2. Four Main Themes of the Dissertation

As one of the first comprehensive studies on internal migrations in China, this dissertation aims at achieving a better understanding of the migration process in China and providing solid findings to the practitioners for future planning. It has four main themes, presented in four chapters from 3 to 6, respectively. The four chapters are designed in such a way that each of them is self-contained. However, they are integrated to show various important aspects of the migration process of China.

Preceding to the four main chapters is a review of theories and studies on migration in developing countries in general, and recent studies on internal migrations in China in particular (Chapter 2). The development of the four

main themes benefits considerably from such theories and studies.

The first theme, presented in Chapter 3, is one of characterization. Although two-sector rural/urban analysis is usually adopted in both theory formulation and empirical studies on migrations in developing countries, a **three-stratum framework** consisting of city, town and rural county is more suitable for a better understanding of varied levels of development at different strata, migration policy formulation, and various forms of migrations among the settlement hierarchy. In this chapter, migrations in China's three-stratum urban/rural settlement system are characterized and interpreted, with the emphasis on sex differentials and age patterns.

The second theme, presented in Chapter 4, is the explanation of inter-stratum and interprovincial migrations by Chinese young adults aged between 17 and 29. In many developing countries, including China, **the migration process involves both urbanization and regional population redistribution.** In this chapter, a multivariate framework (nested logit model) is extended to incorporate the two dimensions of the migration process and then applied to explain the highly selective migration behaviors of Chinese young adults.

The third theme, presented in Chapter 5, is on the education selectivity in the migrations of Chinese young adults. The effect of migration is usually assessed by its **quantitative** aspect through net migration volumes and/or net migration rates. Because of the education selectivity in migration, its

qualitative aspect--the redistribution of human capital--is also highly important. The quantitative aspect of the effects of migration in the urban/rural settlement system has been evaluated in Chapter 3. The micro data of NPS87 enable us to further investigate the qualitative aspect: the redistribution of human capital among the three strata of the settlement system, and among three types of regions: metropolitan (Beijing, Tianjin and Shanghai), coastal and interior.

The last theme presented in Chapter 6 is on the effect of migration control on the spousal coresidency of Chinese young couples. Policy makers in China tend to overemphasize the importance of migration control in avoiding the aggravation of urban problems, while ignoring the serious consequences of the control on people's family life. The study on the high incidence of spousal residence separation in China helps to reveal that enormous human costs have been incurred by the migration control.

Finally, a brief conclusion in Chapter 7 summarizes the main findings.

Chapter 2

A Review of Theories on Migrations in Developing Countries

and Previous Studies on Migration in China

One of the most significant demographic phenomena in the last four decades is the rapid urban growth in developing countries. A main source of the growth is rural-urban migration (Todaro, 1985). However, many of these countries are now facing not only the structural changes in the rapid urbanization but also the accompanying urban problems such as unemployment, overburdened infrastructure, pollution and congestion. As development has become the major concern in many developing countries (including China), people have started to ask the question: what is the role of migration in the development of the Third World? One view is that migration is well integrated into the development process because it can make the labor markets in the Third World more efficient. Another view is quite opposite: the current accelerating rural-urban migration is both a symptom of and a contributor to the underdevelopment. To start the research on the internal migration in China, a review of theories and studies on developing countries in general, and China in particular, is useful.

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2.1. Theories of Migration in Developing Countries

A simple economic theory of migration is based on wage differentials (Hicks, 1932). Migrants move from low-wage areas to high-wage areas and this process serves as an equilibrating mechanism. Because of migration, the reduction of labor supply would drive wages upward in low-wage areas, while the increase of labor supply would depress wages downward in high-wage areas. Migrations continue until wage rates are equal in the two areas.

Consistent with wage differential theory is the Lewis two-sector growth model (Lewis, 1954), in which migration plays a central role in structural transformation. In the Lewis model, the underdeveloped economy consists of two sectors: (1) a traditional, overpopulated rural subsistence sector characterized by zero marginal labor productivity, and (2) a modern, highly productive urban sector. An industrial expansion in the urban sector would draw the labor surplus from rural areas. The profit derived from the imported cheap labor would be reinvested to further expand the urban industrial base, which again draws more labor surplus from the rural sector. Such a process terminates when the rural labor surplus is exhausted. The society would then be transformed from traditional to modern. Thus, migration itself is a natural process of the transformation. The Lewis theory is roughly in conformity with the historical experience of the economic growth in the West.

The complexity of the urbanization process in developing countries, however, is sometimes beyond the reach of the two conventional models. In most developing countries, the full wage flexibility assumed in the neoclassical models is politically infeasible. Wage gaps persist (sometimes are widening) between urban and rural areas and paradoxically, rural-urban migrations have accelerated in last three decades in the face of the rising urban unemployment (Todaro, 1985, pp. 247-256).

A more comprehensive economic theory of migration came with the development of models of urban/rural shift in developing countries (Todaro, 1969; Harris and Todaro, 1970; Todaro, 1985, pp. 256-279). In the Todaro model, unemployment became another important dimension in addition to wages in the decision-making of the prospective migrants. The model postulates that migration proceeds in response to urban-rural differences in **expected rather than actual earnings**. The expected earning in the urban sector is measured by the product of the urban wage and the probability of obtaining an urban job. Rural-urban migrations will continue if such an expected earning exceeds real rural agricultural product. In the face of the institutionalized much higher income in urban areas, redundant rural-urban migrations, which are the main source of urban unemployment, are inevitable. In addition, the government's efforts in improving the urban labor markets by creating jobs through subsidies may not ease the problem of urban

unemployment, because such actions would enhance the probability of finding urban jobs and induce even more rural-urban migration (Harris and Todaro, 1970).

Contrary to Lewis's view that rural-urban migration is a beneficial process that meets the labor demand of urban industrial expansion, migration is seen in the Todaro model "as a major factor contributing to the ubiquitous phenomenon of urban surplus labor, as a force that continues to exacerbate already serious urban unemployment problems caused by economic and structural imbalances between urban and rural areas" (Todaro, 1985, p. 253).

Intensive research in the 1970s and early 1980s in the field of rural-urban migrations appeared to have started off with Todaro's pioneer work (1969). However, many empirical findings are not consistent with his theory. Fields (1982) found little support for the importance of the employment rate (a indicator of the probability of obtaining a urban job) on Colombian migration. In his study on migrations in Venezuela, Schultz (1982) found that:

> ...compensating variation between wages and employment levels
>
> is not evident in Venezuela among male migrants with less than
>
> a secondary education. For these less educated groups in the
>
> labor force the traditional wage gap appears to be the
>
> predominant determinant of urban labor force growth and

interregional migration...for man with some secondary or higher

education the elasticity of migration with respect to

employment is greater than that with respect to wages. For

these better-educated men the Harris-Todaro (1970) framework

may be applicable.

Confusion and doubts about Todaro's model lead to the opening of a

completely new field of study by Stark (1991): migration and the interaction

of the migrant with his (or her) family. Stark builds his theory of labor

migration on three premises: (1) in developing countries, the decision of

migration is usually made by the family, (2) migration is a response not only

to wage differentials and expected income but also to a host of other factors

(e.g. income fluctuations and income distribution), and (3) many migrations

would not have occurred if the markets (e.g. capital and insurance markets)

were complete in rural areas (Stark, 1991, pp. 3-4).

There are three main parts in Stark's theory, based on the notions of

risk avoidance, relative deprivation and information asymmetry, respectively.

The crucial part is the first, where aversion to risk is considered as a major

cause of rural-urban migration. To a small farm family in a subsistence rural

economy, income fluctuations are usually high because of the low immunity

of agricultural production to stochastic weather conditions (e.g. flood and

drought), disease and pest attacks, and the fluctuation of the demand and supply of the agricultural goods in the market. In the situation when technological transformation is impractical and off-farm opportunities are scarce, the simple way to diversify its income portfolio and spread the risk is the migrations to urban areas by one or several members of the family. The migrant and the family enter into a voluntary contractual arrangement in such a way that the high risk of not being able to obtain a urban job in a short period of time is mitigated by the support from family left behind, whereas the remittances sent by the migrant after being employed would help smooth the variation of farm income.

Relative deprivation is another important factor affecting people's choice of migration. People engage regularly in interpersonal comparisons of income within their reference groups. An outcome of such comparisons is the feeling of deprivation (or satisfaction). A person's relative deprivation is an increasing function of (1) the percentage of persons richer than him (her), and (2) the mean excess income. Usually, a more relatively deprived person has a stronger incentive to migrate, and a reference group characterized by more income inequality is likely to generate more deprivation and hence higher propensities to migrate. For a period of time after migration, the origin community remains as the main reference group of the migrant. Gradually, the migrant will replace it with the destination community. This

approach offers a new explanation for the self-perpetuating tendency of rural-urban migration in less developed countries. The departure of a group of poor individuals from a community will raise the average income in the community and hence stimulate the migrations of the other individuals who have become more relatively deprived. Such a process continues even after the expected urban/rural income differential is equal to zero.

Migration behavior is also likely to be affected by information asymmetry, an outcome resulting from the assumption that workers possess more information than employers. The asymmetry may reduce the quality and quantity of migration. The eventual discovery of the true skills of the workers, however, leads to an increase of the quality and quantity of migration and also an increase of the wage of the low-quality workers.

The integration of remittances into migration research in developing countries is one of the most important contributions by Stark. According to the first part of the theory, remittance is not simply a purely altruistic phenomenon. Its patterns can be better explained by the intertemporal contractual arrangement between the migrant and the family. Thus, the size of the remittance tends to be greater and the duration of it tends to be longer for the families with more bargaining power. The drain of money and human capital from rural to urban areas because of rural-urban migrations can be compensated for by the migrant's urban-rural remittance. It can and has been

used to transform agricultural modes of production and improve the income distribution in rural areas. In many cases, remittances can even bring about prosperity to rural areas.

Despite their rather different approaches and viewpoints, some of the ideas of Todaro and Stark can be accommodated in the development approach of migration, which was proposed by Brown (1991) who extended the previous work of Zelinsky (1971), Mabougunje (1970), and Brown and Sander (1981). It focuses on how development affects migration and examines the role of place characteristics within this process. Brown (1991, p48) argues

> ...that conditions pertinent to human movements are affected by the development-dependent mix of social and economic conditions, government policies, infrastructure, technological achievement, and other aspects of regional systems. Accordingly, modern sector wage rates and opportunities play a dominant role in advanced settings, whereas migration chain or rural push effects dominate under less advanced conditions. Different development milieus give rise, therefore, to different 'processes' of migration.

According to Brown, in early traditional society, migrations are highly chained, origin-pushed and oriented towards the informal sector. The two

main streams of migrations are rural-rural and rural-urban migrations. In an advanced society, migrations are oriented toward formal and modern sector employment, and formal communication channels are the primary sources of information. Urban-urban migrations are dominant. Between the early traditional and the modern society is the post-transitional society in which rural-urban migrations increase and migration patterns are mixed. The well-off classes take the modern patterns, whereas the less well-off classes hold on to the traditional ones.

Many developing countries (including China, Costa Rica and Venezuela) are in the post-transitional stage, in which two rather different mechanisms (modern and traditional) operate within the same society. Development processes in these countries may vary from place to place and from time to time. Thus, the ambiguity of empirical findings among the local studies (e.g. Schultz's findings from migrations in Venezuela) may be attributed to the differences in level and nature of development (Brown and Jones, 1985). In addition, rural destined migration remains important and should not be neglected (Brown and Lawson, 1985).

2.2. Rural Development Interventions and Rural-Urban Migrations

A common belief is that rural development interventions aiming at increasing production and improving the quality of life in rural areas would

reduce expected urban/rural income differentials and hence rural-urban migrations. Such interventions include agricultural development (land reform and green revolution), off-farm employment (rural enterprise and rural public works), and provision of rural social services (rural education, family planning program and rural health services).

Such a common belief is supported by the Todaro Model, because rural developments tend to reduce the expected urban/rural income differentials and hence rural-urban migrations. According to Rhoda (1983), however, it may not be justified on the ground of some other theories and empirical findings.

One of the relevant theories is the human capital model of migration by Sjjastad (1962). In this framework, an individual's decision of migration is based on his (or her) assessment of the anticipated future stream of benefits and costs (both monetary and psychic). He (or she) will migrate when the former outweighs the latter. A nice feature of this model lies in its incorporation of some important personal factors such as age and education into the decision-making process. Young people are more likely to migrate than old people because they have a longer time horizon to enjoy the benefits of migration. The better educated are more likely to migrate because they have a broader information field to exploit the urban opportunities, and less psychic costs associated with departure. This model also explicitly

incorporates a **spatial** dimension into the specification of costs of moving. In general, rural developments reduce the benefits of rural-urban migrations. However, they also reduce the costs, monetarily (e.g. the drop of moving expense due to the improvement of rural-urban transportation system) and psychologically (e.g. as a result of the improvement of rural education). Thus, the net impact of the development on rural-urban migration is not clear.

Rural developments can even bring about changes that stimulate rural-urban migrations, according to the general theory of migration by Lee (1966). In this framework, the decision of migration is influenced by four groups of factors: origin factors, destination factors, intervening obstacles and personal factors. Although the developments can enhance the attractiveness of the rural origin and consequently have a negative effect on the rural out-migration, their positive effects appear to be stronger. Rural developments tend to reduce the intervening obstacles to rural-urban migration. Physical distance is reduced by road improvement and sociocultural distance is reduced greatly by formal education in rural areas. In addition, rural developments tend to change the characteristics of rural populations (e.g. increase in level of education, aspiration and awareness of urban opportunities), and hence result in a higher migration propensity.

Some of the conflicting implications of the above theories can be clarified by empirical findings. Rhoda (1983) found that different types of

development interventions may have different implications for rural-urban migrations and he generalized that:

> ...rural-urban migrations may be reduced by interventions which
> increase cultivatable land, equalize land or income distribution,
> or decrease fertility. On the other hand, migration appears to
> be stimulated by interventions which increase access to cities,
> commercialize agriculture, strengthen rural-urban integration,
> raise education and skill levels, or increase rural inequalities.

Thus, Rhoda argued that making changes in urban areas (e.g. removing urban minimum wage and urban subsidies) is perhaps the most promising approach to slowing rural-urban migration. In addition, it would be more effective to promote the development of regional centers and small cities and direct rural-urban migrations away from big cities.

2.3. Restriction on Rural-Urban Migration

Since migrations are affected by both urban and rural control systems (Mabogunje, 1970), the strengthening of the control in both systems and the cutting of linkages between the two areas may effectively reduce rural-urban migrations in developing countries. For example, the expected earning differentials between urban and rural areas can be turned negative by a

restriction on the employment of rural migrants in urban areas.

According to Harris and Todaro (1970), "either a migration-restriction policy or a limited wage-subsidy policy will lead to a welfare improvement". A combination of the two is helpful for achieving the optimal position for the whole economy. The former policy can remove redundant rural-urban migrations, whereas the latter can help create more jobs for urbanites. Thus, the chronic problem of urban unemployment, which is a 'headache' in almost every contemporary developing country, can be effectively eased.

However, the side-effect of such a prescription could be strong. To realize such a migration control system, considerable weight has to be shifted from the **market mechanism** to the **centralized planning** and this may make both urban and rural economy less competitive, less efficient and less productive. The stagnant, deteriorated and finally collapsed planned economies in former communist countries (including China) can be a good lesson in this respect. Furthermore, such a structural change may enhance fertility in urban areas in the absence of fertility control. Young urbanites would be less "squeezed" economically because of less competition from rural migrants in the job markets and more job opportunities **created** by the government's subsidies. They would feel less constrained to marry and give births if there were no fertility control. In the end, the urban unemployment problem could be even more severe because the urban employment growth

can not keep pace with urban population growth.

In fact, rural-urban migration carries with it a large array of potential repercussions. It would be wise to employ effective means to minimize the few undesirable consequences of migration, rather than to eliminate migration itself. If the intervention aimed at reducing migration is indeed desirable, measures such as creation and/or perfection of rural insurance markets may be more effective in making agricultural production a less risky proposition and hence reducing rural-urban migrations (Stark, 1991, p. 19).

2.4. Previous Studies on Migrations in China

It seems that China has all the typical problems of the developing countries: dual economy, large urban/rural differentials, severe unemployment or underemployment and overburdened urban infrastructure. And China seems to have tried various means to ease these problems, including both migration control and rural interventions (e.g. promoting township enterprises). The experience of China, successful or not, can offer good lessons for other developing countries.

Migration in China has never been effectively studied, partly due to the lack of data. The first three censuses (1953, 1964 and 1982) did not incorporate a single question on migration. Thus, studies on the internal migration in China so far have had to rely mostly on partial tabulations of

household registration records and localized surveys at provincial and municipal levels (Goldstein and Goldstein, 1990b). Some evidence shows on the one hand, the relative effectiveness of government control on migrations involving registration changes and, on the other hand, the growing importance of temporary migrations to urban free markets in the urbanization process (Goldstein and Goldstein, 1991; Goldstein, Goldstein and Guo; Yang and Goldstein, 1990). In the case of Zhejiang province, the urban-rural exchange is virtually unidirectional from rural to urban (Yang and Goldstein, 1990). It has also been found that males are more likely to migrate for employment- or education-related reasons, whereas females for family related reasons such as marriage (Goldstein and Goldstein, 1991; Ma, 1990).

However, the reliability of the findings mentioned above remains largely unknown because some of them are based on improper methodology or samples from poorly designed surveys. For example, the study by Goldstein and Goldstein (1991) in assessing the importance of temporary migrations in China was based on the tabulations of the survey by CASS (see detail about this survey in Goldstein, 1990). The survey was based on a stratified sampling design in which more intensities were applied to small urban places. The tabulations, however, have not been weight-adjusted. As a result, the findings from such tabulations will be biased to small urban places. Another example is in the study by Goldstein, Goldstein and Guo

(1991) on temporary migrations in Shanghai. The survey was so poor in this respect that the true temporary migrants to urban free markets were mostly missed and that more than half of all the "migrants" were visitors to the families.

In 1987, China conducted a one-percent National Population Survey (NPS87), which contains detailed information on the current and previous residences by province and by urban/rural settlement type (city, town and rural county), on duration of residence and on reasons for movements as well as demographic factors such as sex and age at the time of survey (see details in SSB, 1988, pp. 815-819). The data can thus be used to construct a comprehensive picture of migration in China and are useful for analyzing migrations at different geographical scales.

Some findings based on the tabulations of the survey reveal that migration to urban areas is the most popular direction; that a majority of migrants to either cities or towns were rural in origin; and that in the rural-urban population exchanges, both city and town were the gainers (Goldstein, 1990). More extensive research by Hayase (1991) shows that a vast majority of the migrations were intraprovincial and a high percentage of interprovincial migrations were between adjoining or neighbouring provinces, and about sixty percent of the total migrants were young persons aged 15-29 years.

The information contained in the tabulations, however, is quite limited.

Fortunately, the micro data of NPS87 has recently become available, allowing

the applications of multivariate models in which the effect of a specific factor

on migration can be carefully assessed in the context of other relevant factors.

The main contribution of this thesis is to conduct careful and in-depth

analysis of the micro data of NPS87 by incorporating the major ideas in the

literature that can be properly tested.

Chapter 3

Migrations in the Urban/Rural Settlement System of China

3.1. Introduction

Although the Chinese government has maintained the goal of strengthening the nation and improving the welfare of the people since the establishment of the People's Republic of China in 1949, the means to achieve the goal have undergone fundamental changes. First, government-sponsored mass movements such as the Great Leap Forward (1958-1961) and the Cultural Revolution (1966-1976) were used in vain to promote rapid economic growth and to 'purify' the society in general and the political leadership in particular, with disastrous and destructive consequences. Second, government fiats and directives were used through a well-organized administrative system to reduce sharply the birth rate since the 1970s, with impressive short-run results and some important long-run implications (Banister, 1990). More recently, the self-interest of individual citizens was used to increase agricultural and industrial productivity since the late 1970s, resulting in rather rapid economic growth. The ongoing transformation of the centralized economy into a market-oriented economy will further shift the

weight from government's planning and intervention to the varied choices and actions taken by numerous individuals and interest groups.

Further economic development is bound to be accompanied by further urbanization. China's modernization needs a sustained pace of urbanization, given the low level of urbanization of 21 percent in 1982 and 26 percent in 1990 (SSB, 1991). More than eight hundred million people are still living in rural areas where the vast majority engage in agricultural activities. However, the huge surplus labor from such a rural population base and the existing substantial gap in the quality of life between urban and rural areas[1] may potentially result in massive rural-urban migrations (Banister and Taylor, 1989) and hence aggravate the problems of housing shortage, unemployment and overburdened infrastructure in the urban areas (Cheng, 1990). Thus, China is still facing the **tension** between the goal of modernization and economic growth on the one hand, and urban problems on the other.

Proper understanding of China's urban/rural system is needed in the consideration of urbanization. The system is a hierarchical structure consisting of three strata: city, town and rural county. With its superiority in size, level

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[1] Even without taking the urban subsidies (to housing, food, medical costs et al) into account, urban income per capita averaged twice as much as rural income per capita in the 1980s. Both were more than doubled in 1980s and the ratio between them (urban/rural) was 2.3 in 1980, dropped due to successful agricultural reform to 2.0 in 1981, 1.8 in 1982 and 1.7 in 1983-1985, then increased back to 2.0 in 1986-87 and 2.1 in 1988-89 (SSB, 1990, p35).

of development, quality of life, and its function as an economic and educational center, the city is at the top of the system. The rural county, the least developed stratum, is at the bottom, with its urban center--the town-- sitting at the middle and serving as the bridge between the two ends. Urban problems are more serious in cities than in towns due to the rapid population growth in cities.

The distinct feature of the strategy of Chinese policy makers in dealing with the tension lies in the simultaneous control over the growth of cities and encouragement of the development of towns (Goldstein and Goldstein, 1990a). Hence, the migration policy in China includes strict control of **upward** migrations (rural-city, rural-town and town-city migrations), encouragement of **downward** migrations (city-town and city-rural or town-rural migrations) and less intervention in **lateral** migrations (city-city, town-town and rural-rural migrations)[2].

The control is implemented through a tight registration system by assigning a residential registration to each individual to tie his (or her) socioeconomic activities such as education and employment to his (or her) place of registration. Only those with urban registration can have access to

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[2] Lateral migrations in urban areas (city-city or town-town migrations) from small to large urban areas are also restricted, although not as strictly as the control on upward migrations. In the NPS87 survey, migrants were asked about their previous urban/rural settlement type (city, town or rural county). The size of origin city or town, however, was not differentiated.

the highly subsidized food, housing, medical service and more importantly, jobs in state-owned institutes and enterprises, which are the major source of urban employment[3]. Registration changes are allowed for only those who not only fit in the migration policy but also are permitted by the authorities at both origin and destination (see detail in Goldstein and Goldstein, 1985).

Due to such a control policy on migration and the overall low level of development, the mobility level in China is expected to be very low. And with a largely immobile labor force, the development of an efficient market tends to be rather slow. Recent economic reform, however, has activated the nation's economy and hence enhanced the migration potential.

The reform started from the least developed stratum--rural county--via the introduction of a "responsibility system" in 1978. Farmers were given more freedom to produce according to their self-interest, resulting in not only the much higher agricultural productivity but also the diversification of rural productions.

In response, both town and city have opened their free markets to rural peasants, allowing them to sell surplus products, to engage in urban construction, some public or family services such as public cleaning, repairing and being nursemaids or housemaids. As the center of its rural hinterland,

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[3] It is worth noting that due to economic reform, the urban food subsidy has been completely removed since 1992. In addition, housing has become more commercialized.

town has opened its door even wider to absorb the rural labor surplus created by the enhanced rural productivity. The city has been assigned a leading role in the development of towns and the rural hinterlands by not only opening its free markets, but also providing technical expertise and financial support, and sponsoring local industrial establishments (Goldstein, 1985). Most noteworthy is the rapid development of the coastal cities, special economic zones and several river delta areas (Yeung and Hu, 1992), which have attracted many well educated young people.

These developments, aimed at strengthening the economies in all three strata and reinforcing their interactions, are likely to induce more migrations (upward migrations, especially) and this is quite opposite to the objective of the control policy.

In addition to the above-mentioned factors, the gender role differential is one of the cultural factors that appear to be of particular importance in affecting the migration process. In all three strata, males are more educated than females and have better occupations and higher social status. And this differential is greater in towns than in cities and greatest in rural areas (Goldstein, 1985; SSB, 1988, pp. 160-172, pp. 476-499). The feudal idea that 'male decides and female follows' (nan zu nu cong) still has its deep roots in rural areas, supporting many traditional practices such as that the bride must move to the groom's place at marriage. Like the situation in India (Premi,

1990), marriage migrations are expected to be of particular importance in Chinese female migrations.

It is regrettable that China's 1982 census did not incorporate migration questions. Thus, studies on internal migration in China so far have to rely mostly on partial tabulations of household registration records and localized surveys at provincial and municipal levels (Goldstein and Goldstein, 1990b). Despite the data limitation, some suggestive findings on urbanization process of China have been obtained. Some evidence shows on the one hand, the relative effectiveness of government control on migrations involving registration changes and on the other hand, the growing importance of migrations to urban free markets in the urbanization process (Goldstein and Goldstein, 1991; Yang and Goldstein, 1990). In the case of Zhejiang province, the urban-rural exchange is virtually unidirectional from rural to urban (Yang and Goldstein, 1990). It has also been found that males are more likely to migrate for employment- or education-related reasons, and females for family-related reasons such as marriage (Goldstein and Goldstein, 1991; Ma, 1990).

Better data are needed to assess the generality of these findings and to broaden the scope of investigation. Fortunately, China conducted in 1987 a one-percent National Population Survey (NPS87), which contains detailed information on the current and previous residences by province and by urban/rural settlement type (city, town and rural county), on duration of

residence and on reasons for movements as well as demographic factors such as sex and age at the time of survey (see details in SSB, 1988, pp 815-819). The data can thus be used to construct a comprehensive picture of migration in China and are useful for analyzing migrations at different geographical scales. Some findings based on the tabulations of the survey reveal that migration to urban areas is the most popular direction; that a majority of migrants to either cities or towns were rural in origin; and that in the rural-urban population exchanges, both city and town were the gainers (Goldstein, 1990).

The micro data from NPS87 provides us an opportunity of further investigation. Based on the data, this chapter aims to characterize the patterns of migrations in the urban/rural settlement system of China, with particular attention given to **sex differentials** and **age patterns**[4]. Distribution of migrations by reasons is also examined in order to achieve a better understanding. The characteristics are to be interpreted as reflections of socioeconomic development process (see detail of this approach in Brown and Sanders, 1981; Brown, 1991), cultural norm and migration policy. In order to get better insights into the urbanization process and detect some specific effects of the government control on migrations, we study separately **lateral,**

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[4] For an international comparison of the sex-specific migration schedules, see Rogers and Castro (1981), Rogers (1988) and Sato (1990).

upward and **downward** migrations in the settlement hierarchy.

This chapter is planned to be the first of a series of research papers based on the NPS87 micro data. The next step of our research is to explain the migration behaviors by several personal factors (age, sex, level of education, and marital status) and geographical attributes (e. g. per capita income and distance), using a multivariate model.

The organization of the rest of the chapter is as follows. A brief description of the migration data in section 1 is followed by an overview of migration pattern in section 2. Then in section 3, we focus on lateral, upward and downward migrations. Net migration and migration efficiency are briefly studied in section 4. The main findings are summarized in section 5.

3.2. Definition and Classification of Migrations

There are 655,123 usable records in the micro data of NPS87, with 531,745 individual records nested under 123,378 household records. Each individual record contains information on important demographic factors (such as age, sex and marital status), current address, registration status (with or without the local registration), urban/rural settlement type and the duration of the current residence. The records of migrants include additional

information on the province and settlement type of the last residence[5], and

on the principal reason of migration.

In NPS87, migrations were defined as movements from other cities,

towns or rural counties during 1982-87 in terms of (1) a registered change to

current residence (official migration), or (2) absence from the registration

place for at least six months (non-official migration)[6]. Towns in the survey

only include those officially **designated by governments at the provincial level**

and hence are classified as urban, whereas the remaining small towns are

included in rural counties. In this chapter, we limit our attention to migrations

that were recorded in each year of the three-year period between July 1, 1984

and June 30, 1987 (we call them year 85, 86 and 87 in the later text) in order

to gain a large sample size, minimize the distortions due to unrecorded

migrations, and reduce the effect of urban reclassification around 1984[7]. In

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[5] This information is obtained from the question "where was the origin of your last move?". Such a question results in the problem of left censorship and hence some understatement of actual mobility level.

[6] Official migration is equivalent to "permanent migration" in Goldstein's works. Non-official migration is similar to "temporary migration" but with a duration restriction of half a year or more.

[7] The reported proportion of urban population jumped sharply from 20.8 percent in mid-1982 to 31.9 percent at the end of 1984 and 36.9 percent in mid-1987 (Zeng and Vaupel, 1989). Rural/urban reclassification in the period, which allowed more rural areas qualified as urban areas, seems to have more effect than rural-urban migrations in such a rapid change (see details in Goldstein, 1990). It may also artificially enhance the level of upward migrations (e.g. a rural-rural migration may become a rural-town or rural-city

other words, a person whose most recent migration took place before July 1, 1984 is classified as a stayer in this study.

Although the Survey is described as a one-percent sample at the national level, it was based on a stratified sampling design in which different provinces were sampled at different intensities, ranging from about 0.6 percent in Sichuan to 2.5 percent in Ningxia. Of particular importance is the fact that all three metropolitan 'provinces' (Shanghai, Beijing and Tianjin) were greatly over-sampled. Consequently, the direct tabulation of migrants in the sample is bound to over-state the proportions of migrants choosing the metropolitan provinces as the destinations. Within each province, the sample sizes for cities, towns and rural counties were nearly proportional to the corresponding population sizes, except for Tianjin where over-sampling was serious only in cities and rural counties.

To avoid yielding distorted migration patterns due to variations in sampling intensities, different weights were applied by Statistical Bureau to the individuals in making the migration tables (SSB, 1988)[8]. However, these weights were not attached to the individual records in the micro data file. We recreated them according to the procedure described in Appendix 3.A.

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migration because the destination, which had been rural at the time of migration, was reclassified as town or city after migration).

[8] See Hayase (1990) for an analysis of the patterns of interprovincial migration derived from these tables.

We specify fifteen age groups according to the typical ages in which the migration-related life cycle events (such as entry into higher level of education, entry into or exit from labor force, and marriage) are expected to happen. They are 0 and 1-5 (early childhood); 6-10 and 11-14 (primary and middle school, respectively); 15-17 and 18-19 (high school, entry into college or university); 20-23 and 24-27 (labor force entry and marriage); 28-34, 35-40, 41-44 and 45-54 (established family and labor force status); 55-64 (retirement); 65-74 and 75+ (elderly). In computing the migration measures, these age groups are specified for each calendar year in which the migrations actually took place (see Appendix 3.B for details). Note that this level of precision about the age **at the time of migration** can not be achieved from the census data of other countries that are based the question "where did you live five years ago?".

The survey data also permit the division of migrations into nine categories in terms of their reasons: (1) **education** for those who were pursuing post-secondary education; (2)**job transfer** for those who officially shift their jobs (state jobs, usually) from one place to another; (3) **job assignment** by government for college and university graduates; (4) **manual work & commerce** for those who entered into the free markets; (5) **retirement**; (6) **joining relatives**; (7) **family moving** for induced movements by the other family member(s); (8) **marriage migration** for those who

migrated to their marital partner's place; and (9) **other**. It turned out that more than seventy percent of the migrations due to job transfer, job assignment, education, retirement, family moving and marriage were accompanied by a change in registered residence (official migrations), suggesting that they were more permanent in nature. In contrast, about two-thirds of the migrations due to joining relatives and more than eighty percent of the migrations due to manual work and commerce were not accompanied by a change in registered residence (non-official migrations), suggesting that the migrants might not be able to remain at the destination for long.

In order to get better insights into the urbanization process and detect specific effects of the migration control policy, we further classify migrations into three types: **lateral migrations** (city-city, town-town and rural-rural), **upward migrations** (town-city, rural-city and rural-town) and **downward migrations** (city-town, city-rural and town-rural).

3.3. The Observed Overall Patterns

3.3.1. Overall Migration Level

We found that in a sample of 531,565 people, 10,864 (weighted) individuals migrated in the three-year period between July 1st, 1984 and June 30th, 1987, yielding an overall migration rate of 7.0 per thousand per year

(6.8, 7.2 and 6.9 per thousand in year 85, 86 and 87, respectively). Given the overall low level of economic development and the considerable efforts of the government in controlling migration, it is not surprising at all that the migration rate of China was so low, being only one-eighth of the corresponding Japanese migration rate of 53.9 per thousand in 1985 (SBJ, 1990, p.2). Actually, it is lower than the Japanese interprefectural migration rate of 25.9 per thousand in 1985 (SBJ, 1990, p.4) and the Canadian interprovincial migration rate of 11.0 per thousand in 1985[9]. It is also relatively low compared with the mobility level of some other developing countries. For example, the quinquennial interprovincial migration rate was 65 per thousand in Peru in 1976-1981 (Aihara, 1991) and 41 per thousand in Thailand in 1975-1980 (Fuller, 1990)[10]. However, the absolute volume implied by this low rate in China is enormous, about twenty-one million people migrated to another city, town or rural county in the three-year period.

Among the migrants, females accounted for 55.7 percent and males for 44.3 percent. Given roughly similar population bases, the migration rate of females in China was higher than that of males, being 8.0 versus 6.1 per

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[9] The interprovincial migration rate of 11.0 per thousand is based on the income tax data. The corresponding value based on the family allowance data is 14.5 per thousand.

[10] The quinquennial rates are in general about 2 to 4 times the corresponding annual rates (Rees, 1977).

thousand per year. As we will soon see, the higher mobility level of the females was mainly due to the sex-selectivity in marriage migrations.

3.3.2. Sex-specific Migration Schedules

We found that the migration rates of young dependents of both sexes were persistently around 4 per thousand in all age groups from the early childhood to early teens, resulting in a low and flat pattern in these ages (Fig. 3.1). A minor exception was the new-born infants whose migration rate was about 8 per thousand[11]. The level of migration rose sharply in the later teens and reached a "labor force" peak in the early twenties, which was much higher for females (31.4 per thousand) than for males (14.4 per thousand). The level then dropped sharply in the late twenties to about 6 per thousand around the early thirties where the difference between the sexes became quite small again. With only a slight rebound in the male schedule in the 41-44 age interval[12], the schedules of both sexes continued a trend of decline to a low

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[11] A plausible reason for such an exception is that some females who have given birth to one or two baby girls may migrate temporarily to escape from the local birth control at time of early pregnancy, in the hope to give birth to a baby boy, and that their babies are brought back to their earlier residence soon after birth.

[12] This rebound was probably due to the transfer of military officers to various branches of government as middle-level bureaucrats.

FIG. 3.1. Migration Schedules of China: 1985-1987

(a) AGE PATTERN OF MIGRATION (MALE)

marital/total=2.6 %

— total: 6.1   — nonmarital: 5.9

(b) AGE PATTERN OF MIGRATION (FEMALE)

marital/total=44.9%

— total: 8.0   — nonmarital: 4.4
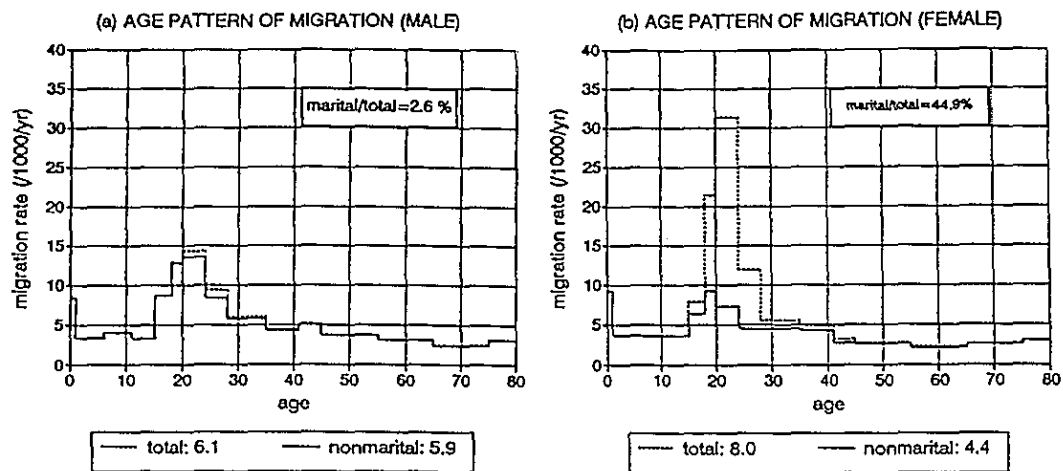
level below 3 per thousand in the old ages (early sixties for females and early seventies for males). Finally, a minor increase appeared in the oldest age groups (65+ for females and 75+ for males).

The migration schedules of China differed from those of the countries without migration control (Rogers, 1988; Rogers and Castro, 1981) in several respects. First, the base of 'labor force peak', which is mostly positioned on 15-35 age interval in the uncontrolled patterns, was much narrower in Chinese patterns, only from later teens to early twenties. Second, instead of being similar in height, the so-called labor force peak of Chinese females (over 30 per thousand per year in the 20-23 age group) was more than twice as high as that of Chinese males (less than 15 per thousand per year in the same age group). Moreover, since more than 75 percent of the female peak (compared with only 6 percent of the male peak) was due to marriage migrations, the female peak should be more properly called the 'marriage peak'. The elimination of marriage migrations reduces the height of this peak to only 7 per thousand, implying that the migrations of young adult females as members of the labor force were relatively unimportant events in China. Third, apart from the labor force peak, the migration schedules of China were mostly low and flat. Thus, the Chinese migration schedules were relatively featureless, with the declining slope from early to late childhood and the 'retirement peak' completely missing.

Overall, the migration schedules of China, displaying not only the low migration propensities in most age groups but also the narrowness of the labor force (marriage) peak and the complete absence of a declining slope from early to late childhood, bore the clear imprints of the migration control. Information on the reasons of migrations by sex and age, to be discussed next, are helpful for the further investigation of such unusual schedules.

3.3.3. Reasons of Migrations

Beneath the relatively featureless schedules were major changes in the main reasons for migrations at different stages of the life-cycle (Table 3.1). For males, the migrations were mainly due to pursuing education at the 'launching' stage (ages 15-19), to employment reasons (job transfer, job assignment, and manual work & commerce) at the young labor force stage (ages 20-27), to job transfer alone at the established labor force stage (ages 28-54), to retirement at retirement stage (ages 55-64)[13], and to joining relatives at the old dependent stage. For females, the migrations were mainly due to not only pursing education but also marriage and family moving at the launching stage, to marriage alone at the young labor force stage, to both

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[13] Here we see that the lack of 'retirement peak' in the migration schedule need not imply that retirement is not an important reason for migration around retirement age. In China, about 45 percent of male migrations in the 55-64 age group were due to retirement (Table 1).

Table 3.1. Volume and Principal Reason of Migration, 1985-87, China

Age Group	Distribution of Reasons of Migration (percent)									Volum (person)	Age Group
	Job Trans.	Job Assign	Manuwo & Comm.	Educat.	Joining Relatv	Retir.	Family Moving	Mari.	Others		
Nation	12.4	5.6	10.8	9.9	10.1	1.8	16.1	26.5	6.9	10864	Nation
Male	19.5	8.8	16.1	14.6	9.7	3.5	15.3	3.3	9.3	4803	Male
0	0.0	0.0	0.0	0.0	27.2	0.0	46.7	0.0	26.2	67	0
1-5	0.0	0.0	0.0	0.0	23.7	0.0	67.1	0.0	9.2	247	1-5
6-10	0.1	0.0	0.1	3.9	18.5	0.3	70.6	0.4	6.0	301	6-10
11-14	0.0	0.0	0.2	8.2	21.5	0.0	61.3	0.0	8.8	241	11-14
15-17	0.2	7.7	13.2	50.5	7.7	0.0	17.2	0.0	3.5	517	15-17
18-19	4.7	13.6	20.7	47.8	3.6	0.0	5.6	0.6	3.3	449	18-19
20-23	21.5	23.7	21.1	13.8	3.5	0.1	2.3	5.7	8.4	1020	20-23
24-27	29.9	9.7	22.3	7.2	6.4	0.0	1.6	11.2	11.7	435	24-27
28-34	36.6	5.1	26.7	3.4	6.9	0.0	1.2	4.7	15.4	571	28-34
35-40	48.1	2.7	23.2	0.9	7.1	0.7	0.7	3.0	13.6	272	35-40
41-44	58.4	0.0	16.6	0.0	3.8	8.4	1.4	1.6	9.9	162	41-44
45-54	40.8	0.0	13.4	0.0	7.5	24.8	1.1	1.5	10.9	268	45-54
55-64	12.4	0.0	8.0	0.0	15.0	44.6	6.3	0.6	13.2	163	55-64
65-74	1.5	0.0	8.8	0.0	46.6	18.8	11.6	5.2	7.6	66	65-74
75+	0.0	0.0	0.0	0.0	78.2	4.7	7.6	0.0	9.6	2u	75+
Femal	6.7	3.2	6.5	6.1	10.5	0.3	16.8	44.8	5.0	6060	Female
0	0.0	0.0	0.0	0.0	18.5	0.0	32.8	0.0	38.0	66	0
1-5	0.0	0.0	0.0	0.0	25.6	0.0	65.3	0.0	9.1	258	1-5
6-10	0.0	0.0	0.0	2.4	21.3	0.5	68.9	0.0	6.9	253	6-10
11-14	0.0	0.0	5.1	5.1	22.0	0.0	59.3	0.0	8.6	250	11-14
15-17	0.7	6.5	11.0	29.0	12.1	0.0	18.4	18.4	3.9	447	15-17
18-19	1.7	5.1	11.1	14.4	3.7	0.0	5.1	56.7	2.2	752	18-19
20-23	3.5	4.2	5.0	4.5	2.5	0.0	1.9	76.8	1.8	2226	20-23
24-27	10.5	2.5	6.2	1.2	5.9	0.0	6.0	62.2	5.5	530	24-27
28-34	24.1	2.5	13.1	1.2	12.3	0.0	21.7	18.8	6.2	496	28-34
35-40	28.4	1.7	8.4	0.0	13.2	0.3	27.5	13.8	6.6	279	35-40
41-44	29.4	0.0	7.5	1.1	16.3	1.5	20.8	14.7	8.8	91	41-44
45-54	17.7	0.6	3.7	0.0	17.6	7.3	31.9	7.5	13.8	183	45-54
55-64	0.0	0.0	4.2	0.0	48.5	1.9	23.5	8.8	13.1	114	55-64
65-74	0.0	0.0	1.3	0.0	71.2	1.3	21.7	0.5	4.0	77	65-74
75+	0.0	0.0	0.0	0.0	67.4	3.1	24.2	0.0	5.4	39	75+

employment and several social reasons (job transfer, family moving, joining relatives, and marriage) at the prime child-rearing stage, to joining relatives and family moving at the stage of grandmotherhood, and to joining relatives at the old dependent stage.

We found that males were more likely to move for economic and educational reasons. There were 3,001 male migrants (two-thirds of total male migrants in this survey) who cited education- and employment-related reasons. Job transfer, manual work and commerce and education were frequently cited by male migrants. The importance of migrations due to job transfer lay not only in their highest share (20 percent) but also in inducing the secondary moves of family members. Similarly, if we consider job assignment as the last chain in the pursuit of high education, migrations due to education would account for about a quarter of male migrations. A somewhat smaller percentage of migrations was due to manual work and commerce (16 percent), implying that migrations to the free markets became quite important in the 1980s, especially for rural to urban migrants to be discussed in the next section. Together, migrations due to job transfer (plus the induced family moving)[14], manual work and commerce and education accounted for eighty percent of male migrations.

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[14] According to our analysis, the family movings were mostly permanent in nature and hence a majority of them might have been induced by migrations due to job transfer.

By contrast, three-fourths of female migrants migrated for family reasons such as marriage (45 percent), family moving (17 percent) and joining relatives (11 percent). This contrast corresponds to the gender role differentials in Chinese society and family. Numerically, marriage migrations were most important for females for both its greatest volume (2,718 migrants) and share (45 percent). Most of them took place in ages between 17 and 27. In contrast, marriage migrations were rather unimportant for males, amounting to only 157 migrants or 3 percent of the total male migrants. Thus, the sex-selectivity in marriage migrations was responsible for female's higher migration rate in the young adult age group (18-27) and female's higher overall mobility level.

The removal of marriage migrations causes the female migration level to drop sharply from 8.0 to 4.4 per thousand and the male migration level to decrease only slightly from 6.1 to 5.9 per thousand so that the female migration schedule becomes lower and flatter than the male migration schedule (Fig. 3.1). The resulting low and flat female migration level of child-raising ages (24-54) resembles closely that of the young dependents, suggesting that many children tended to stay behind with their mothers when their fathers, especially those rural out-migrants for manual work and commerce, migrated to urban areas as was the case in Indonesia (Hugo, 1982).

3.4. Lateral, Upward and Downward Migrations in the Urban/rural System of China

We now shift our focus to the hierarchical structure of the settlement system and classify the migrations into three types: lateral, upward and downward. The classification is used to get more insight into the mechanisms that regulate population redistribution in China. Nine types of sex-specific out-migration schedules have thus been computed (see details in Appendix 3.B) and plotted in Fig. 3.2.

3.4.1. Main Features

Low and varied migration levels characterized all the movements in the settlement system, ranging from the highest 4.5 per thousand per year for male city-city migration to the lowest 0.8 per thousand for female city-rural migration (Table 3.2). The common features of their age patterns were the low and flat level in all ages except for the enhanced migration propensities in the later teens and early twenties due to entries into labor force and higher education or marriage (Fig. 3.2).

A systematic gender contrast was found in all types of migrations. With few minor exceptions, higher percentages of males than females, regardless of the types of movement, moved for employment- and education-related reasons such as job transfer, job assignment, manual work and commerce,

education and retirement; whereas the opposite was true for family-related reasons like joining relatives, family moves and, especially, marriage migration, reflecting the gender role differentials in both Chinese family and society. The biggest gender contrast was in marriage migrations. Their shares of male migrations in different types of movements were always small, mostly less than five percent. For females, however, they were important in all types of migrations, ranging from 14 percent in city-city migrations to 77 percent in rural-rural migrations. To some extent, this was similar to the situation in India, where the share of marriage migrations in urban-urban, urban-rural, rural-urban and rural-rural were 44, 58, 50 and 80 percent, respectively (Premi, 1990). For this reason, female marriage migrations will be further discussed and two age patterns, one with marriage migrations and the other without, have been plotted for each of the nine types of female migrations (Fig. 3.2).

Varied levels of socioeconomic development among the three strata were also reflected by the distributions of reasons of migrations. A much higher percentage of urban than rural residents migrated due to job transfer, consistent with the fact that job transfer was mainly between **state jobs** which were concentrated in urban areas (cities and towns). A city's function as educational center was reflected by the high shares of both city's inmigrations due to education and outmigrations due to job assignment. We also found

Table 3.2. Sex-specific Outmigration Rates by Three Types of Destinations, 1985-1987, China

	Both Sexes	Male	Female		
			Total	Nonmarital	Share by Marriage Migrations
	(/1000/yr)	(/1000/yr)	(/1000/yr)	(/1000/yr)	(%)
Total	7.0	6.1	8.0	4.4	44.8
City-Out	6.8	8.1	5.4	4.3	21.0
Town-out	5.2	4.5	5.9	3.2	45.5
Rural-out	7.7	6.0	9.4	4.8	48.7
Lateral Migrations					
City-City	4.0	4.6	3.4	2.9	13.7
Town-Town	2.4	2.1	2.7	1.8	34.1
Rural-Rural	2.1	1.1	3.2	0.7	77.4
Upward Migrations					
Town-City	1.3	1.4	1.2	1.0	17.6
Rural-City	2.7	2.7	2.7	2.0	23.0
Rural-Town	2.9	2.2	3.6	2.0	42.5
Downward Migrations					
City-Town	1.7	2.2	1.3	1.1	15.9
City-Rural	1.1	1.4	0.8	0.3	62.4
Town-Rural	1.5	1.1	2.0	0.5	77.2

* Note, marriage migrations were found of little importance in male's migrations of different types.

Table 3.3. Volume and Principal Reason of Lateral-, Upward- and Downward Migrations, 1985-1987, China

	Distribution of Reasons of Migration (percent)									Volume
	Job Trans.	Job Assign	Manuwork & Comm.	Educat.	Joining Relative	Retire	Family Moving	Mari.	Others	(persons)
Nation	12.4	5.6	10.8	9.9	10.1	1.8	16.1	26.5	6.9	10864
Male	19.5	8.8	16.1	14.6	9.7	3.5	15.3	3.3	9.3	4803
City-Out	30.2	19.1	4.1	11.8	5.5	6.7	8.8	1.9	12.0	1150
Town-out	29.9	9.1	12.2	8.8	8.6	6.3	16.9	2.6	5.6	663
Rural-out	13.1	4.7	2.6	17.0	11.5	1.7	17.4	3.9	9.1	2990
Lateral Migrations										
City-City	27.6	18.9	6.3	16.2	6.1	3.1	10.5	1.7	9.5	648
Town-Town	38.5	12.1	10.7	4.0	6.6	2.6	19.5	1.4	4.4	310
Rural-Rural	8.5	1.6	20.7	1.4	21.1	3.6	15.1	10.0	18.0	537
Upward Migrations										
Town-City	20.3	8.5	22.2	21.7	8.2	1.1	15.0	0.9	2.1	200
Rural-City	11.3	3.0	24.7	26.1	10.9	1.2	15.0	2.1	5.8	1339
Rural-Town	17.5	8.3	18.3	13.4	7.5	1.5	21.4	3.2	8.9	1115
Downward Migrations										
City-Town	37.0	25.3	1.8	9.6	2.9	7.0	8.6	1.8	6.0	309
City-Rural	27.8	9.6	0.0	0.4	7.5	18.4	3.3	2.9	30.0	193
Town-Rural	24.9	3.8	2.1	1.8	13.4	20.4	13.9	7.2	12.4	153
Female	6.7	3.2	6.5	6.1	10.5	0.3	16.8	44.8	5.0	6060
City-Out	15.2	10.4	1.2	13.1	11.7	1.2	18.6	21.0	7.5	741
Town-out	9.6	4.0	4.1	5.7	7.7	0.2	19.2	45.5	4.0	829
Rural-Out	4.8	1.8	7.9	5.0	10.8	0.2	16.1	48.7	4.7	4490
Lateral Migrations										
City-City	17.5	10.5	1.4	15.1	12.3	1.2	18.7	13.7	9.6	461
Town-Town	14.1	6.0	5.7	3.9	8.0	0.0	24.5	34.1	3.7	377
Rural-Rural	0.7	0.3	2.4	0.4	6.4	0.2	7.0	77.4	5.0	1502
Upward Migrations										
Town-City	12.3	5.2	5.9	19.6	14.1	0.2	22.4	17.6	2.7	168
Rural-City	8.4	1.0	12.3	11.3	18.7	0.4	19.9	23.0	5.1	1271
Rural-Town	5.6	3.7	9.4	4.4	8.8	0.1	21.2	42.5	4.2	1716
Downward Migrations										
City-Town	16.7	15.5	1.5	15.6	10.7	1.0	22.2	15.9	0.8	177
City-Rural	2.1	1.0	0.0	0.0	10.8	1.5	12.5	62.4	9.8	103
Town-Rural	2.0	0.7	0.9	0.0	3.6	0.4	10.3	77.2	5.0	285

that the importance of marriage migrations for females increased consistently down the settlement hierarchy for destinations as well as origins. Such importance culminated in all three types of migrations toward rural county, being 77 percent in both rural-rural and town-rural migrations, and 62 percent in city-rural migrations. The greater prevalence of marriage migrations at the lower stratum of settlement hierarchy reflects that cultural norms are more traditional in less urbanized areas.

The age pattern of migration levels, the gender contrast and the differences associated with the levels of economic, educational and cultural development are three important aspects to be further discussed in each of three types of migrations.

3.4.2. Lateral Migrations: city-city, town-town and rural-rural

Given less government control on lateral migrations, the migration levels of them are expected to be higher at a higher stratum, because the greater amount of economic and educational opportunities in more urbanized areas which are highly unevenly distributed would induce more migrations. This turned out to be especially true for males: their intercity migration rate (4.6 per thousand per year) was twice as much as their intertown migration rate (2.1 per thousand per year), which was in turn about twice their rural-rural migration rate (1.1 per thousand per year). In other words, the intensity

of lateral interactions decreases down the settlement hierarchy (Fig. 3.2 (L1)).
In fact, the migration level of city-city male migrations was the highest in all
types of male migrations.

The large differences in male lateral migration among the three strata
of the settlement system were partly due to that males were relatively
sensitive to the attractions of education and employment opportunities in
more urbanized areas, especially cities. For males, migrations due to
education were far more important in city-city migrations (16 percent) than
in town-town and rural-rural migrations (both under 5 percent). The same
was true with respect to migrations due to job assignment, which accounted
for 19, 12 and 2 percent of city-city, town-town and rural-rural migrations,
respectively. Consequently, the male city-city migration schedule was several
times higher than the male town-town and rural-rural migration schedules in
the 18-24 age interval (Fig. 3.2 (L1)). The schedule was also the highest in
other older age groups.

For females, the variation among the three lateral migrations was less
straightforward. Actually, their lateral migration levels were rather similar,
being 3.4, 2.7 and 3.2 per thousand in city-city, town-town and rural-rural
migrations, respectively. The similarity was mainly due to female marriage
migrations, which were much more important at the lower level of the
settlement hierarchy. As shown in Table 3.2, marriage migrations accounted

(L1) LATERAL MIGRATION (MALE) — city-city: 4.6, town-town: 2.1, rural-rural: 1.1

(L2) CITY TO CITY (FEMALE) — total: 3.4, non-marital: 2.9, marital/total=13.7%

(L3) TOWN TO TOWN (FEMALE) — total: 2.7, nonmarital: 1.8, marital/total=34.1%

(L4) RURAL TO RURAL (FEMALE) — total: 3.2, nonmarital: 0.7, marital/total=77.4%

(U1) UPWARD MIGRATION (MALE) — rural-city: 2.7, rural-town: 2.2, town-city: 1.4

(U2) TOWN TO CITY (FEMALE) — total: 1.2, nonmarital: 1.0, marital/total=17.7%

(U3) RURAL TO CITY (FEMALE) — total: 2.7, nonmarital: 2.0, marital/total=23.0%

(U4) RURAL TO TOWN (FEMALE) — total: 3.6, nonmarital: 2.0, marital/total=42.5%

(D1) DOWNWARD MIGRATION (MALE) — city-town: 2.2, city-rural: 1.4, town-rural: 1.1

(D2) CITY TO TOWN (FEMALE) — total: 1.3, nonmarital: 1.1, marital/total=15.9%

(D3) CITY TO RURAL (FEMALE) — total: 0.6, nonmarital: 0.3, marital/total=52.4%

(D4) TOWN TO RURAL (FEMALE) — total: 2.0, nonmarital: 0.5, marital/total=77.2%

LATERAL

UPWARD

DOWNWARD
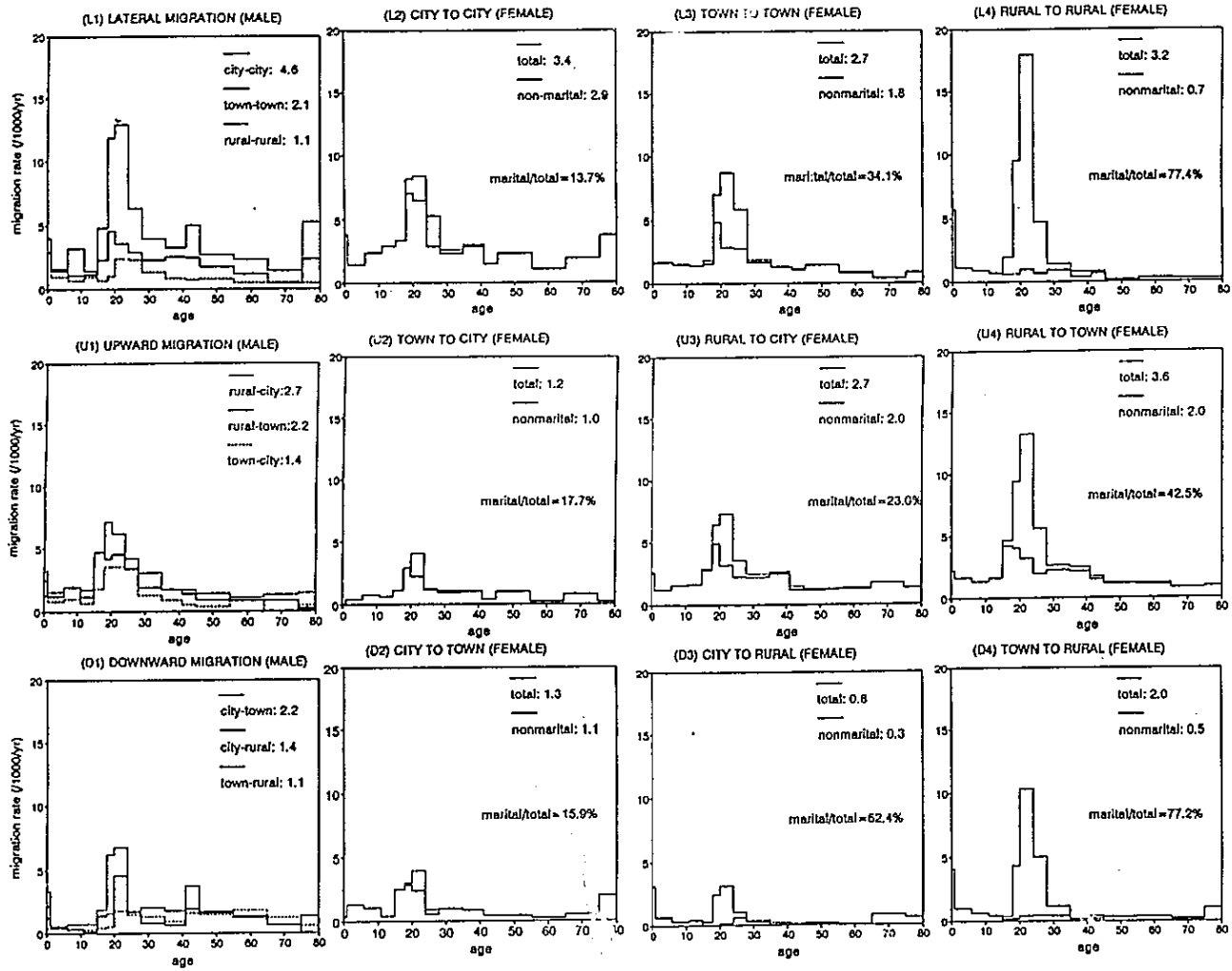
Fig. 3.2. The Schedules of Lateral, Upward and Downward Migrations in the Settlement Hierarchy of China: 1985-1987

for 14, 34 and 77 percent of city-city, town-town and rural-rural female migrations, respectively. When marriage migrations are removed, the migration level of female lateral migrations decreases down the settlement hierarchy (2.9, 1.8 and 0.7 per thousand in city-city, town-town and rural-rural migration, respectively). The resulting hierarchical pattern is thus completely consistent with that of the males. The removal of marriage migrations also results in a complete disappearance of the 'labor force' peak in female rural-rural migration schedule (Fig. 3.2 (L4)).

3.4.3. Upward Migrations: town-city, rural-city and rural-town

Upward migrations, especially rural-city migrations are the main concern of Chinese policy makers. Given the closer linkage and greater similarities between towns and cities than between rural counties and cities, as well as the government's intention to impose stricter control on rural-city than town-city migrations, the migration level of town-city migrations should be higher than that of rural-city migrations. Surprisingly, the data in Table 3.2 show the opposite. For each sex, the migration level of rural-city migrations (2.7 per thousand for both male and female) was at least twice as high as that of town-city migrations (1.3 and 1.2 per thousand, respectively). This large difference, together with the fact that population base in rural counties was 3.3 times that in towns implied that the rural-city migration

stieam (1339 males and 1271 females) was six or seven times the town-city migration stream (200 males and 168 females). Thus, as a supplier of migrants to cities, rural counties were much more important than towns.

One of the two keys to understand this paradox is the more effective control on the upward movements of urbanites who intended to transfer their jobs permanently to cities. For males, we found that the percentage of town-city migrations due to job transfer was the lowest in all four types of urban-urban movements (39, 37, 28 and 20 percent in town-town, city-town, city-city and town-city, respectively). Since job transfer is the main reason for the migrations of urban male residents, especially middle-aged adults, the difficulty of using job transfer as a way to migrate from towns to cities resulted in the very low level of the town-city migrations in established labor force ages (28-54) and hence the very low migration levels of their family members (their spouses and dependents).

Another key is that considerable number of rural folk, especially males, avoided the control system by entering the free markets in cities. Among all nine types of migrations, we found that the importance of migrations due to manual work and commerce was the greatest in rural-city migrations (25 percent for males and 12 percent for females). Actually, they contributed at least one-third of male rural-city migrations in all ages groups between 20 and 54.

Rural-city migrations due to other reasons were also important in maintaining the higher migration level. For males, they were migrations due to education (26 percent), family moving (15 percent), job transfer (11 percent) and joining relatives (11 percent). For females, they were migrations due to marriage (23 percent), family moving (20 percent), joining relatives (19 percent) and education (11 percent).

Having realized the difficulties in controlling rural-city migrations, policy makers of the Chinese government attempted to direct upward movements away from cities to towns, which are regarded as the economic centers of their rural hinterland.

We found that considerable amount of rural labor force, especially rural young females, were absorbed in towns. In fact, the volume of female rural-town migrations (1716) was the biggest and the migration level of it (3.5 per thousand) was the highest in all types of female migrations in the settlement system. As shown in Fig. 3.2 (U4), the main reason for such a big volume and high level was that many young rural females married males living in towns, accounting for as high as 43 percent of rural-town migrations. Other types of migrations such as family moving, manual work and commerce and joining relatives were also important, accounting for 21, 9 and 8 percent, respectively.

For males, however, the rural-town migration level was moderate,

being lower than that of rural-city but considerably higher than that of town-city migrations. The main reasons for male rural-town migrations were family moving (21 percent), job transfer (18 percent), manual work and commerce (18 percent) and education (13 percent). Compared with rural-city migrations, rural-town migrations depended more on job transfer and less on manual work and commerce and education. This is consistent with the fewer restrictions on inmigrations and fewer economic and educational opportunities in towns than cities.

In summary, we may infer that the government policy was effective in controlling upward movements by limiting the job transfers from both towns and rural counties to cities. The problem remains, however, due to the difficulties in preventing rural surplus labor from flooding into the free markets in cities. Although the problem can be eased by redirecting the inflows from cities to towns, the capacity of towns is small because of the shortage of economic and education opportunities.

3.4.4. Downward migrations: city-town, city-rural and town-rural migrations

The encouragement of downward migrations is another important aspect of the government policy. By assigning students and demobilized army personnel back to their less urbanized places of origin, or sending local cadres to smaller urban areas and rural counties, the levels of downward migrations

might be enhanced to some extent. However, they might be reduced even more by the fear of losing the registrations in larger urban areas as well as the benefits associated with them.

For both males and females, the migration levels of downward migrations were quite low (mostly at about 1 per thousand), suggesting that the fear of losing urban registrations was an important factor. Only two of the six downward flows had a somewhat higher level: female town-rural migrations (2.0 per thousand) and male city-town migrations (2.2 per thousand). An examination of the reasons for downward migrations indicates that female town-rural migrations was dominated by marriage migrations (77 percent), whereas the male city-town migrations were mainly due to job transfer (37 percent) and job assignment (25 percent). Among all migration streams, the male city-town stream was most affected by job assignment and hence was most subject to the migration-enhancing influence of the government policy.

We also found that females were less likely than males to leave cities for either towns or rural counties. Female's propensities to make city-rural migrations (0.8), which was the lowest among all types of migrations, and to make city-town migrations (1.3 per thousand) were much lower than those of males (1.4 and 2.2 per thousand, respectively). This was mainly due to the fact that females were less subject to the 'encouragement' of downward job

transfer and job assignment than males. In fact, there were virtually no city-rural female migrations due to these two reasons (Table 3.3). The most important reason for city-rural and town-rural female migrations was marriage, being 62 and 77 percent, respectively[15]. Excluding the marriage reason, females had extremely low propensity to migrate down to the rural stratum (Fig. 3.2 (D3) and (D4)).

3.5. Net Migration and Migration Efficiency

Although the outmigration rate from each stratum to the other two strata of the settlement hierarchy was very low from cities (2.8 per thousand) and towns (2.8 per thousand) and moderately low from rural counties (5.6 per thousand), the inmigration rate of each stratum from the other two strata was quite large for cities (10.7 per thousand) and towns (11.5 per thousand) but extremely low for rural counties (0.8 per thousand). Consequently, the migration efficiency of each stratum (the difference between in- and outmigrations divided by the sum of in- and outmigrations) was very large in magnitude (58.4 percent for cities, 60.8 percent for towns and -76.1 percent for rural towns). This high efficiency suggests that although the government

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[15] The high percentages of marriage migrations in urban-rural (city-rural and town-rural) migrations might be due to the return migrations of those young females who migrated from rural areas to cities and towns and found that without an urban registration, it was difficult for them to be accepted as a spouse by the registered urbanites (see some evidence in Wang, 1990).

attempt to suppress upward migrations was effective, its encouragement of downward migrations had little effect, and that people were extremely unwilling to make downward migrations probably due to (1) the fear of losing the benefits associated with urban residency (e.g. better education facilities, guaranteed supply of food and other necessities, and government-funded pension system) and (2) the fewer economic opportunities at the lower level of the settlement hierarchy.

As a result of the high migration efficiency, the annual net migration rates of the three strata of the settlement hierarchy were moderately large (7.9 per thousand for cities, 8.7 per thousand for towns and -4.8 per thousand for rural counties), compared with the nation's natural growth rate of about 14 per thousand. It was encouraging to the policy makers that the net migration rate of towns turned out to be somewhat higher than that of the cities. The net transfers up the settlement hierarchy, particularly to the town stratum, appeared to be somewhat stronger for females than males (Table 3.4).

The net transfer of migrants between the town and city strata was extremely small for males and almost zero for females, with the towns being a slight gainer (Table 3.5). The large rural-town and rural-city net flows were universal in the sense that the directions are identical for both sexes and all age groups. The sharp change in the directions of urban/rural net migrations

Table 3.4. In-, Out- and Net Migration Rates and Efficiencies for Three Urban/Rural Strata, 1985-1987, China

Residence	Migration Rates (/1000/yr)				Efficiency (%)	Population
	In	Out	Net (In-Out)	Gross (In+Out)	(100*Net/Gross)	Size (persons)
Both Sexes						
City	10.7	2.8	7.9	13.5	58.4	281408
Town	11.5	2.8	8.7	14.3	60.8	291546
Rural County	0.8	5.6	-4.8	6.3	-76.1	989844
Male						
City	10.8	3.5	7.3	14.4	50.9	143538
Town	9.7	2.4	7.3	12.1	60.2	148885
Rural County	0.7	4.9	-4.2	5.6	-75.2	504391
Female						
City	10.5	2.1	8.5	12.6	67.3	137870
Town	13.3	3.2	10.1	16.6	61.2	142661
Rural County	0.8	6.2	-5.4	7.0	-76.7	485453

Table 3.5. Net Migration Volume between Pairs of Urban-Rural Settlement Type, 1985-1987, China

Age Group	Net Volume of Exchange (persons)						Gain (Loss)			Rates (/1000/yr)			Population Size			Age Group
	City :	Tow	City	County	Town	County	City	Town	County	City	Town	County	City	Town	County	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)				(10)	(11)	(12)	
							(1)+(3	(2)+(5)	(4)+(6)	(7)/(10)	(8)/(11)	(9)/(12)				

Both Sexes

Total	-143	143	2276	-2276	2367	-2367	2132	2510	-4643	7.6	8.6	-4.7	281408	291546	989844	Total
0-14	-1	1	428	-428	428	-428	427	429	-856	6.2	5.1	-2.7	68449	83682	312174	0-14
15-27	-67	67	1200	-1200	1409	-1409	1133	1476	-2609	15.0	18.7	-9.9	75644	79141	263791	15-27
28-54	-65	65	527	-527	462	-462	462	527	-989	4.5	5.5	-3.3	102754	95728	300457	28-54
55+	-10	10	121	-121	68	-68	111	78	-189	3.2	2.4	-1.7	34560	32994	113422	55+

Male

Total	-134	134	1107	-1107	935	-935	973	1069	-2042	6.8	7.2	-4.0	143538	148885	504391	Total
0-14	8	-8	230	-230	235	-235	238	227	-465	6.7	5.2	-2.9	35512	43417	161824	0-14
15-27	-64	64	595	-595	501	-501	531	565	-1096	13.8	14.4	-8.2	38618	39322	133259	15-27
28-54	-71	71	240	-240	183	-183	169	254	-423	3.2	5.1	-2.7	52370	49916	154870	28-54
55+	-7	7	42	-42	16	-16	35	23	-58	2.1	1.4	-1.1	17038	16230	54438	55+

Female

Total	-9	9	1169	-1169	1432	-1432	1160	1441	-2601	8.4	10.1	-5.4	137870	142661	485453	Total
0-14	-9	9	198	-198	193	-193	189	202	-391	5.7	5.0	-2.6	32938	40266	150350	0-14
15-27	-3	3	605	-605	908	-908	602	911	-1513	16.3	22.9	-11.6	37026	39819	130533	15-27
28-54	6	-6	287	-287	279	-279	293	273	-566	5.8	6.0	-3.9	50384	45812	145587	28-54
55+	-3	3	79	-79	52	-52	76	55	-131	4.3	3.3	-2.2	17522	16765	58984	55+

(M1) IN and OUT:CITY (MALE)
in: 10.8
out: 3.5

(M2) IN and OUT:TOWN (MALE)
in: 9.7
out: 2.4

(M3) IN and OUT:RURAL COUNTY (MALE)
in: 0.7
out: 4.9

(M4) NET MIGRATION (MALE)
city: 7.3
town: 7.3
r-county: -4.2

(F1) IN and OUT:CITY (FEMALE)
in: 10.5
out: 2.1

(F2) IN and OUT:TOWN (FEMALE)
in: 13.3
out: 3.2

(F3) IN and OUT:RURAL COUNTY (FEMALE)
in: 0.8
out: 6.2

(F4) NET MIGRATION (FEMALE)
city: 8.5
town: 10.1
r-county: -5.4
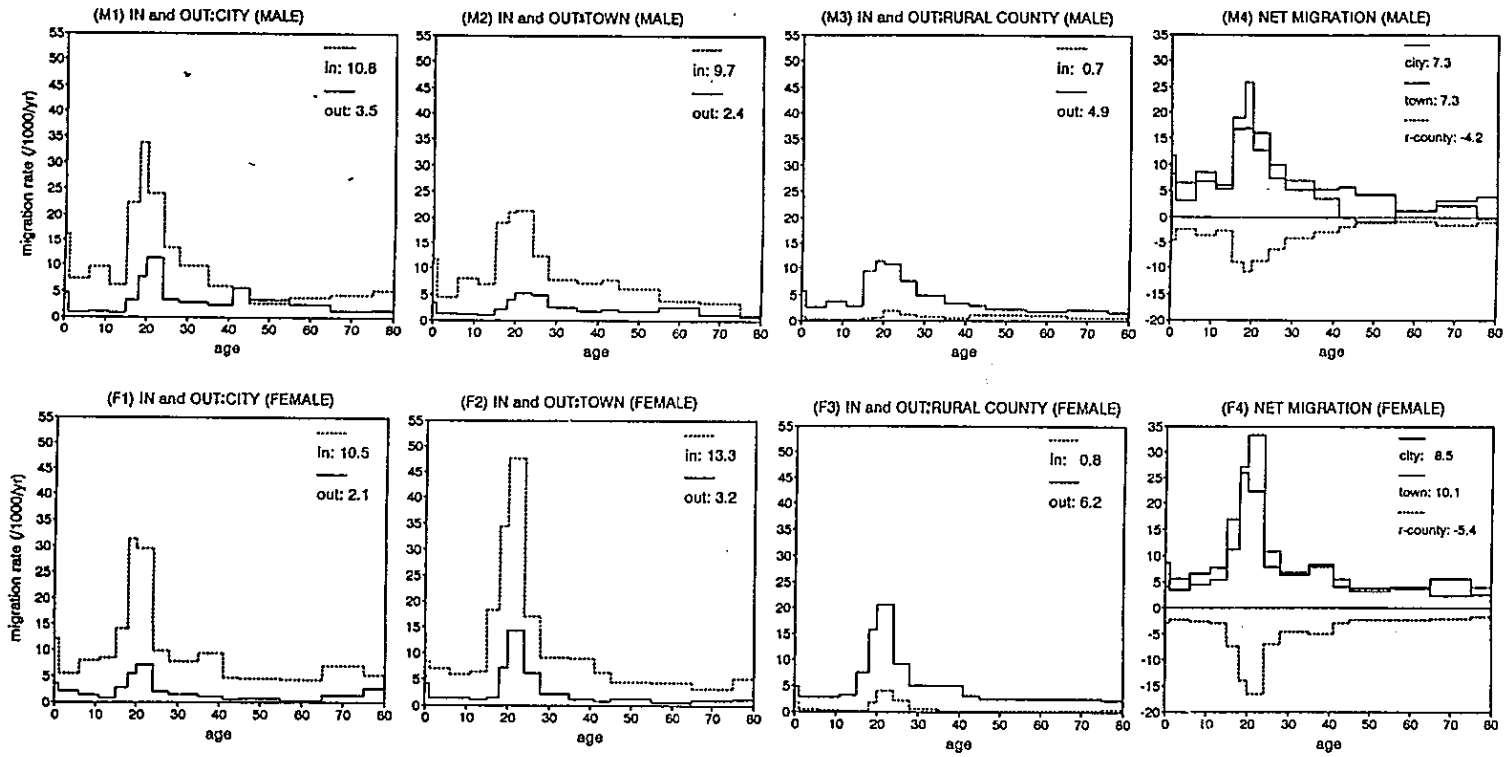
Fig. 3.3. In-, Out- and Net Migration Schedules of the Three Strata of the Settlement System of China: 1985-1987

from urbanization for young adults to counter-urbanization for middle-age adults observed in a post-industrialized country like Japan (Liaw, 1992) was clearly missing in China.

Since most of the migration-inducing life-cycle events were concentrated in the late teens and the twenties, 50 percent of male's and 65 percent of female's migrations were concentrated in the 15-27 age interval. Thus, it is not surprising that the 15-27 age group had the net migration rates of the greatest magnitude, as shown by the peaks in the net migration schedules (Fig. 3.3 (M4) and (F4)). In fact, as much as 53 percent of city's and 59 percent of town's net migration gains were found in this narrow age interval. The redistributional effect of the migrations of these young adults could be further amplified by their reproductive behavior. These findings suggest that the migration process can help to slow down the aging of urban population in the future. To the extent that the inmigrants may adjust to the low fertility norm and be subject to the more effective birth control measures of urban areas, the migration process may also help reduce the growth rate of the national population (Zeng and Vaupel, 1989).

3.6. Summary

We have studied the migrations in China during a three-year period (July 1, 1984 to June 30, 1987), based on the micro data from the 1987 One-

percent National Survey. In order to get some insights into the urbanization process and detect some specific effects of the government control on migrations, we divided the urban/rural settlement system into three strata (city, town and rural county) and then studied the lateral (city-city, town-town and rural-rural), upward (town-city, rural-city and rural-rural) and downward migrations (city-town, city-rural and town-rural) in the settlement hierarchy.

We found that the overall level of migrations was extremely low, being only 7.0 per thousand per year. Furthermore, for each sex, the propensities were low in making any type of lateral, upward and downward migrations (Table 3.2), ranging from the highest of 4.6 per thousand per year in male's city-city migrations to only 0.8 per thousand per year in female's city-rural migrations. Such low migration levels were due to not only the overall low development level but also the migration control. Displaying not only the low migration propensities in most age groups but also the narrowness of the labor force peak and the complete absence of a declining slope from early to late childhood, the migration schedules of China bore the clear imprints of the migration control (Fig. 3.1).

Gender role differentials were reflected by the differences between the two sexes in the distribution of reasons of migration (Table 3.1 and Table 3.3), the migration level (Table 3.2) and the migration schedules (Fig. 3.1, 3.2 and 3.3). We found males were more likely than females to migrate for

employment- and educational-related reasons, whereas females were more likely to migrate for family-related reasons. Marriage migrations were of particular importance in female's migrations, overwhelmingly so in migrations toward rural counties (rural-rural, town-rural and city-rural migrations). Due to the migration-enhancing effect of marriage migrations, the female's level of migrations (8.0 per thousand per year) was significantly higher than the male's (6.1 per thousand per year), and in the migration schedules, the female's 'marriage peak' (Fig. 3.1) was twice as high as the male's labor force peak. However, if marriage migrations were excluded, the female's migration level (4.4 per thousand per year) was much lower than the male's (5.9 per thousand per year), and the female's peak almost disappeared.

With respect to lateral migrations, we found that the migration propensity was high at the city stratum, intermediate at the town stratum and low at the rural stratum (4.0: 2.4: 2.1), suggesting that more urbanized stratum has stronger intra-stratum interactions. This contrast was quite sharp for males (4.6: 2.1: 1.1). Although it did not hold well for females in general (3.4: 2.7: 3.2), the contrast also became clear for females (2.9: 1.8: 0.7) when marriage migrations were excluded. The contrast was also true for practically all age groups and reflected the large differences in education and employment opportunities as well as the level of social welfare among the three strata.

With respect to upward migrations, we found the following. First, for each sex, the propensity to make rural-city migrations was twice as high as the propensity to make town-city migrations, suggesting that government migration control was particularly effective on the flow from the middle to the upper stratum of the settlement hierarchy, mainly through the restriction on job transfers; and that many rural folk were able to avoid the government control by entering the free markets in cities. Second, rural females were more likely than rural males to migrate to towns (3.6 versus 2.2 per thousand per year), reflecting the strong social (marriage) ties between towns and their rural hinterlands.

With respect to downward migrations, our findings are as follows. First, females were less likely than males to leave cities for towns or rural counties, mainly because females were less subject to the 'encouragement' of downward job transfers and job assignments. Second, females, mainly through marriage, were more likely than males to migrate from towns to rural counties. Third, excluding the marriage reason, females had extremely low propensity to migrate down to the rural stratum. Fourth, for both males and females, the most unpopular migration was from cities to rural counties.

The net effect of migrations was a fairly large net transfer of population from rural counties to cities and towns. The annual net migration rates per thousand persons were 7.9 for cities, 8.7 for towns and -4.8 for rural

counties, compared with the nation's natural growth rate of about 14 per thousand per year. The very high magnitude of efficiency (net migration divided by gross migration) in the internal migration of China, at the level of 50 to 75 percent, is of particular interest. It suggests that although the government attempt to suppress upward migrations was effective, its encouragement of downward migrations had little effect, and that people were extremely unwilling to make downward migrations probably due to (1) the fear of losing the benefits associated with urban residency (e.g. better education facilities, guaranteed supply of food and other necessities, and government-funded pension system) and (2) the fewer economic opportunities at the lower level of the settlement hierarchy. Finally, we found the concentration of more than half of net-migration gains of both cities and towns in the young adult age group (15-27), suggesting that the migration process can help to slow down the aging of the urban population in the future. To the extent that the inmigrants may adjust to the low fertility norm and be subject to the more effective birth control measures of urban areas, the migration process may also help reduce the growth rate of the national population.

Appendix 3.A. Weights for the Micro Data of 1987 National Survey

The micro data file used for this research is a 5 percent representative sample from the 1987 National Survey which covered approximately 1 percent of the population of mainland China. The Survey was based on a stratified sampling design in which rather different sampling intensities were applied to different provinces. In general, provinces with smaller population tended to have greater sampling intensities. Except for Tianjin (where only cities and rural counties appeared to be seriously over-sampled) and Tibet (where cities and towns were not covered by the survey), the city, town and rural strata within the provinces were sampled approximately in proportion to their population sizes. Mainly because of the unequal sampling intensities in different provinces, the tabulations of the individuals in the sample are bound to have serious spatial bias and hence can yield misleading patterns of migration.

To correct for spatial bias, we assigned different weights to the individuals in the micro data file according to a comparison between (1) the distribution of population by province and settlement stratum based on the micro data and (2) the population distribution of the survey that has been adjusted by the Statistic Bureau to be consistent with the Bureau's own estimate of the 1987 population distribution (SSB, 1988, p3). The weight for an individual in province i and stratum j is computed according to the

formula:

$$w(i, j) = \frac{n(i, j)/s}{N(i, j)/S} \qquad (3.A.1)$$

where

i: index of province $(i=1, 2, 3, \ldots, 29)$;

j: settlement stratum $(1=\text{city}, 2=\text{town}, 3=\text{rural county})$;

s: the sample size of micro data $(s=531745)$;

S: the sample size of the National Survey $(S=10711652)$;

$n(i, j)$: the sample size of settlement stratum j in ith province in micro data;

$N(i, j)$: weighted population size of settlement stratum j in ith province in the National Survey.

The resulting values are shown in Table 3.A.1. Clearly, the three metropolitan 'provinces' (Beijing, Tianjing and Shanghai) as well as some small provinces such as Qinghai, Ningxia and Xingjiang were over sampled and hence have weights less than one, whereas some big provinces such as Sichuan, Shandong and Hebei were under-sampled and hence have weights bigger than one.

Table 3.A.1. Weights by Province and Settlement Type

Province	City	Town	Rural County
Beijing	0.4652	0.4452	0.4743
Tianjin	0.3986	0.9490	0.3588
Hebei	1.2307	1.2090	1.1926
Shanxi	0.8017	0.7895	0.7707
Neimonggu	0.6026	0.6044	0.6028
Liaolin	1.0020	1.0145	1.0204
Jilin	0.8063	0.8198	0.8054
Heilongjiang	0.9160	0.9110	0.9171
Shanghai	0.5912	0.5336	0.5707
Jiangsu	0.9702	0.9769	0.9979
Zhejiang	0.9943	1.0018	0.9932
Anhui	1.0860	1.3393	1.1648
Fujian	0.8112	0.8249	0.8037
Jiangxi	0.8649	0.8775	0.8941
Shangdong	1.4054	1.3615	1.3689
Henan	1.2965	1.3067	1.2939
Hubei	1.1190	1.0824	1.0711
Hunan	1.2662	1 2470	1.1960
Guangdong	1.0355	1.4315	1.2011
Guangxi	0.9826	0.9820	1.0025
Sichuan	1.6494	1.6968	1.5848
Guizhou	0.8783	0.9251	0.8826
Yunnan	0.9212	0.8676	0.8929
Tibet	.	.	3.5794
Shaanxi	0.8394	0.9634	0.9062
Gansu	0.7802	0.8284	0.8149
Qinghai	0.3851	0.3687	0.3819
Ningxia	0.3746	0.3841	0.3947
Xinjiang	0.4284	0.4011	0.4178

Note: The Survey did not cover the cities and towns of Tibet.

Appendix 3.B. Computation of Migration Measures

In this study, we use a three-year migration period from July 1, 1984 to June 30, 1987, which is divided into three one-year subperiods (85, 86, 87). Age-specific migration rates are calculated based on the age in the year of migration (rather than the age at the beginning or ending of the three-year period). This age can be determined from the information on the migration status and the duration of residence. For example, a migrant would have migrated at age x in 1985 if his age was $x+2$ at the time of survey and his duration of residence was two-to-three years (see Fig. 3.B.1).

By assuming that there were few return or onward migrations and deaths in the period, the total migrants who migrated at age x in the three-year period, $M(x)$, and the corresponding at-risk population, $P(x)$, can be represented as:

$$M(x) = M(x,85) + M(x,86) + M(x,87) \qquad (3.B.1)$$

$$P(x) = P(x,85) + P(x,86) + P(x,87) \qquad (3.B.2)$$

where

$M(x,85)$, $M(x,86)$ and $M(x,87)$ were the numbers of migrants who migrated at age x in the 1985, 1986 and 1987, respectively. The corresponding at-risk populations $P(x,85)$, $P(x,86)$, and $P(x,87)$ were approximated by the population size of those whose ages at the time of survey were $x+2$, $x+1$ and

x, respectively. Both *M* and *P* are obtained by adding up the weights associated with the relevant individuals (Table 3.A.1).

The age-specific migration rates, *m(x)*, are computed as follows:

$$m(x) = \frac{M(x)}{P(x)} * 1000 \qquad (for \ x \geq 0) \qquad (3.B.3.1)$$

$$m(0) = \frac{2*M(0)}{P(0)} * 1000 \qquad (for \ x-0) \qquad (3.B.3.2)$$

The reason of adjusting the rate of new-born infant by a factor 2 is that they were exposed to the risk of migration for only six months by the end of a one year period (see Fig. 3.B.1). The unit of the migration rate is 'per thousand per year'.

The sex- and age-specific migration rates are computed as follows:

$$M(s,x) = M(s,x,85) + M(s,x,86) + M(s,x,87) \qquad (3.B.4)$$

$$P(s,x) = P(s,x,85) + P(s,x,86) + P(s,x,87) \qquad (3.B.5)$$

$$m(s,x) = \frac{M(s,x)}{P(s,x)} * 1000 \qquad (for \ x \geq 1) \qquad (3.B.6.1)$$

$$m(s,0) = \frac{2 * M(s,0)}{P(s,0)} * 1000 \qquad \textit{(for } x\text{-}0) \qquad (3.B.6.2)$$

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

The sex-, age- and stratum-specific migration rates are computed as follows:

$$M(s,o,d,x) = M(s,o,d,x,85) + M(s,o,d,x,86) + M(s,o,d,x,87) \qquad (3.B.7)$$

$$P(s,o,d,x) - P(s,o,d,x,85) + P(s,o,d,x,86) + P(s,o,d,x,87) \qquad (3.B.8)$$

$$m(s,o,d,x) = \frac{M(s,o,d,x)}{P(s,o,x)} * 1000 \qquad \textit{(for } x \geq 1) \qquad (3.B.9.1)$$

$$m(s,o,d,0) = \frac{2 * M(s,o,d,0)}{P(s,o,0)} * 1000 \qquad \textit{(for } x\text{-}0) \qquad (3.B.9.2)$$

where

o: the settlement type of origin (1=city; 2=town; 3=rural county);

d: the settlement type of destination (1=city; 2=town; 3=rural county).
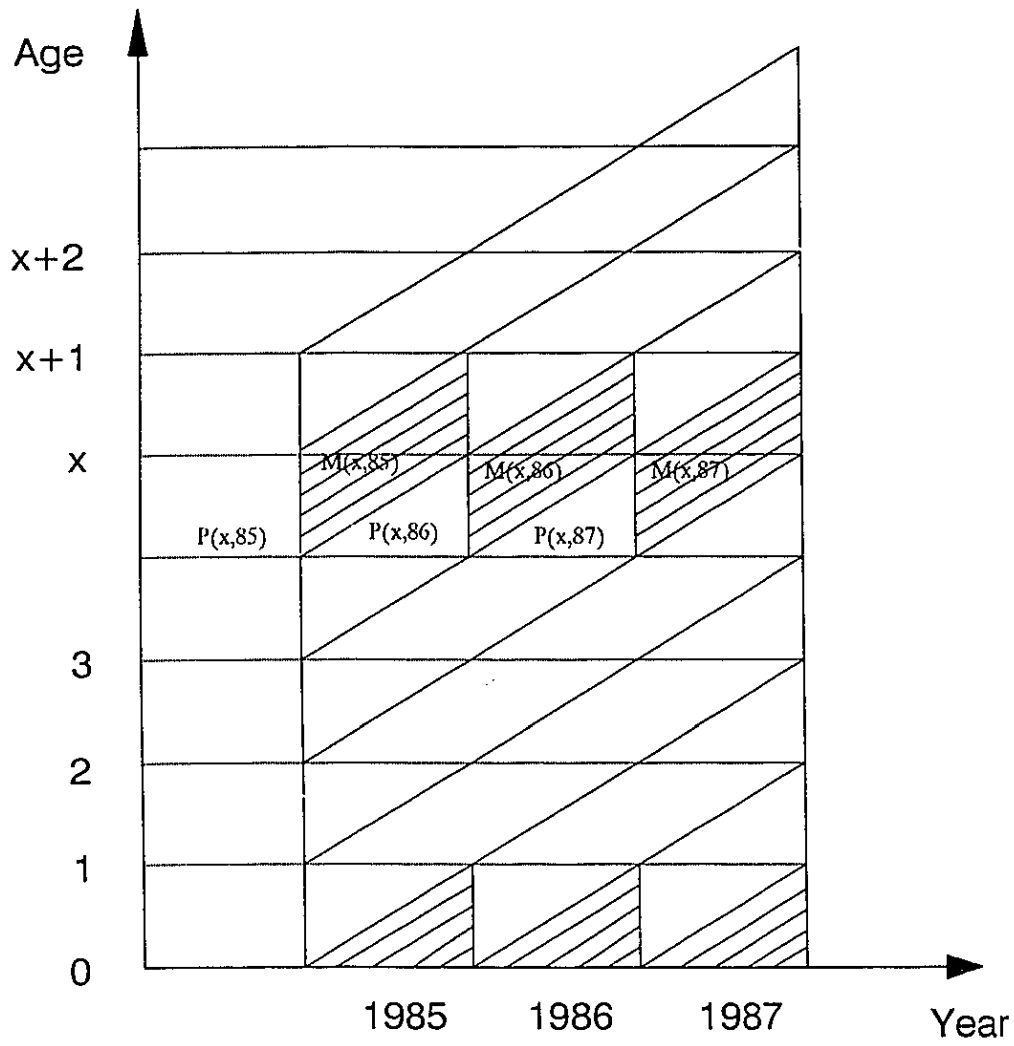
Fig. 3.B.1. The Lexis-Diagram for Migration from 7, 1, 1984 to 6, 30, 1987, China

Chapter 4

Explaining Hierarchical and Interprovincial Migrations of Chinese Young Adults by Personal Factors and Place Attributes: A Nested Logit Analysis

4.1. INTRODUCTION

A historic event in China in 1992 was the official announcement that the ultimate goal of economic reform in this country is to establish its own market system, implying that the weight would be further shifted from government's planning and intervention to the varied choices and actions taken by numerous individuals and enterprises. As the government's role in allocating all resources (including human resource) diminishes, migration as a mechanism of economic adjustment becomes more important.

Downward flows to less urbanized areas and **westward** flows to less developed regions were the dominant features of the migration process in China in the 1960s and the early 1970s, when migrations were mainly controlled and sponsored by the government. In this period, market forces were suppressed and the economy was dictated by the government. Disregarding the preferences of the people, the government sponsored massive migrations to less urbanized areas/regions for political, ethnic and

security reasons. About twenty millions of school graduates, intellectuals and local cadres were sent from cities to rural areas in the period of the Cultural Revolution (1966-1976) to be reeducated by peasants and to reduce the severe urban unemployment problem which was a threat to political stability. Imagining the possibility of the military attack by the Nationalist force from Taiwan and the bombing by its American ally, the government relocated many skilled workers and technicians as well as their factories from eastern provinces to the so-called "third front" in the western interior (Marukawa, 1993). The areas with relatively large net outmigration rates in the 1960s all were eastern provinces such as Liaoning, Shandong and Jiangsu and especially the three big metropolitan municipalities (to be considered as "provinces" in this chapter for convenience): Beijing, Tianjin and Shanghai (Hayase and Kawamata, 1990).

With the economic reform and rapid economic development since the late 1970s, the migration process in China has undergone fundamental changes. Between 1977 and 1979, many of the educated youth, intellectuals and local cadres returned to the cities (Kim, 1990). Of particular importance was the fact that **individuals** (or families) have replaced the government as the main decision-maker in migration, despite the continuation of government control on upward migrations. As a result, the migration behaviors are expected to be more responsive to market forces.

Economic reform had already swept the country in the 1980s at all three urban/rural strata: cities, towns and rural counties. It started in the late 1970s from the least developed stratum--rural counties--through the "responsibility system", which introduced more incentives in production and hence resulted in not only much higher agricultural productivity but also greater diversification of rural productions. In response, both towns and cities opened their free markets to rural peasants. Migrants from rural areas who were engaging in manual work and commerce (e.g. construction work, nursemaids, small-scale food processing and sale) were allowed to register as transient residents in urban areas without limits on the duration of stay. As a bridge between rural hinterlands and cities, towns developed rapidly and opened their door even wider to absorb the rural labor surplus resulting from the enhanced rural productivity. Rural residents were even allowed to settle in small market towns as long as they had their own means of subsistence (food and income). Cities--the most developed stratum--have been assigned a leading role in the development of towns and rural hinterlands by not only opening their free markets but also providing technical expertise and financial support as well as sponsoring local industrial establishments (Goldstein, 1985).

As the catalyst for modernization, China's coastal cities led the way in opening the country to the outside world and this brought about more rapid economic growth in coastal provinces than in interior provinces (Yeung and

Hu, 1992). At the forefront of the economic reform are the four special economic zones and fourteen coastal cities which have since the early 1980s adopted the market system to attract the well-educated young people from all parts of China and the investment and advanced technology from foreign countries. Such concentrated economic development has increased interprovincial income disparities and may weaken the economic vitality of the interior provinces.

Contrary to the egalitarian principle of Communism, economic well-being differs substantially among the three urban/rural strata in China. Even without taking the urban subsidies (for housing, food, and medical services etc) into consideration, urban income per capita averaged more than twice the rural income per capita in the 1980s in most provinces. The clear contrast among the urban/rural strata in terms of the level of development and the quality of life suggests that migrations in China involve not only the spatial changes among provinces but also the hierarchical changes among urban/rural strata. In other words, both urbanization and interregional population redistribution should be studied simultaneously.

It has been shown that migration flows in China are constrained and distorted by strong government control, which was designed to prevent rapid urban population growth from overburdening the urban infrastructure and to maintain the economic vitality of rural areas (Chapter 3). The control may

make migration behaviors in China even more selective with respect to personal attributes than those in other countries, because migrants in China, in addition to acquiring information about opportunities in different locations, must be able to overcome government restrictions. If this selectivity is highly positive, then the government control may have the unintended consequence of aggravating the geographical inequality in the quality of human capital.

Thus, the migration process in China must be rather complex and can not be effectively studied without a set of high-quality micro data and a well designed multivariate model that can embrace the two processes of urbanization and interregional population redistribution. Fortunately, the micro data file of the National Population Survey in 1987 (NPS87), which is the first data base that contains personal information on the migrants in all parts of the country, makes the study possible. A nested logit model, which has been successfully applied to interprovincial migrations in Canada (Liaw, 1990) and interprefectural migrations in Japan (Kawabe and Liaw, 1992), can be expanded to study both interprovincial and inter-stratum migrations in China.

Based on the micro data of NPS87, the purpose of this chapter is to explain the 1985-1987 interprovincial and inter-stratum migration behaviors of Chinese young adults aged 17-29 by personal factors and "ecological" variables (place attributes), using a multivariate nested logit model. Since

most of the migration-generating life-cycle events are concentrated in the 17-29 age interval, our choice of the age interval allows us to deal with the most critical aspects of the migration phenomenon. Furthermore, the relatively large number of migrants observed in this age interval also enhances the reliability of the computed migration measures.

4.2. MIGRATION DATA AND DEFINITION OF MIGRATION MEASURES

In NPS87, each individual record contains information on major personal attributes (age, sex, level of education, marital status and age at first marriage) and duration of residence as well as the address and the urban/rural settlement type of the residence at the time of the survey. The records of migrants include additional information on the province and settlement type of the last residence, and on principal reason for migration.

In NPS87, migrations are defined as movements from other cities, towns or rural counties during 1982-87 in terms of a registered change to the current residence, or absence from the registration place for at least six months. Towns in the survey only include those officially designated by governments at provincial level and hence are classified as urban, whereas the remaining small towns are included in rural counties. In this chapter, we limit our attentions to migrations that were recorded in each year of the three-year period between July 1st, 1984 and June 30th, 1987 (we call them year 85, 86

and 87 in the later text) in order to gain a large sample size, minimize the distortions due to unrecorded migrations, and reduce the effect of urban reclassification around 1984[16].

One of the advantages of NPS87 is that for each migrant, a precise age at the time of migration can be determined by using the information on age at survey and duration of current residence. The precision of age is very important for this study, because the relative frequencies of major migration-generating life-cycle events (e.g. entry into and departure from institutes of higher education, marriages, and job assignments and transfers) change greatly within a relatively short age interval (Chapter 3). In order to make full use of this advantage, we consider (1) those who did not migrate in the three-year period as a stayer for each of the three years; (2) those who migrated in year 85 as the migrants for year 85 and as the stayers of the destination for each of the following two years; (3) those who migrated in year 86 as the stayers of the origin for year 85, as the migrants in year 86, and as the stayers of the destination in year 87; and (4) those who migrated in year 87 as the stayers of the origin for each of the two years before migration

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[16] The reported proportion of urban population jumped sharply from 20.8 percent in mid-1982 to 31.9 percent at the end of 1984 and 36.9 percent in mid-1987 (Zeng and Vaupel, 1989). Urban/rural reclassification in the period, which allowed more rural areas to qualify as urban, seems to have had more effect than rural-urban migrations on such a rapid change (see details in Ma and Cui, 1987; Goldstein, 1990).

and as the migrants of year 87. Ages in year 85 and year 86 are adjusted by subtracting the age in year 87 by 2 and 1, respectively. Only those with ages between 17 and 29 are kept as young adults for this study. We then create a **synthetic** population of young adults aged 17-29 by pooling together all migrants and stayers for each of the three years, as if all migrations took place in a single-year period (referred as the 'study year' in the following text) in the synthetic population.

Of utmost importance in using NPS87 is the realization that the individuals in different provinces (and to some extent in different urban/rural strata as well) were sampled with different intensities. This means that all migration indices computed according to the assumption that every person is equally important are bound to be biased. To avoid getting biased measures, we assign different weights to different individuals. For example, an individual in the over-sampled rural stratum of Tianjin is given a weight of only 0.35882, whereas an individual in the under-sampled town stratum of Sichuan is assigned a weight of 1.69678. The method of finding these weights is shown in Appendix of 3.A in Chapter 3.

To define the proper migration measures, we start by considering each young adult at the beginning of the study year as a potential migrant (PM) who makes a two-level decision. At the upper level, the PM chooses to become an outmigrant (by moving to some other city, town or rural county)

or a stayer. At the lower level, the outmigrant chooses a specific urban/rural stratum in one of the 28 provinces[17] as destination.

Consider a PM with personal attribute s and residing at stratum g in province i at the beginning of the study year. His/her propensity to depart (outmigrate) is represented by a **departure probability**, p[g,i,s]. For descriptive purposes, the departure probability, though not observable, can be estimated by a **departure rate**:

$$P[g,i,s] = M[g,i,s] / K[g,i,s] \qquad (4.1)$$

where K[g,i,s] is the number of potential migrants with personal attribute s at stratum g in province i; and M[g,i,s] is the number of persons in K[g,i,s] who outmigrated in the study year. Because of the uneven sampling intensities in NPS87, the values of M[g,i,s] and K[g,i,s] are the sums of the weights assigned to the relevant individuals.

If the PM is known to have migrated, his/her propensity to choose stratum h in province j as the destination is represented by the **destination choice probability**, p[h,j|g,i,s], which can be estimated by the **destination choice proportion**:

$$P[h,j|g,i,s] = M[h,j|g,i,s] / M[g,i,s] \qquad (4.2)$$

where M[h,j|g,i,s] is the weighted number of outmigrants in M[g,i,s] who

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[17] Because the information on Tibet is not as reliable and complete as that on other provinces, we exclude Tibet from the system.

selected stratum h in province j as the destination.

For the purpose of characterizing the departure and destination choice patterns, easily understandable values are computed from equations (1) and (2) by suppressing various distinctions in g, i, h, j, and s. For example, to characterize the overall age pattern of the departure rates, we use equation (1) by suppressing all distinctions in g, i, h, j and all personal factors in s except for age.

4.3. STATISTICAL MODEL AND ESTIMATION METHOD

In choice theory, migration is considered as an outcome of a choice process in which the choice set includes a number of places of different attractiveness (utility). The variables affecting the attractiveness of a place such as income level are called 'ecological' variables. The choice set includes the place of residence at the beginning of the study year as well as 84 potential destinations (3 strata times 28 provinces).

In order to study the effects of personal factors and ecological variables on the departure and destination choice propensities in a multivariate context, we use a two-level nested logit model derived from a random-utility theory of individual choice behavior (Kanaroglou, Liaw and Papageorgiou, 1986; and Liaw, 1990). At the lower level, the destination choice probability, $p[h,j \mid g,i,s]$, is expressed as a function of perceived utilities,

according to the **destination choice submodel**:

$$p[h,j|g,i,s] = \exp[V[h,j|g,i,s]/u[s]] / \sum_{f,k} \{\exp[V[f,k|g,i,s]/u[s]]\} \quad (4.3)$$

where $V[h,j|g,i,s]$ is the deterministic part of the random utility of stratum h in province j perceived by the PM at stratum g in province i; and $u[s]$ is an unknown parameter dependent on s and bounded between zero and one. The summation in the denominator of the right-hand-side in equation (3) is over all possible combinations of strata (f) and provinces (k). When h=g and j=i, the PM's place of residence (a particular city, town or rural county) is excluded from h so that the utility of the PM's place of residence does not contribute to $V[h,j|g,i,s]$. The submodel is operationalized by expressing $V[h,j|g,i,s]$ as a linear-in-parameters function of a column vector of **observable** personal factors and ecological variables, $X[h,j|g,i,s]$, according to:

$$V[h,j|g,i,s] = B'X[h,j|g,i,s] \quad (4.4)$$

where B' is a row vector of unknown parameters.

At the upper level, the departure probability $p[g,i,s]$ is linked to the perceived utilities according to the **departure submodel**:

$$p[g,i,s] = exp[c+u[s]*I[g,i,s]-V[g,i,s]]/\{1+exp[c+u[s]*I[g,i,s]-V[g,i,s]]\} \quad (4.5)$$

where

$V[g,i,s]$ is the deterministic part of the perceived utility of the PM's place of residence (a specific city, town or rural county); c is another unknown parameter which is an increasing function of the time interval; and

$$I[g,i,s] = \ln[\ \sum_{f,k} \{exp[V[f,k|g,i,s]/u[s]]\}] \quad (4.6)$$

The variable $I[g,i,s]$ is called the **inclusive variable** and can be interpreted as a measure of the attractiveness of the rest of the system perceived by the PM with personal attributes s at stratum g in province i. This submodel is operationalized by expressing $V[g,i,s]$ as another linear-in-parameters function of a column vector of **observable** personal factors and ecological variables, $Y[g,i,s]$, according to:

$$V[g,i,s] = A'Y[g,i,s] \quad (4.7)$$

where A' is a row vector of unknown parameters.

The estimations of the parameters of the two submodels are done sequentially. The parameters of destination choice submodel are estimated first. The values of the inclusive value are then computed and passed up for the estimation of the parameters of the departure submodel. Implemented by the **Newton-Raphson** iterative algorithm, the **maximum quasi-likelihood**

method[18] (Wedderburn, 1974 and McCullagh, 1983) is used for the estimation.

Since our sample size is very large (6,145 weighted individuals in the destination choice submodel and 392,247 weighted individuals in the departure submodel), we will treat the computed t-ratios as the values of the standard normal variate and consider the magnitude of 2.0 or greater as an indication of a statistically significant relationship. Based on the likelihood criterion, the magnitudes of the t-ratios can also be used to rank the relative importance of the explanatory variables: the greater the magnitude, the more important the corresponding variable.

For each submodel, we measure the goodness-of-fit of a specification in question by:

$$\text{Rho-square} = 1 - L[q]/L[0] \qquad (4.8)$$

where $L[q]$ is the maximum value of the log of the quasi-likelihood of the specification in question; and $L[0]$ is the corresponding value of the 'null' specification. For the destination choice submodel, the null specification has all parameters set to zero, implying that all the destinations are equally attractive to every person. For the departure submodel, the null specification

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[18] Theoretically, this method is better than the maximum likelihood method because it does not require the latter's assumption that migrations are independent events. We wrote our own estimation program in the GAUSS language.

sets all parameters to zero, except for the constant c, implying that the departure probability does not depend on any personal factor or ecological variable. The lower bound of Rho-square is zero, whereas the upper bound is usually much less than 1.0. A value between 0.2 and 0.4 may actually represent a very good fit (McFadden, 1974).

4.4. SELECTION OF EXPLANATORY VARIABLES IN THE DESTINATION CHOICE SUBMODEL

Since we have divided the alternatives in the choice set into three urban/rural strata and 28 provinces simultaneously, it is very difficult to find reliable data on the ecological variables. Among the potentially useful economic variables, we can find only income data but no employment data. The provincial income data only allow the distinction between urban and rural areas so that the distinction between city and town strata is impossible, although the income levels probably do not differ much between cities and towns. To compensate for this kind of shortcoming, the micro data contain relatively rich information on personal background to allow the creation of many substantively meaningful variables. Five main hypotheses with respect to the destination choice behaviors of Chinese young adults are proposed to guide the selection of the explanatory variables.

Hypothesis 1: Despite the continuation of government control on upward

migrations, the destination choice behaviors of Chinese young adult migrants

in the 1980s responded mainly to the market forces: they were more prone

to select destinations with better economic opportunities. This hypothesis

leads to the selection of the following six variables.

Income Level at Destination (+). This variable is the per capita income (in 100

ren-min-bi per person) of the urban or rural area in the potential destination

in 1984 (SSB, 1990). Due to data limitations, the observed urban income in

each province is assigned to both city and town strata in the province. We

expect a strong pull effect of higher income level at the potential destination.

*Manual work & Commerce * Income* (+). This variable is the income of the

potential destination times a dummy variable which assumes the value of 1,

if manual work and commerce is the reason for migration. We expect that

migrants with this type of reason who usually originate from rural areas and

seek temporary employment mostly in the urban free markets are more

sensitive to the pull effect of higher income.

Coastal Region (+). This variable is a dummy variable assuming the value of

1 if the potential destination is in a coastal province. It is expected to have

a positive effect, because, in addition to having higher incomes, the coastal provinces had greater increases in job opportunities and were also perceived to have a more promising economic future.

Rural Marriage Channel (+). This is a dummy variable assuming the value of 1, if the migrant was female and migrated for marriage reasons from the rural stratum of the southwestern provinces of Sichuan, Guizou and Yunan to the rural stratum of the eastern provinces of Jiangsu, Shandong and Anhui. It is used to capture the effect of a one-way channel for female marriage migrations across long distances from the very poor rural areas in the southwestern interior to the better-off rural areas in some eastern provinces. Although stories of disappointment have recently been reported in the radio programs of the origin places, we expect that better income prospect and the relative shortage of young adult females in the rural areas of the eastern provinces were strong enough to sustain the one-way channel.

City-to-Town Orientation and City-to-Rural Orientation (-). These two dummy variables assume the value of 1, if the origin is a city stratum and the potential destination is a town stratum (for the first variable) or rural stratum (for the second variable). Although the official migration policy strongly encourages such downward migrations, the preference of most migrants is

expected to be in the opposite direction. One of the reasons for such a preference is the awareness of the hardship experienced by some family members who were sent to small towns and rural areas in the 1960s and the 1970s and managed to return later. The memory of the low quality of life and the poor economic prospects in small towns and rural areas is expected to leave a strong negative impression on the young adults. Another reason is the fear of not being able to regain the city registration and the associated economic benefits once a downward migration takes place.

Hypothesis 2: In search of better opportunities elsewhere, the destination choice behaviors in China are strongly restricted by various structural constraints: (1) poor transportation and communication systems; (2) large spatial variations in dialects, living habits, and physical environments; and (3) greater effectiveness of government control on migrations from small to large urban places or across provincial borders. This hypothesis leads to the selection of the following four variables.

Log of Distance (-). Distance between the origin and destination provinces, if they were different, is measured by the railroad distance in kilometres. For inter-stratum migrations within a province, we use 0.88 times of the radius of

the province to approximate the average distance[19]. The log transformation

is based on the idea that the marginal friction of distance tends to decrease

with an increase in distance. We expect a very strong distance-decay effect.

*Marriage * Log of Distance* (-). This variable is a product of the log of distance

and a dummy variable which assumes the value of 1, if marriage is the reason

for migration. With few exceptions, marriage migrations tend to be limited

to relatively short distances, because a prerequisite of marriage is the

familiarity involving the families of both groom's and bride's sides. Since such

familiarity diminishes quite rapidly with an increase in distance, we expect

that marriage migrations are especially subject to the distance decay effect.

Contiguity (+). This dummy variable assumes the value of 1 if both origin

and potential destination are in the same province, or if the potential

destination is a province sharing a common border on land with the origin

province. We expect this variable to have a positive coefficient, because

migrations within a province and between contiguous provinces are less

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[19] The distance is not available directly if the origin and destination were in the same provinces. By using the method of simulation, we found that if we reshape a provincial boundary into a circle and assume that cities, towns or rural counties are evenly distributed within the circle, then 0.88 times of the radius can be used to approximate the distance to a potential destination within a province.

subject to the negative effect of "intervening opportunities".

Town-to-City Orientation (-). This dummy variable assumes the value of 1, if the origin is a town stratum and the potential destination is a city stratum. Despite the fact that there are more urban amenities in cities than in towns, we expect a negative sign for this variable because government's control on migration is quite effective on permanent job transfers from small to large urban places (Chapter 3).

Interprovincial Migrations * Town (-). This dummy variable assumes the value of 1, if the potential destination is the town stratum and if the migration was interprovincial. Towns are relatively unimportant destinations for interprovincial migrants, because very few towns are part of the interprovincial networks of transportation, communication and administration.

Hypothesis 3. For intraprovincial migrations, the importance of towns as destinations is enhanced by the government migration policy which was designed to use towns to direct the flow away from densely-populated cities and to absorb the labor surplus from the surrounding rural areas. This hypothesis leads to the choice of the following two variables.

Job Assignment * *Town* (+). This dummy variable assumes the value of 1, if the potential destination is a town stratum and if the migration was due to job assignment. Since job assignments are dictated by the government and tend to be used most effectively to enlarge the downward migrations from cities to towns, this variable is expected to have a very large positive coefficient.

(Job Transfer or Family Moving) * *Town* (+). This dummy variable assumes the value of 1, if the potential destination is a town stratum and if the reason for migration was either job transfer or family moving. In addition to job assignment, the government also has a strong control on the transfer of urban jobs and tends to use it to enlarge the downward migration flow from cities to towns. Whereas job assignments usually involve labor force entrants, job transfers usually involve more senior labor force members who have held a job for some time and usually have dependents in their families. Thus, most of the migrants whose reason for migration was "family moving" are the secondary migrants accompanying the primary migrants whose jobs were transferred from one location to another. Therefore, we expect this variable to acquire a positive coefficient.

Hypothesis 4. The destinations of marriage migrations are expected to be largely limited to the lower strata of the urban/rural hierarchy (especially the

rural stratum), because of marriage discrimination. The main reasons for this expectation are that potential grooms (brides) at the city stratum have a strong tendency to shun potential brides (grooms) at the lower strata (especially the rural stratum) of the urban/rural hierarchy, and that the potential grooms (brides) at the town stratum also tend to shun potential brides (grooms) at the rural stratum. Such tendencies are tied to (1) the fact that the migration control policy does not allow either the groom or the bride of an inter-stratum marriage to change the residence registration toward the upper stratum, and (2) the fact that various government policies have resulted in substantially lower living standard down the urban/rural hierarchy. This hypothesis leads to the choice of the following two variables.

*Marriage * Rural County* (+). This dummy variable assumes the value of 1, if the potential destination is the rural stratum and if the reason for migration was marriage. It is expected to have a very large positive coefficient.

*Marriage * Town* (+). This dummy variable assumes the value of 1, if the potential destination is the town stratum and if the reason for migration was marriage. It is expected to have a large positive coefficient.

Hypothesis 5. Some destination choice behaviors are subject to the "beaten

path" effect. For many years since the Qing Dynasty, many peasants in the densely settled rural areas of Shandong Province migrated as pioneers to the resource-rich and extensive areas of the provinces of Heilongjiang and Jilin in the northern part of the Northeast Region (Manchuria) (Hayase, 1991). These pioneers have established a beaten path for large two-way flows of migrants, although the migration flow from rural Shandong to Jilin had become much less important than the corresponding flow to Heilongjiang. Thus, we introduce the following two variables.

Beaten Path (forward): *Shandong-Northeast* (+). This dummy variable assumes the value of 1, if the origin is the rural stratum of Shandong and if the potential destination is Heilongjiang.

Beaten Path (backward): *Northeast-Shandong* (+). This dummy variable assumes the value of 1, if the origin is the rural area of Heilongjiang or Jilin and the destination is the rural area of Shandong.

Finally, to control for the positive effect of the size of the ecumene and the obvious attractions of students to the places with better education opportunities, we choose the following three variables.

Population Size at Destinatio: (+). This variable is the 1984 population size (in 10 million persons) of each destination stratum in each province, computed from the tabulated data in Hayase and Kawamata (1990).

*Student * City* (+). This dummy assumes the value of 1, if the migrant migrated for education reasons and if the potential destination is a city stratum. Because most of the post-secondary education institutions are concentrated in cities, this variable is expected to have a very strong positive effect.

*Student * Town* (+). This dummy variable assumes the value of 1, if the migrant migrated for education reasons and if the potential destination is town stratum. It is expected to have a moderate positive effect.

4.5. EMPIRICAL FINDINGS ON DESTINATION CHOICE BEHAVIORS

From the observed destination choice proportions of all migrants, we found that the migrants' propensities to remain in the same stratum were stronger at the higher level of the urban/rural hierarchy. This pattern was particularly clear among the males: 58 percent for outmigrants from cities, 44 percent for outmigrants from towns, and only 16 percent for outmigrants from rural counties. The corresponding female figures were 59, 43 and 42 percent.

Female migrants were much less capable of escaping from the rural stratum than were male migrants.

From the observed destination choice proportions of interprovincial migrants, we found the following. First, towns were rather unpopular destinations. They attracted only 16 percent of the interprovincial outmigrants from rural counties and 18 of the interprovincial outmigrants from cities. Second, very high proportions of interprovincial migrants went to neighboring provinces. As extreme examples, we note that 83 percent of Ningxia's outmigrants went to Shaanxi, that 59 percent of Guangxi's outmigrants went to Guangdong, and that 52 percent of Shanxi's outmigrants went to Hebei. Third, though being widely separated, Shandong and Heilongjiang were strongly connected due to the "beaten path" effect. Heilongjiang was the most preferred destination of the outmigrants from Shandong (23 percent). Shandong was in turn the most preferred destination of the outmigrants from Heilongjiang (24 percent).

4.5.1. General Findings from the Destination Choice Submodel

With a Rho-square of 0.497, the general specification (i.e. the specification of the submodel containing the largest number of substantively meaningful explanatory variables) explains the destination choice pattern very well (Table 4.1). All the explanatory variables turned out to have the

hypothesized signs and, except for *Town-to-City Orientation*, they are all statistically significant.

We found that Chinese young adult migrants indeed responded to market forces in a rational way. First, the pull effect of income level at potential destination was significantly positive and was particularly strong for the migrants whose reason for migration was manual work and commerce: the coefficients of *Income Level* are 0.4991 (0.0781+0.4210) for migrants with manual work and commerce reason and 0.0781 for migrants with other reasons. Second, the young adult migrants were more prone to select the fast growing coastal provinces than interior provinces as their destinations: the coefficient of *Coastal Region* is positive (0.8692) and highly significant (t=5.7). Third, the one-way channel of female marriage migrations from the poor rural areas of the southwestern interior to the relatively well-off rural areas in the coastal region is confirmed by a very large positive coefficient (4.9539) and a very large t-ratio (10.6). Fourth, downward migrations, which represented the main form of migrations during the 1960s and early 1970s, became out of favor in the 1980s: this is reflected by the large negative coefficients of *City-to-Town Orientation* (-1.0675) and *City-to-Rural Orientation* (-1.1524), both of which are associated with t-ratios of large magnitudes (-6.3 and -6.5).

The destination choice propensities were indeed subject to strong structural constraints. They were subject to a very strong distance decay

effect: the coefficient of *Log of Distance* is very negative (-1.7246) and is associated with a t-ratio of extremely large magnitude (-34.6). The magnitude of the distance parameter is more than twice that of the destination choice model of interprovincial young adult migrations in Canada (Liaw, 1990). For marriage migrations, the distance decay effects was even stronger: the coefficient became -2.3931 (-1.7246-0.6685). In addition, the migrants were more likely to stay within their own province or go to contiguous provinces: the coefficient of *Contiguity* is positive (0.6968) and highly significant (t=6.8). Although it is not significant, the negative coefficient of *Town-to-City Orientation* (-0.2096) indicates that the downward pressure of government control was at least strong enough to counter the upper attraction of amenities in cities. Being mostly outside of the interprovincial networks of transportation, communication and administration, towns were particularly unattractive to interprovincial migrants: the coefficient of *Town * Interprovincial Migration* is -1.1318, with a t-ratio of -7.4.

The migration policy's attempt to direct the migration flows into the towns was quite effective for the destination choices of the migrants whose migration reasons were job assignments, job transfers, and family moving. Migrations based on these reasons were most subject to government control. The coefficient of *Town * Job Assignment* turned out to be as high as 1.6223

Table 4.1. The Estimation Results of Destination Choice Submodel for Chinese Young Adult Migrants (Aged 17-29), 1985-1987, China

	General Specification		Test 1		Test 2 -Contiguity		Test 3 -Distance		Test 4 -Two Prox. Var.	
	Coefficient	(T)	Coefficient	(T)	Coefficient	(T)	Coefficient	(T)	Coefficient	(T)
I. Economic Oppurtunities at Destination										
Income Level	0.0781 (	2.2)	0.1691 (	7.5)	0.0547 (	1.7)	0.2659 (	16.2)	0.1523 (	10.5)
Manu.& Com.* Income	0.4210 (	6.6)	----	----	0.4335 (	7.1)	0.2812 (	8.4)	0.3621 (	12.5)
Costal Region	0.8692 (	5.7)	----	----	0.7968 (	5.5)	0.6480 (	8.6)	0.4463 (	7.4)
Rural Mar. Chnl	4.9539 (	10.6)	----	----	4.7569 (	10.6)	3.7664 (	15.3)	1.9013 (	8.3)
City to Town	-1.0675 (	-6.3)	----	----	-1.0793 (	-6.7)	-0.9936 (	-10.4)	-1.0878 (	-11.9)
City to Rural County	-1.1524 (	-6.5)	----	----	-1.1724 (	-6.9)	-1.0147 (	-10.0)	-1.2258 (	-12.7)
II. Structural Constraints										
Log of Distance	-1.7246 (	-34.6)	-1.9379 (	-55.3)	-1.9452 (	-50.5)	----	----	---	---
Marriage*Log of Dist.	-0.6685 (	-8.5)	----	----	-0.6364 (	-8.5)	----	----	----	----
Contiguity	0.6968 (	6.8)	0.5521 (	7.0)	---	---	3.4288 (	86.4)	----	----
Town to City	-0.2096 (	-1.2)	----	----	-0.2013 (	-1.2)	-0.2748 (	-2.7)	-0.2165 (	-2.2)
Interprov. Mig.* Town	-1.1318 (	-7.4)	----	----	-1.1294 (	-7.7)	-1.1265 (	-12.9)	-1.1125 (	-13.3)
III. Government Direction toward Towns										
Job assign * Town	1.6223 (	8.8)	----	----	1.6362 (	9.3)	1.5364 (	14.7)	1.6431 (	16.5)
Job Trans.& Family Move * Town	1.1692 (	7.9)	----	----	1.1862 (	8.4)	1.0720 (	12.8)	1.2171 (	15.3)
IV. Marriage Discrimination										
Marriage * Town	1.2292 (	9.8)	----	----	1.2315 (	10.2)	1.2291 (	17.3)	1.2598 (	18.5)
Marriage * Rural County	1.3858 (	10.4)	----	----	1.3536 (	10.6)	1.6028 (	21.8)	1.3821 (	19.9)
V. Beaten Path Effects										
Forward	4.7904 (	6.9)	----	----	4.4760 (	6.8)	4.6262 (	12.0)	2.4274 (	6.7)
Backward	3.2950 (	4.7)	----	----	3.1342 (	4.7)	3.2834 (	8.4)	2.0776 (	5.6)
VI. Ecumene Effect and Educational Opportunities										
Population Size	0.1568 (	7.5)	0.1823 (	11.8)	0.1539 (	7.7)	0.2103 (	20.5)	0.2430 (	26.1)
Student * City	5.5295 (	4.5)	----	----	5.5571 (	4.8)	5.3623 (	7.8)	5.5958 (	8.5)
Student * Town	4.8147 (	3.9)	----	----	4.8427 (	4.1)	4.6575 (	6.7)	4.9033 (	7.4)
Rho-square	0.497		0.438		0.494		0.307		0.063	
Decrease in Rho-square	----		0.059		0.003		0.190		0.434	

and highly significant (t=8.8). The coefficient of *Town* * *(Job Transfer &*
Family Moving) is also positive (1.1692) and significant (t=7.9).

Marriage discrimination by the potential grooms and brides at the
higher strata against those at the lower strata of the urban/rural hierarchy
were reflected by the enhanced tendencies of marriage migrants to choose
destinations at a lower stratum. The coefficient of *Marriage* * *Town* turned
out to be highly positive (1.2292) and significant (t=9.8). The coefficient of
Marriage * *Rural* is even more positive (1.3536) and significant (t=10.4).

The two-way "beaten path" effects of the pioneers from Shandong
Province to the northern part of Manchuria also turned out to be very strong.
The coefficients are as high as 4.7904 (forward) and 3.2950 (backward), with
the t-ratios being 6.9 and 4.7, respectively.

Finally, our result has also confirmed the positive effect of the size of
ecumene and the very strong attractions of the urban strata (especially the
city stratum) to student migrants.

4.5.2. Achieving Better Insights into the Destination Choice Behaviors by the Method of Elimination

It seems that in the general specification, the pull effect of higher
income level at destination did not turn out to be as strong as expected,
considering an associated t-ratio of only 2.2. We suspect that this is due to

the problem of collinearity. In other words, a large part of the income effect may have been largely 'stolen' because of the correlation between the *Income Level* and other variables in the general specification. Thus, the importance of an explanatory variable can not be judged simply according to the magnitude of the associated t-ratio in the general specification. For this reason, we will selectively delete some of the explanatory variables from the general specification in a series tests for the purpose of (1) knowing better the overlapping and complementary relationships among the explanatory variables, and (2) assessing the relative importance of different subsets of the explanatory variables.

The collinearity problem with respect to *Income Level* is revealed in Test 1 (Table 4.1) where all variables suspected to be collinear with income level are deleted from the general specification. The pull effect of the income level at destination becomes highly significant: its coefficient increases substantially (from 0.0781 to 0.1691) and its associated t-ratio also increases substantially (from 2.2 to 7.5).

The strong collinearity between distance and contiguity can be seen in Tests 2 and 3, where the deletion of each of the two variables from the general specification causes the other to be much more important. The much greater reduction of Rho-square in Test 3 (0.190) than in Test 2 (0.003) suggests that distance is much more important than contiguity.

The overwhelming importance of the joint explanatory power of the proximity variables is shown in Test 4, where the simultaneous deletion of all proximity variables causes a tremendous reduction in Rho-square from 0.497 in the general specification to only 0.063 in the test.

4.6. SELECTION OF EXPLANATORY VARIABLES IN THE DEPARTURE SUBMODEL

Studies based on the micro data of other countries like Canada and Japan (Liaw, 1990; Kawabe and Liaw, 1992) indicate that the effects of personal factors are much stronger on departure behaviors than on destination choice behaviors. The control on migrations may make the departure behaviors in China even more selective with respect to personal factors than those in other countries, because migrants in China, in addition to acquiring information about opportunities in different locations, must be able to overcome government restrictions.

Among the personal factors that can be identified in NPS87, we expect that **age, level of education** and **marital status** are important factors on the departure behaviors of Chinese young adults.

I. Age

We divide the young adults into three age groups: *the late teens (17-19)*,

the early 20s (20-23), and *the late 20s (24-29)*. The entry into higher education

for males and marriage for females are the important life-cycle events that

help to maintain a high departure rate in the late teens. In addition to

marriage which induces many female migrations, there are several job-related

reasons which help maintain a high departure rate for the males in the early

20s. Compared with those in the late teens and early 20s, those in the late

20s are expected to be much less migratory, mainly because most of the

migration-inducing life-cycle events have already taken place before age 24 in

China. Other reasons are that they tend to have a greater family burden and

location-specific capital, and that their migrations are more related to job

transfer and hence are more subject to government control (Chapter 3). By

using the late 20s as the reference group, the dummy variables representing

the late teens and the early 20s are expected to have positive coefficients.

II. Level of Education

Perhaps the most important personal factor is education, which is the

essence of development (Schultz, 1980). To study the education selectivity in

the propensity to migrate, we specify three levels of education: *the best*

educated (with an education above middle school), *the better educated* (middle

school graduates), and *the worst educated* (with an education below middle

school).

Education (especially post-secondary education) was severely devalued in the period of political upheaval (1966-1976), because of the incompatibility between high level of education and proletarian dictatorship (actually dictatorship by established members of the Communist Party). With the shift of emphasis from class struggle to economic development since the later 1970s, education has regained its value and is deemed as the key to the country's modernization. Families started to invest heavily in children's education, because the accessibility to limited job opportunities in urban areas has become closely linked to the educational qualification. After going through tough entrance examinations at various levels, only the students with excellent performance are qualified for pursuing post-secondary education. After graduation, most of them are assigned by the government a permanent job in an urban area. Since the entry into post-secondary education and job assignment only involves the best educated, we expect the best educated group to be more migratory than the other two educational groups.

There are other reasons to expect that the departure propensities tend to increase with the level of education. First, the quantity and quality of information on the opportunities at different locations tend to increase with education. Second, the ability to adjust to new environment and hence the willingness to take the risk of migration also tend to increase with education. Third, improvement in education tends to weaken the importance of kinship

ties and psychological attachment to the local area.

By using the worst educated as the reference group, the coefficients of the dummy variables representing the best and the better educated are expected to be positive, with the former being larger than the latter.

III. Marital Status

The agricultural reform has increased not only the incentives and decision-power of the farming families but also their risk of income fluctuations. One of the means to mitigate such a risk is to arrange the marriage of young adult daughters with grooms in other villages. Since a young female after such a marriage will become a member of her husband's family, the groom's family has to prepare a lump sum for compensating the 'loss' to the bride's family. After the event of marriage, the two families usually maintain a strong tie and share the risk of income shortfall. Thus, in the rural areas of China and other developing countries, the marriage migrations by young adult daughters contribute to a reduction in the variability in household consumption, and the households exposed to a higher risk of income fluctuations are more likely to invest in marriage migrations (Rosenzweig and Stark, 1989). An interesting consequence is that for many poor families in rural areas, the budget constraint in financing the marriage of a son in the household may result in the marriage migration of his sister.

We expect that the migration propensities of Chinese young females are greatly enhanced by the event of marriage. Since the risk of income fluctuations is higher in less urbanized areas (especially in rural areas), we expect that such an enhancing effect is greater in towns than in cities, and the greatest in rural areas.

We also expect that the young adults who were already married are less migratory than others, because the risk and cost of migrations are usually greater for families than for single individuals. In China, family migrations to more urbanized areas are especially difficult because of the socioeconomic constraints such as urban registration restrictions and housing shortages.[20]

Thus, the most important distinction in this respect is between the **Married** status (i.e. being already married at the beginning of the study year) and the **Wedded** status (i.e. becoming married during the study year). The latter is usually associated with much higher propensity to migrate than is the former. Fortunately, the information on **age at first marriage** in NPS87 can help us determine whether a young adult was single, wedded or married in the study year. There are very few divorced or widowed young adults. They are left in the married class for convenience. The **Single** status is expected

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[20] It is indicated in Ma, Liaw and Zeng (1993) that these constraints also resulted in the disproportionately high incidence of spousal residence separations among the married migrants who migrated for employment and education reasons.

to have an intermediate departure propensity. By using the single status as the reference status, the relevant explanatory variables are the following two.

Wedded * *City* * *Female* (+); *Wedded* * *Town* * *Female* (+); and *Wedded* * *Rural* * *Female* (+). These three variables assume the value of 1, if the potential migrant was a female with the wedded status and resided in a city, a town or a rural county, respectively. All three are expected to have strong positive effects, and the effects are stronger at the lower levels of the urban/rural hierarchy.

Married (-). This variable assumes the value of 1, if the potential migrant was already married at the beginning of the study year. It is expected to have a negative effect on the departure propensity.

In addition to these personal factors, the departure propensities are expected to be subject to the influences of the attributes of the alternatives in the choice set. The following four variables are used to detect such influences.

Income Level at Origin (-): This is the per capita income (in 100 ren-min-bi) at origin in 1984. As a proxy of the income opportunities at origin, this

variable is expected to have a negative effect on departure probability.

Population Size at Origin (-): This is the 1984 stratum- and province-specific population size (in 10 million persons) of origin. As a measure of the size of ecumene at origin, it is expected to have a negative coefficient.

Inclusive Variable (+). As an index of the overall attractiveness of the rest of the system, the inclusive variable[21] is expected to have a positive coefficient.

Inclusive Variable * Female (+). This variable is the product of inclusive variable and a dummy variable representing the female gender. Since female migrations are more family-related and more likely to be assisted by family members or relatives at destination, we expect that females are more

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[21] Because the survey did not ask the stayers what would be their reasons for migration if they had planned to migrate, it does not provide enough information to allow the computation of the inclusive values for the stayers directly from the estimation result of the destination choice model. We estimated the inclusive values of the stayers, according to the following three steps. First, based on the inclusive values of all migrants computed from the full destination choice submodel, the (weighted) average inclusive value of the migrants in each of the non-empty cells of a six-dimensional contingency table is computed, with the six dimensions being (1) origin province, (2) origin stratum, (3) age group, (4) sex, (5) marital status, and (6) education level. Second, the average inclusive values of the non-empty cells are then regressed on the dummy variables representing all the distinctions in the six dimensions so that the predicted inclusive values can be generated for all empty cells. Third, each stayer is given the inclusive value of the cell where he/she belongs.

responsive to the attractiveness of the rest of system. The coefficient is thus expected to be positive.

4.7. EMPIRICAL FINDINGS ON DEPARTURE BEHAVIORS

Young adults were the most mobile group because of not only the concentration of life-cycle events in young adulthood but also their better physical and mental conditions to overcome all kinds of obstacles to migration. We found that in the at-risk population of 332,247 young adults aged 17-29, 6,145 migrated during the period between July 1, 1984 and June 30, 1987, yielding a migration rate of 15.7 per thousand per year, which was about four times the rate for the remaining age groups (4.0 per thousand per year) and twice the rate for all age groups (7.0 per thousand per year).

4.7.1. General Findings from the Departure Submodel

With a Rho-square of 0.154, the general specification of the departure submodel appears to explain the departure behavior quite well (Table 4.2). The coefficients of all explanatory variables in the general specification turned out to have substantively sensible signs and, except for *Population Size at Origin*, are all statistically significant. The effects of all personal factors are all highly significant.

With respect to the age effect, we found that those in the later teens

(17-19) and the early twenties (20-23) were significantly more migratory than the older young adults (24-29). The observed departure rates are 14.9 per 1000 for the 17-19 age group, 22.9 per 1000 for the 20-23 age group, and only 9.1 per 1000 for the 24-29 age group. Although the observed departure rate of the late teens is substantially lower than that of the early 20s, the coefficient of *the Late Teens* (0.5056) is somewhat higher than the coefficient of *the Early Twenties* (0.4633). This apparent contradiction is due to the fact that marriage migrations, which were more important for the 20-23 than the 17-19 age group, has been accounted for by the terms associated with the wedded marital status in the multivariate model.

With respect to the level of education, we found that the propensity to migrate indeed increased with education: the better educated were more migratory than the poorly educated, and the best educated were the most migratory group. The coefficient of *the Best Educated* (1.4457) was much bigger than that of *the Better Educated* (0.4230). The observed departure rates are 28.5 per 1000 for the best educated, 14.5 per 1000 for the better educated, and 10.9 for the worst educated.

With respect to marital status, we found that a young female's propensity to migrate was indeed enhanced greatly by the event of marriage. This is indicated by the huge coefficients of the three dummy variables for the

Table 4.2. The Estimation Results of Departure Submodel for Chinese Young Adult Migrants (Aged 17-29), 1985-1987, China

	General Specification		Test 1 -Education		Test 2 -Marital Status		Test 3 -Age		Test 4 -Personal Factors	
	Coefficient	(T)	Coefficient	(T)	Coefficient	(T)	Coefficient	(T)	Coefficient	(T)
Constant	-5.0539	(-50.7)	-4.1611	(-41.4)	-6.8068	(-71.7)	-4.4607	(-52.6)	-4.0312	(-57.4)
I. Age at Migration										
Late Teens (17-19)	0.5056	(11.2)	0.1818	(4.1)	0.9659	(23.3)	----	----	----	----
Early Twenties (20-23)	0.4633	(12.6)	0.3394	(9.1)	0.8547	(23.9)	----	----	----	----
II. Level of Education										
Best Educated	1.4457	(39.4)	----	----	1.6946	(43.9)	1.3813	(39.3)	----	----
Better Educated	0.4230	(13.2)	----	----	0.5180	(14.9)	0.4243	(13.5)	----	----
III. Marital Status										
Wedded * City * Female	1.7480	(18.3)	2.2911	(23.2)	----	----	1.7006	(18.1)	----	----
Wedded * Town * Femal	2.6592	(35.6)	2.8788	(37.1)	----	----	2.7086	(37.0)	----	----
Wedded * Rural * Femal	3.4417	(59.5)	3.6842	(62.1)	----	----	3.4722	(61.3)	----	----
Married	-0.2008	(-5.9)	-0.3061	(-8.8)	----	----	-0.4354	(-15.5)		
IV. Ecological Variables										
Income Level at Origin	-0.0493	(-3.6)	0.0360	(2.6)	-0.1480	(-10.0)	-0.0658	(-4.9)	-0.0364	(-2.8)
Population Size at Origi	-0.0105	(-1.5)	-0.0155	(-2.1)	0.0153	(2.2)	-0.0116	(-1.7)	0.0015	(2.2)
V. Attraction of the Rest of System										
Inclusive Variable	0.0218	(2.2)	0.1117	(10.4)	-0.2774	(-29.0)	0.0426	(4.4)	----	----
Female*Inclusive Var	0.0567	(8.0)	0.0765	(10.5)	-0.1262	(-23.3)	0.0472	(6.8)	----	----
Rho-square	0.154		0.131		0.094		0.152		0.001	
Decrease in Rho-square	-----		0.023		0.060		0.002		0.153	

wedded females at each stratum of the settlement hierarchy: 1.7480 (city), 2.6592 (town) and 3.4417 (rural). Their associated t-ratios are 18.3, 35.6 and 59.5, respectively. The enhancing effect of being wedded is greater in towns than in cities, and the greatest in rural counties. In addition, we found that the married status has a negative coefficient (-0.2008) and a t-ratio of large magnitude (-5.9). The observed departure rates are: 96.8 per 1000 for the wedded group, 12.9 per 1000 for the single group, and only 4.4 per 1000 for the married group.

With respect to place attributes, we found that *Income Level at Origin* had a negative effect on the departure propensities: the coefficient is negative (-0.0493) and significantly different from zero (t=-3.6). The retaining effect of large population size at origin turned out to be insignificant in the general specification: the coefficient is negative but the magnitude of the t-ratio (-1.5) is very small in magnitude.

From the significantly positive coefficient of *Inclusive Variable* (0.0218, t=2.2), we found that the departure propensities of young adults did respond positively to the overall attractiveness of the rest of system. The positive coefficient of *Inclusive Variable * Female* (0.0567, t=8.0) indicates that the response was stronger for females than for males.

4.7.2. Achieving Better Insights into the Departure Behaviors by the Method of Elimination

The great importance of the education factor in explaining the departure behaviors of Chinese young adults is shown in Test 1, where it is deleted from the general specification. The deletion causes a substantial reduction in Rho-square (by 0.023 from 0.152 in the general specification) and a wrong positive sign for *Income Level* at origin. Interestingly, the positive effect of both *Inclusive Variable* and its interaction with female gender become highly significant due to the positive correlation between them and the level of education. Thus, the reduction in Rho-square could be even more without the inclusive variable, which captures part of the education effect in Test 1.

The critical importance of marital status in explaining the departure behavior of the young adults (young females, especially) is shown in Test 2, where it is deleted from the general specification. The deletion causes not only a tremendous reduction in Rho-square (by 0.061 from 0.154 in the general specification) but also nonsensical signs for *Inclusive Variable* and two other variables. Thus, in addition to level of education, marital status is an indispensable personal factor in the departure submodel.

The deletion of the age factor from the general specification (Test 3) causes neither a large reduction in Rho-square (by 0.003 from 0.152 in the general specification) nor any wrong sign for the coefficients of other

variables. It is worth noting, however, that both the coefficient of *Married* and its associated t-ratio become much more negative in Test 3 than in the general specification, suggesting a strong correlation between age and this marital status.

Similar to the findings in other countries, we found that personal factors were of paramount importance in accounting for the variation in the departure propensities among Chinese young adults. The deletion of all personal factors from the general specification (Test 4) causes not only the loss of nearly all the explanatory power, but also a wrong sign for the coefficient of *Population Size*.

4.8. SUMMARY

We have used a multivariate nested logit model for a simultaneous explanation of both inter-stratum and interprovincial migrations, which is particularly relevant to a developing country like China. We have found that the highly selective migration behaviors of Chinese young adults can be well explained by a combination of personal factors and ecological variables in a sensible way.

With respect to destination choice behaviors, five main points have been established. First, despite government control on migrations, the Chinese young migrants were indeed more prone to select destinations with

better economic opportunities. The pull effect of higher income at destination was significantly positive on all migrants in general and was particularly strong on the young migrants who originated from rural areas and were seeking temporary employment elsewhere. The economic disparities between coastal and interior provinces and between urban and rural strata were greater than what could be indicated by income level. Young migrants were more prone to select the fast growing coastal provinces as their destinations and were very unwilling to engage in downward migrations from cities to towns or rural counties.

Second, in the search for better opportunities elsewhere, the scope of destination choices was narrowed by various structural constraints. We found that the distance-decay effect was very strong for Chinese young adults, particularly for those who migrated for marriage reason. The effect of contiguity is also quite significant, reflecting that destination choice behaviors were subjected to the strong negative effect of "intervening opportunities". Being mostly outside of the interprovincial networks of transportation, communication and administration, towns had rather weak attraction to interprovincial migrants.

Third, the government migration control was most effective in directing intraprovincial migrations toward the town stratum. The control was mainly implemented through job assignments and job transfers.

Fourth, marriage discriminations which were tied to the large urban/rural differential in economic well-being appeared to be the main reason for the strong confinement of the destinations of marriage migrants to the lower (particularly the rural) stratum.

Fifth, the two-way beaten path effects of the pioneers from the densely-populated rural areas of Shandong province to the resource-rich and lightly-settled northern part of Manchuria were still quite strong in the 1980s.

With respect to departure behaviors, our major findings are as follows. First, we found that personal factors (age, education and marital status) were of paramount importance in explaining the departure behaviors. The departure propensities dropped sharply from the early 20s (20-23) to the late 20s (24-29), suggesting that most migration-inducing life-cycle events in China were strongly concentrated in the late teens and early 20s. The event of marriage had an overwhelmingly positive effect on the female's departure propensity, suggesting that even in the 1980s most females in China could not migrate as free agents in the labor force. Similar to the findings in other countries, the level of education had a strong positive effect on the departure propensities in China.

Second, within the context of the personal factors, we found that the departure propensities were enhanced by the attractiveness of the rest of the system and reduced by the income level of origin. Our tests have shown that

such a sensible result would be impossible to obtain if the personal factors were not included in the multivariate model.

Our overall conclusion is that despite government migration control, the migration behaviors of the young adults in China were clearly responsive to market forces in a sensible way.

Appendix 4.A. Observed Departure Rates

We found that in the at-risk population of 332,247 young adults aged 17-29, 6,145 migrated during the period between July 1, 1984 and June 30, 1987, yielding a migration rate of 15.7 per thousand per year, which was as much as about four times the rate for the remaining age groups (4.0 per thousand per year) and twice the rate for all age groups (7.0 per thousand per year). Representing only 25 percent of the total population, young adults accounted for 57 percent of the total migrants. For each sex, the migration schedule peaked in this age interval, and there was a large differential in mobility level between these young people and those in other age groups (see Fig. 3.1 in Chapter 3). The differential is greater for females (19.9 vs. 3.9 per thousand per year) than for males (11.6 vs. 4.2 per thousand per year).

4.A.1. Differences in Observed Departure Rates by Personal Factors

With a departure rate of 19.9 per 1000 per year, Chinese young females were much more mobile than their male counterparts, whose rate was 11.6 per 1000 per year (although males were found to be slightly more mobile in the remaining age groups). Because of the big gender differential in mobility level and the rather different distributions for reasons of migration between the two sexes, the observed departure rates as well as the number of migrants and their at-risk populations shown in Table 4.A.1, are all classified

Table 4.A.1. Observed Departure Rates of the Potential Young Adult Migrants (Aged 17-29), 1985-1987, China

	Departure Rates (/1000/yr)			Number of Migrant			Sex	At-Risk Population			Sex
	Male	Female	Both Sexes	Male	Female	Both Sexe	Ratio (%)	Male	Female	Both Sexes	Ratio (%)
Nation	6.1	8.0	7.0	4803	6060	10864	79.3	796814	765984	1562798	104.0
Young Adults	11.6	19.9	15.7	2289	3857	6145	59.3	198063	194184	392247	102.0
Other Ages	4.2	3.9	4.0	2514	2203	4719	114.1	598751	571800	1170551	104.7
Marital Status											
Single	14.7	10.4	12.9	1676	867	2543	193.3	113680	83232	196912	136.6
Wedded	16.3	167.7	96.8	227	2646	2873	8.6	13889	15773	29662	88.1
Married	5.5	3.6	4.4	385	344	730	111.9	70495	95178	165673	74.1
Origin U/R Type											
City	16.0	10.7	13.4	605	389	994	155.5	37800	36344	74143	104.0
Town	7.9	14.9	11.4	293	554	847	52.9	36988	37071	74058	99.8
Rural	11.3	24.1	17.6	1391	2914	4305	47.7	123276	120770	244046	102.1
Level of Education											
Best Educated	28.8	28.2	28.5	1246	847	2093	147.1	43318	30035	73354	144.2
Better Educated	8.2	23.2	14.5	764	1573	2337	48.6	93358	67705	161063	137.9
Poorly Educated	4.6	14.9	10.9	279	1436	1716	19.4	61387	96444	157831	63.7
Age Groups											
17-19	12.3	17.5	14.9	667	940	1607	71.0	54100	53697	107797	100.8
20-23	14.4	31.4	22.9	1018	2226	3243	45.7	70845	70832	141677	100.0
24-29	8.3	9.9	9.1	604	691	1295	87.4	73118	69655	142773	105.0

by sex. The effects of the other four personal factors (marital status, level of education, origin urban/rural stratum and age) as well as their differential effects on the two sexes will be discussed in the following subsections.

Marital Status. Like Japan (Kawabe and Liaw, 1992), India (Premi, 1990) and other Asian counties, the event of marriage in China is the most important reason for a young female's migrations, although it is of little importance for their male counterparts. Thus, a young female's migration propensity can be greatly enhanced by such an event.

Such an enhancing effect is strongly evident in the contrast of departure rates for the three different marital statuses (Table 4.A.1). For young females, the departure rates of those wedded were 167.7 per thousand per year, compared with only 10.4, and 3.6 per 1000 per year for those single and married. For males, the rates were 14.7, 16.3 and 5.5 per 1000 per year for the single, the wedded and the married, respectively.

Several inferences can be made from the above figures. First, a young female's migration propensity is indeed greatly enhanced by the event of marriage. Secondly, such an enhancing effect is limited to females only. Thirdly, after marriage, both young males and young females tended to be much less mobile. Fourthly, single or married young males were actually more mobile than their female counterparts. Thus, we can infer that it is

marriage migration that resulted in the much higher mobility level of the young females than that of the young males.

Education. The observed departure rates of Chinese young adults indeed tended to increase with education (Table 4.A.1). For each sex, the rates were the lowest for the poorly educated with education of primary school or below (4.6 per 1000 for males and 14.9 per 1000 for female), the highest for the well educated with education of high school or above (28.8 per 1000 for males and 28.2 for females), with the rates for the middle school graduates (8.2 per 1000 for males and 23.2 per 1000) lying in between. The well educated of the two sexes had nearly the same mobility level, but for the middle school graduates and the poorly educated, the rates for young females were about twice higher, largely due to the migration-enhancing effect of female marriage migrations. Thus, the tendency of increasing migration propensity with education is less sharp for young females than for their male counterparts.

Origin Urban/Rural Stratum. Paralleling the trend of the increasing importance of marriage migrations down the urban hierarchy, young female's migration rates were higher at the lower urban/rural strata, being the lowest in city (10.7 per 1000), moderate in town (14.9 per 1000), and the highest in rural county (24.1 per 1000). This tends to suggest that the enhancing effect

of female marriage migration is greater in less urbanized areas.

The young male's pattern was less regular in this respect. In fact, their rates were the highest in city (16.0 per 1000), moderate in rural county (11.3 per 1000), and the lowest in town (7.9 per 1000).

Age. The age patterns of the young adults were very clear. For both male and female, the highest rates (14.4 per 1000 for male and 31.4 per 1000 for female) were for the early twenties (20-23), and the lowest were for the later twenties (24-29). The relatively high female rate in the very early twenties was mostly due to the concentration of marriage in this age group. It is worth mentioning that given the correlation between age and marital status, the pattern with respect to age was somewhat similar to the pattern with respect to marital status.

With respect to departure rates for each province (Table 4.A.2), however, we find that it is not easy to characterize such a spatial pattern, although the rates varied greatly from a minimum of 9 per 1000 per year in Tianjin to 24.4 per 1000 per year in Jinlin province. It seems that the rates were relatively high in the provinces in three remote regions: Northeast, Northwest, and Southwest, and relatively low in the East.

Table 4.A.2. Origin-Specific Departure Rates of Chinese Young Adults (Aged 17-29) in 1985-87

| | Origin | Departure | Intra-prov. | Inter-prov. | Intra-prov. | Inter-prov. | Total | At-Risk | Origin | |
		Rate (/1000/yr)	Rate (/1000/yr)	Rate (/1000/yr)	Share (%)	Share (%)	Migrants (person)	Population (person)		
	Total	15.7	13.0	2.7	83.1	16.9	6145	392247	Total	
1	BEIJING	23.0	19.2	3.8	83.5	16.5	85	3715	BEIJING	1
2	TIANJIN	9.0	5.0	3.9	56.2	43.8	29	3224	TIANJIN	2
3	HEBEI	14.5	11.3	3.3	77.5	22.5	304	20940	HEBEI	3
4	SHANXI	13.8	11.8	2.0	85.7	14.3	133	9633	SHANXI	4
5	NEIMONG	17.4	14.4	3.0	82.8	17.2	138	7940	NEIMONG	5
6	LIAONING	18.0	14.7	3.3	81.6	18.4	278	15472	LIAONING	6
7	JILIN	24.4	21.3	3.2	87.0	13.0	238	9736	JILIN	7
8	HLJIANG	15.4	11.6	3.8	75.2	24.8	210	13693	HLJIANG	8
9	SHANGHAI	18.9	16.8	2.1	88.8	11.2	89	4706	SHANGHAI	9
10	JIANGSU	15.2	11.3	3.9	74.0	26.0	368	24169	JIANGSU	10
11	ZHEJIANG	13.3	10.5	2.8	79.0	21.0	211	15882	ZHEJIANG	11
12	ANHUI	10.9	9.1	1.8	83.2	16.8	211	19341	ANHUI	12
13	FUJIAN	10.6	7.9	2.7	74.9	25.1	109	10263	FUJIAN	13
14	JIANGXI	9.6	8.0	1.6	83.1	16.9	121	12545	JIANGXI	14
15	SHANDONG	13.6	12.1	1.5	89.3	10.7	381	28127	SHANDONG	15
16	HENAN	9.4	7.8	1.7	82.1	17.9	262	27781	HENAN	16
17	HUBEI	15.4	13.9	1.5	90.1	9.9	299	19362	HUBEI	17
18	HUNAN	12.4	9.4	3.0	76.1	23.9	265	21445	HUNAN	18
19	GUANGDONG	21.0	19.9	1.1	94.7	5.3	489	23241	GUANGDONG	19
20	GUANGXI	15.8	12.4	3.4	78.8	21.2	218	13820	GUANGXI	20
21	SICHUAN	22.1	19.8	2.3	89.7	10.3	814	36747	SICHUAN	21
22	GUIZHOU	13.1	10.4	2.8	79.0	21.0	129	9788	GUIZHOU	22
23	YUNNAN	16.4	12.2	4.2	74.6	25.4	206	12560	YUNNAN	23
24	SHAANXI	18.6	15.5	3.1	83.1	16.9	222	11914	SHAANXI	24
25	GANSU	21.7	18.5	3.2	85.3	14.7	177	8188	GANSU	25
26	QINGHAI	23.6	9.4	14.2	40.0	60.0	34	1452	QINGHAI	26
27	NINGXIA	15.6	9.0	6.6	57.6	42.4	24	1537	NINGXIA	27
28	XINJIANG	20.2	15.4	4.8	76.3	23.7	102	5026	XINJIANG	28
	Minimum	9.0	5.0	1.1	40.0	5.3	24	1452	Minimum	
	Maximum	24.4	21.3	14.2	94.7	60.0	814	36747	Maximum	

4.A.2. Reason for Migration

Among all nine reasons for migration, marriage was the most important for young adults, accounting for 43 percent of the their migrations. Next in importance were the four types of employment- and education-related reasons: manual work and commerce (12 percent), education (12 percent), job transfer (12 percent) and job assignment (9 percent). The remaining three reasons were of little importance, each accounting for about 4 percent.

We find that the distribution of migration by reason varied greatly with personal attributes (Table 4.A.3). The two sexes had rather different patterns. Whereas the importance of migrations due to the event of marriage was overwhelming for young females (67 percent), it was very low for their male counterparts (5.3 percent). Male migrations were mostly motivated by employment- and education-related events such as pursuing post-secondary education (22 percent), or entering the free market by manual work and commerce (21 percent), job transfer (18 percent) and job assignment (17 percent).

The timing of these important events can be shown clearly by disaggregating young adults into three age groups (17-19, 20-23 and 24-29). For young females, marriage migrations were more important in the early twenties (77 percent) than in the other two age groups (52 percent in very later teens, and 55 in later twenties). For young males, the important reasons

Table 4.A.3. The Distribution of Chinese Young Adult Migrants (Aged 17-29) in 1985-87 by Reason

	Distribution of Reasons of Migration (percent)								Volume
	Job Trans.	Job Assign	Manuwork & Comm.	Educat.	Joining Relatv	Family Moving	Mari.	Others	(person)
TOTAL	9.9	9.0	12.4	12.1	4.2	3.9	43.8	4.7	6145
Age at Migration									
17-29	2.3	9.2	15.0	28.5	5.1	6.9	30.3	2.8	1607
20-23	9.1	10.3	10.0	7.4	2.8	2.0	54.5	3.8	3243
24-29	21.2	5.5	15.1	3.6	6.7	5.1	33.7	9.2	1295
Level of Education									
Best Educated	18.0	18.2	6.1	33.9	3.0	4.4	12.5	3.9	2093
Better Educated	9.3	6.9	18.5	1.5	5.3	4.0	48.8	5.9	2336
Poorly Educated	0.8	0.7	11.9	0.0	4.2	3.3	75.0	4.0	1716
Origin U/R Stratum									
City	20.7	28.5	2.6	18.4	2.6	3.4	16.3	7.5	994
Town	13.6	9.7	10.3	10.1	4.4	5.2	43.8	3.0	847
Rural County	6.6	4.4	15.1	11.1	4.6	3.8	50.1	4.4	4304
MALE	18.4	17.0	21.3	21.5	4.6	3.9	5.3	8.2	2288
Age at Migration									
17-19	3.2	13.6	19.2	46.9	4.7	8.5	0.4	3.5	667
20-23	21.4	23.8	21.1	13.8	3.5	2.3	5.7	8.3	1017
24-29	30.1	9.2	23.7	6.4	6.3	1.4	9.9	13.1	603
Level of Education									
Best Educated	21.2	23.5	6.0	37.6	1.7	3.8	1.9	4.3	1246
Better Educated	19.5	11.4	34.9	3.1	7.1	4.2	7.5	12.3	763
Poorly Educated	3.1	2.8	52.2	0.0	10.6	3.3	13.9	14.1	279
Origin U/R Stratum									
City	26.5	34.7	3.7	17.9	2.2	2.5	2.8	9.7	605
Town	26.2	19.0	19.6	16.0	4.3	7.2	3.8	3.8	293
Rural County	13.3	8.8	29.2	24.2	5.7	3.8	6.6	8.4	1390
FEMALE	4.8	4.3	7.1	6.6	4.0	4.0	66.6	2.6	3857
Age at Migration									
17-19	1.6	6.1	12.0	15.6	5.3	5.7	51.5	2.3	940
20-23	3.5	4.2	5.0	4.5	2.5	1.9	76.8	1.8	2226
24-29	13.5	2.2	7.6	1.2	7.1	8.3	54.5	5.7	691
Level of Education									
Best Educated	13.3	10.2	6.2	28.5	5.0	5.3	28.1	3.4	847
Better Educated	4.3	4.7	10.5	0.8	4.4	3.9	68.8	2.7	1573
Poorly Educated	0.3	0.3	4.1	0.0	3.0	3.3	86.9	2.1	1436
Origin U/R Stratum									
City	11.8	18.7	0.9	19.1	3.3	4.8	37.4	4.0	389
Town	7.0	4.8	5.3	6.9	4.4	4.1	64.9	2.6	554
Rural	3.4	2.3	8.3	4.8	4.0	3.9	70.9	2.5	2914

for migrations shifted from pursuing post-secondary education in the later teens, to all four employment- and education-reasons in the early twenties, and to job transfer and manual work and commerce in the later twenties.

Interestingly, young adults of different levels of education have different patterns. Migrations which don't require a certain level of education tend to be more important for the less educated. And this pattern can be found in both female marriage migrations (28, 69 and 87 percent for the well educated, middle school graduates and the poorly educated, respectively), and male migrations due to manual work and commerce (6, 35, and 52 percent for the three groups, correspondingly). By contrast, in the case of the other three types of employment- or education-related migrations, the importance of each type was greater for the better educated young males.

Similar to the pattern with respect to level of education, we find that the importance of either female marriage migration or male migration due to manual work and commerce was greater for those migrated from less urbanized areas, partly due to their lower average level of education, partly due to the greater prevalence of these migrations at the lower urban/rural strata. For young females, the share of marriage migrations was 37, 65 and 71 percent for those originated from cities, towns and rural counties, respectively. For young males, the shares of migrations due to manual work and commerce were 4, 20, and 29 percent for those groups, correspondingly.

To conclude, the distributions of migration by reason show that for Chinese young adults, pursuing post-secondary education, entry into the labor market (job assignment and manual work and commerce), job transfer and marriage are the important life-cycle events that intensify their migration propensities. We also find that such distributions varied greatly with some important personal attributes such as sex, level of education, age and origin urban/rural stratum, suggesting that the extent of such intensification by the life-cycle events, and hence the migration propensity of Chinese young adults may also vary greatly with the personal attributes.

Appendix 4.B. The Observed Destination Choice Pattern

The large differentials in living standards among Chinese cities, towns and rural counties, and the varied level of development among the provinces would imply that for Chinese young adults, the choice of destination would be a two-dimensional decision: vertically (or hierarchically) among three urban/rural strata (city, town and rural county) and horizontally (or spatially) among the 28 provinces.

4.B.1. The Choice of a Stratum

There were 6,145 migrants who were more or less equally distributed among the three destination strata, 35 percent to city, 35 percent to town and

30 percent to rural county (Table 4.B.1). This was quite different from their distribution by origin strata: 16, 14 and 70 percent from city, town and rural county, respectively.

We find that the choice patterns of destination urban/rural stratum were rather different between the two sexes. Young male migrants strongly favored the city stratum as their destination; 50 percent of them went to this stratum, 34 percent went to town and only 16 percent went to rural county. For young female migrants, however, the weight shifted from city to rural stratum; only 25 percent of them went to the city, 36 percent went to towns, and 39 percent went to a rural county.

With respect to outmigrants from each stratum, we find that for males, the destination choice pattern for those originated from a rural stratum was nearly the same as the one for all young male migrants. In contrast, more of the city outmigrants (58 percent) and less of the town outmigrants (39 percent) went to cities, whereas less of the city outmigrants (26 percent) and more of the town outmigrants (44 percent) went to towns. Interestingly, regardless of the origin stratum, the share of rural destination was consistently low at 16 or 17 percent, suggesting that due to few economic and educational opportunities at the lowest stratum, the unwillingness to select rural destination was rather universal among all young male migrants.

Table 4.B.1. Destination Choice Patterns of Chinese Young Adult Migrants (Aged 17-29) in 1985-87 by Urban/Rural Stratum

Origin U/R Type	Male				Female				Both Sexes			
	Destination U/R Type			No. of Migrants	Destination U/R Type			No. of Migrants	Destination U/R Type			No. of Migrants
	city	town	rural		city	town	rural		city	town	rural	
ALL MIGRATIONS												
Total	50.3	33.5	16.2	2289	25.5	35.5	38.9	3857	34.8	34.8	30.5	6145
City	57.6	25.6	16.8	605	58.8	22.8	18.4	389	58.1	24.5	17.4	994
Town	39.0	43.7	17.3	293	17.4	42.8	39.8	554	24.9	43.1	32.0	847
Rural County	49.5	34.7	15.7	1391	22.7	35.9	41.5	2914	31.3	35.5	33.2	4305
NON-MARRIAGE MIGRATION												
Total	51.7	33.8	14.5	2169	49.3	41.5	9.2	1287	50.8	36.7	12.5	3456
City	57.6	25.7	16.7	588	69.9	25.5	4.6	243	61.2	25.6	13.1	831
Town	40.0	44.8	15.2	282	35.8	57.8	6.4	194	38.3	50.1	11.6	476
Rural County	51.6	35.1	13.4	1299	46.6	42.3	11.1	849	49.6	38.0	12.5	2148
MARRIAGE MIGRATION												
Total	25.5	27.1	47.4	120	13.6	32.6	53.8	2570	14.2	32.3	53.5	2690
City	55.8	23.1	21.1	17	40.2	18.4	41.4	145	41.9	18.9	39.3	162
Town	15.4	14.7	69.9	11	7.4	34.7	57.9	360	7.6	34.1	58.3	371
Rural County	21.2	29.3	49.5	92	12.8	33.2	54.0	2065	13.2	33.0	53.8	2157
INTRA-PROVINCIAL MIGRATION												
Total	47.3	38.9	13.8	1728	24.5	38.3	37.3	3378	32.2	38.5	29.3	5106
City	54.4	30.9	14.7	382	57.0	23.3	19.7	303	55.6	27.5	16.9	685
Town	31.1	50.5	18.4	239	16.2	43.4	40.4	529	20.8	45.6	33.6	767
Rural County	48.4	39.2	12.4	1107	22.3	39.0	38.7	2547	30.2	39.1	30.7	3653
INTER-PROVINCIAL MIGRATION												
Total	59.6	16.6	23.8	561	33.2	16.2	50.5	478	47.5	16.5	36.1	1040
City	63.0	16.6	20.4	223	65.2	21.1	13.7	86	63.6	17.8	18.6	309
Town	73.9	13.9	12.2	54	41.6	30.5	27.9	25	63.7	19.2	17.2	80
Rural County	54.1	17.2	28.7	284	25.2	14.1	60.7	367	37.8	15.5	46.7	651

For females, the choice pattern of those young females originating from a city stratum was quite similar to that of their male counterparts: heavily toward other cities, but unlikely to go down to towns or rural counties. The females who originated from the two lower strata, however, were much less likely to go to cities. Only 17 percent of the females from town and 23 percent of the females from rural stratum went to cities. Instead, they were much more likely to go to rural counties. About 40 percent of those either from town or rural stratum went to rural counties. The reason, as we will discuss soon, was mainly due to the rather different choice patterns between marriage migrants and non-marriage migrants.

Marriage vs. Non-Marriage Migrants

Much of the gender contrast in the choice of destination stratum can be accounted by marriage migrations (Table 4.B.2). Resembling the choice pattern for all young male migrans, the patterns of non-marriage migrations for each sex were much more alike, with half of them going to city stratum and a few to rural stratum. It is worth noting that for young female migrations due to non-marriage reasons, the share of rural destination was only 9 percent for all of them, 5, 6 and 11 percent for migrations originated from city, town and rural stratum, respectively. These figures were consistently lower than the corresponding ones for their male counterpart (15,

17, 15 and 13 percent, respectively), suggesting that for non-marriage migrants, the unwillingness to migrate to the rural county was even greater for young females.

It was marriage migrations that were heavily towards rural counties. 47 percent of young male's and 54 percent of female's marriage migrations were toward to rural county, consistent with the prevalence of marriage migrations at that stratum. Interestingly, one-third of female's marriage migrations from rural counties went up to towns, suggesting that the marital arrangement may serve as a powerful means for not only moving the young female up to towns, but also mitigating the influence of farm income variability on household consumption (Rosenzweig and Stark, 1989).

Intra- vs. Interprovincial Migrations

We find that the patterns of choice of stratum also differed between relatively short distant moves (intraprovincial migrations) and long distant moves (interprovincial migrations). The importance of city destination was greater for interprovincial than intraprovincial migrations. 60 percent of male and 33 percent of female interprovincial migrants went to cities, compared with 47 and 25 percent of male and female intraprovincial migrants, respectively.

The patterns also show that the importance of a town destination was

mostly limited within a provincial boundary. For each sex, only 16 or 17 percent of interprovincial migrants went to town, compared with nearly 40 percent of intraprovincial migrations. This is quite understandable because of the town's function as a bridge between its rural hinterland and neighboring cities (Goldstein, 1990b).

4.B.2. Destination Choice Pattern of Interprovincial Migrations

Among 6,145 migrants, only 17 percent of them (1,038) migrated across the provincial boundary, suggesting the strong distance-decay effect. Except for the cases of the two least populous provinces, Qinghai and Ningxia, the share of the total migrations by interprovincial migrations in each province did not exceed 25 percent, with a minimum of 5.3 percent in Guangdong.

The destination choice pattern of the young interprovincial migrants was shown in Table 4.B.3, where the names and shares of the three most preferred destination provinces, the sum of the three shares, the entropy[22] and the total number of interprovincial migrants are listed for each of the 28

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[22] To measure the dispersion in the destination choice pattern of interprovincial migrants, we use the entropy:

$$E[i,s] = - \sum_{j \neq i} M[i,s,j] * \log[P[j|i,s]]$$

This entropy can assume a value between zero and $\log(27)$.

origin provinces. There are ten growth pole provinces in six big regions: Hebei, Beijing and Tanjin in the North Region, Liaoning in the Northeast Region, Shanghai and Jiangsu in the East Region, Guangdong and Hubei in the Central Region, Sichuan in Southwest Region and Shaanxi in the Northwest Region.

We find that for migrants from each province, the three most preferred destinations were most likely to be growth pole, contiguous, or contiguous growth pole provinces. Migrants from 13 out of 18 non-growth pole provinces selected their contiguous growth pole provinces as their most preferred destination, with a share ranging mostly from 25 to 50 percent. The importance of the growth poles (in their regions, especially) suggests that higher income and more job opportunities in these growth pole provinces indeed attracted the migrants from their neighbouring less developed provinces.

Specific regional interactions were also evident in the choice pattern, reflecting the importance of migration chain. First, the ties between Shandong and two of the three Northeast provinces (Heilongjiang and Jilin), which was established by "xia guan dong" (to northeast from Shandong) since the Qing Dynasty, were still evident in the choice pattern in both directions, although they were neither contiguous nor growth pole provinces. Second, the recent flow of female marriage migrants from the poor rural areas in the

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Table 4.B.2. Destination Choice Patterns of Young Adult Migrants (Aged 17-29) in 1985-87

#	Origin	Entropy (bit)	First Choice & Share (%)		Second Choice & Share (%)		Third Choice & Share (%)	Sum of 3 (%)	Total Migrants (Persons)	Origin
					PROVINCE-to-PROVINCE					
1	* BEIJING	2.9		GUIZHOU 31.3	*	JIANGSU 13.8	JIANGXI 12.3	57.4	14	* BEIJING
2	* TIANJIN	2.3	*%	HEBEI 38.0	*	JIANGSU 23.6	JIANGXI 13.6	75.2	13	* TIANJIN
3	* HEBEI	3.4	*%	BEIJING 29.0	*%	TIANJIN 16.4	% NEIMONG 9.7	55.1	68	* HEBEI
4	SHANXI	2.3	*%	HEBEI 51.7	*	JIANGSU 10.4	* BEIJING 9.8	71.9	19	SHANXI
5	NEIMONG	3.1	*%	HEBEI 30.2	%	JILIN 13.8	*% LIAONING 12.8	56.9	24	NEIMONG
6	* LIAONING	3.4		HLJIANG 19.7	%	JILIN 17.4	*% HEBEI 16.5	53.5	51	* LIAONING
7	JILIN	2.8	*%	LIAONING 29.4		SHANDONG 22.2	% HLJIANG 14.8	66.4	31	JILIN
8	HLJIANG	3.1		SHANDONG 23.6	*%	LIAONING 23.2	% JILIN 17.1	63.8	52	HLJIANG
9	* SHANGHAI	3.0	*%	JIANGSU 19.8		FUJIAN 16.3	SHANDONG 14.1	50.1	10	* SHANGHAI
10	* JIANGSU	3.3		NEIMONG 34.7	*%	SHANGHAI 14.0	% SHANDONG 11.8	60.4	95	* JIANGSU
11	ZHEJIANG	3.4	*%	SHANGHAI 24.7	%	FUJIAN 11.0	SHANXI 10.5	46.2	44	ZHEJIANG
12	ANHUI	3.3	*%	JIANGSU 19.3	%	HENAN 18.2	* SHANGHAI 14.6	52.2	36	ANHUI
13	FUJIAN	3.5	%	JIANGXI 16.0	*	JIANGSU 14.6	* TIANJIN 11.7	42.3	27	FUJIAN
14	JIANGXI	2.7	*%	GUANGDONG 40.2	%	FUJIAN 12.1	*% HUBEI 10.6	62.8	20	JIANGXI
15	SHANDONG	3.5		HLJIANG 22.4	*%	JIANGSU 12.1	* TIANJIN 11.7	46.2	41	SHANDONG
16	HENAN	3.4	*%	HUBEI 25.5	*	SICHUAN 13.8	XINJIANG 11.5	50.8	47	HENAN
17	* HUBEI	3.2	*%	SICHUAN 21.7	%	JIANGXI 17.6	* JIANGSU 16.6	55.8	30	* HUBEI
18	HUNAN	3.3	*%	GUANGDONG 29.4	*	HEBEI 21.4	% JIANGXI 9.7	60.5	63	HUNAN
19	* GUANGDONG	3.6	%	HUNAN 13.9	%	JIANGXI 13.7	% GUANGXI 11.4	39.1	26	* GUANGDONG
20	GUANGXI	2.2	*%	GUANGDONG 59.1	*	HEBEI 13.0	% HUNAN 5.2	77.2	46	GUANGXI
21	* SICHUAN	3.9	%	GUIZHOU 19.1		XINJIANG 10.3	ANHUI 9.8	39.2	84	* SICHUAN
22	GUIZHOU	3.0	*	JIANGSU 25.8	%	YUNNAN 16.4	SHANDONG 15.2	57.5	27	GUIZHOU
23	YUNNAN	3.0	*%	SICHUAN 33.6	*	JIANGSU 19.1	% GUIZHOU 10.5	63.1	52	YUNNAN
24	* SHAANXI	3.7		XINJIANG 13.3	%	NINGXIA 12.1	*% HUBEI 11.6	37.0	37	* SHAANXI
25	GANSU	2.9	*%	SHAANXI 39.2	%	NEIMONG 11.6	* HEBEI 9.2	59.9	26	GANSU
26	QINGHAI	2.2	*%	SHAANXI 45.8	*	TIANJIN 17.4	*% SICHUAN 15.7	78.9	21	QINGHAI
27	NINGXIA	0.8	*%	SHAANXI 82.5	*	JIANGSU 9.5	% GANSU 8.0	100.0	10	NINGXIA
28	XINJIANG	2.7	*	SHAANXI 38.4	*	JIANGSU 16.4	* SICHUAN 13.6	68.4	24	XINJIANG
					REGION-to-PROVINCE					
1	NORTH	3.9	*	BEIJING 16.7	*	HEBEI 16.7	* TIANJIN 10.1	43.5	138	NORTH
2	NORTHEAST	3.7	*	LIAONING 15.8		SHANDONG 14.3	JILIN 13.2	43.3	134	NORTHEAST
3	EAST	4.3		NEIMONG 13.9	*	SHANGHAI 11.4	* JIANGSU 8.7	33.9	274	EAST
4	CENTRAL	4.0	*	GUANGDONG 21.7	*	HEBEI 10.3	* SICHUAN 8.4	40.5	212	CENTRAL
5	SOUTHWEST	4.0	*	JIANGSU 14.0		GUIZHOU 13.2	* SICHUAN 12.8	40.0	163	SOUTHWEST
6	NORTHWEST	3.6	*	SHAANXI 31.5	*	SICHUAN 9.6	* JIANGSU 9.1	50.2	118	NORTHWEST
					REGION-to-REGION					
1	NORTH	2.4		EAST 30.0		NORTH 27.7	CENTRAL 15.6	73.3	257	NORTH
2	NORTHEAST	1.6		NORTHEAST 56.1		EAST 25.7	NORTH 15.4	97.2	96	NORTHEAST
3	EAST	2.3		EAST 39.0		SOUTHWEST 20.3	CENTRAL 16.2	75.5	272	EAST
4	CENTRAL	2.1		CENTRAL 49.2		EAST 19.6	SOUTHWEST 13.0	81.9	163	CENTRAL
5	SOUTHWEST	2.3		SOUTHWEST 37.8		CENTRAL 19.1	EAST 18.0	74.9	136	SOUTHWEST
6	NORTHWEST	2.1		NORTHWEST 48.5		CENTRAL 17.8	SOUTHWEST 13.0	79.3	115	NORTHWEST

Note: '*' = growth pole province; '%' = contiguous province; '* %' = contiguous and growth pole province.

Southwest Region to the Eastern provinces is also evident. Among the three most preferred destinations for each of the three provinces in the Southwest Region (Sichuan, Guizou and Yunnan), one was a province in the East Region (Jiangsu, Shandong or Anhui). Furthermore, Jiangsu was the most preferred destination for migrants from the Southwest Region, despite the very long distance (over 1,200 kilometres) and the separation by several provinces.

The entropies in Table 4.B.3 that show the dispersions of the destination choice patterns of the outmigrants differed substantially among the provinces from 3.7 in Shanxi to 0.8 in Ninxia. It seems that those unpopulous provinces which are close to one or two growth pole provinces tended to have a relatively small entropy, indicating that many of their outmigrants were pulled by the neighbouring growth pole provinces. Except for the three metropolitan provinces (Beijing, Shanghai and Tianjin), all the growth pole provinces tended to have relatively large entropies, indicating that the destination choice patterns of their outmigrants were widely dispersed.

Chapter 5

Education Selectivity in the Internal Migrations of China

5.1. Introduction

The fluidity of various forms of population movement such as
permanent and temporary migrations and commuting is an essential aspect
of successful economic development (Liu, 1991). Without this fluidity, the
spatial mismatch between the supply of and the demand for labor remains to
be a persistent cause of low economic productivity and high unemployment
and underemployment. The impressive successes of China's neighboring
economies (Japan, Taiwan and South Korea) in recent decades are all linked
to the high fluidity of population movement.

High fluidity of population movement has many serious side effects as
well. This is particularly true at the early and middle stages of economic
development, when the migration process is so highly asymmetric that the
people in a few large metropolitan areas have to suffer the consequences of
extremely rapid population growth such as pollution and congestion, while the
economic vitality in many parts of the country is threatened or undermined

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by a large net outflow of young adults, particularly those who are better educated.

In order to avoid the negative effects of migration, the government of China started using the population registration system to control and direct the migration process since the 1950s (Maeda, 1993). As a consequence, the migration level became extremely low, and the age pattern of migration became greatly distorted, although the asymmetry of migration towards the upper strata of the urban/rural settlement system remained unexpectedly strong even in the mid-1980s (Chapter 3).

During the Cultural Revolution (1966-1976), the migration control was even used in China for ideological and strategic reasons. About twenty million school graduates, cadres, and intellectuals (including university professors) were sent from cities to rural areas during that period (Hayase, 1990) in the name of "learning from peasants". Many Han people were sent to areas of minority ethnic groups for the stated purpose of promoting socioeconomic development, although the prevention of political independence in the minority areas was most likely a major concern.

The rapid economic growth of China following the move toward a market economy since the late 1970s has been accompanied by an increased level of population mobility (Hayase, 1990). In common with the situation in other countries, the locations of rapid economic growth in China are limited

to only a few places where the economies of agglomeration and scale help maintain and strengthen the upward spiral. The economic growth is fuelled by foreign and domestic capital investment and can not be easily sustained without labor migration. It is also accompanied by increased income disparities.

Being very large and poorly integrated, China has much greater interregional and urban/rural income disparities than what were experienced by its neighboring economies at a similar stage of their economic development. The huge income disparities can not only strengthen the migration potential but also threaten the unity of the country. Whether different parts of the country can be held together in the future depends crucially on whether the migration process becomes an equilibrating or dis-equilibrating mechanism.

For the migration process to serve as an equilibrating (or not too dis-equilibrating) mechanism in China, it should at least be not too selective with respect to the level of education. Otherwise, the migration process would decrease the quality of the human capital in rural areas and less well developed regions so that the reduction in the urban/rural and interregional economic disparities would become exceedingly difficult to achieve.

The purpose of this chapter is to study the selectivity in the internal migrations in China with respect to the level of education, based on a sample

of young adults (aged 17-29) taken from the micro data of the 1987 one-percent National Population Survey (NPS87). Since 57 percent of migrations in China were concentrated in the 17-29 age interval, our chosen sample would allow us to focus on the most critical part of the migration phenomenon. Furthermore, the relatively large number of migrants observed in this age interval can enhance the reliability of the computed migration indicators.

The organization of the chapter is as follows. Section 2 examines the effect of education on the migration propensity and shows how this effect varies with three other important personal factors (gender, age and marital status). Section 3 is focused on the education selectivity in the migrations among the city, town and rural strata of the urban/rural hierarchy. In section 4, the focus is shifted to the education selectivity in the migrations among Metropolitan, Coastal and Interior Regions. Section 5 provides a concluding discussion.

5.2. Effect of Education on Outmigration Propensity and Its Variation by Marital Status and Age

There are strong theoretical reasons for expecting that the outmigration propensity be an increasing function of the level of education of the potential migrant. It is convenient to group these reasons under the

following three headings.

Life-cycle Event Effect. For many better educated adults, migrations are triggered in their late teens and early 20s by the events of entering and leaving the higher levels of the education system. In a developing country like China, the education effect on these young adults should be particularly strong, because the institutions of higher education tend to be relatively few and highly concentrated in the big cities, and because the people who did not enter the school system or leave it at an early stage are most likely to be absorbed in the local agricultural sector and hence remain sedentary.

Information Effect. Better education can result in a broader and more informative information field. In other words, a better educated potential migrant tends to have more information on the opportunities at different locations and hence is more likely to outmigrate. Since the quantity and quality of the information on a potential destination tend to be better for better educated individuals, the willingness to take the risk of migration tends to increase with the level of education. This willingness is further enhanced by the fact that the better educated tend to be more capable of adjusting to new environments.

Cultural/psychological Effect. Improvement in education tends to weaken the

importance of kinship ties and psychological attachment to the local area. By exposing the students to Western ideas, modern education tends to undermine the traditional value system and result in an identification with peers in the school system or the place of employment rather than with kin. Thus, the better educated tend to have weaker roots and are hence more prone to migrate.

We found that the propensity for a young adult Chinese to migrate in the period between 1984 and 1987 was indeed an increasing function of the level of education (Table 5.1). This is consistent with the general findings in many other countries such as Canada (Liaw, 1990), Japan (Kawabe and Liaw, 1992), and the United States (Long, 1988). For both sexes combined, the outmigration (departure) rates were 28.5, 14.5 and 10.9 per 1000 per year for the best educated (high school graduate and over), the middle educated (middle school graduate) and the poorly educated (primary school graduate and below), respectively. The main difference is between the best educated on the one hand and the middle and poorly educated on the other.

Although males and females tend to play rather different roles and may migrate in rather different ways in the Chinese society, the outmigration propensities of both males and females were found to be an increasing function of education. The best educated females and males had almost the

Table 5.1. Departure Rates of Chinese Young Adults (Aged 17-29) by Education, Marital Status and Age, 1985-87

	Departure Rate (/1000*yr)			At-risk Population (persons)		
	Both sexes	Male	Female	Both sexes	Male	Female
Total	15.7	11.6	19.9	392247	198063	194184
Best Educated	28.5	28.8	28.2	73354	43318	30035
Middle Educated	14.5	8.2	23.2	161063	93358	67705
Poorly Educated	10.9	4.6	14.9	157831	61387	96444
			MARITAL STATUS			
Single	12.9	14.8	10.4	196912	113680	83232
Best Educated	39.5	44.2	32.2	37047	22598	14448
Middle Educated	9.8	9.7	10.0	86073	53033	33040
Poorly Educated	3.2	4.3	2.0	73793	38048	35745
Wedded	96.9	16.3	167.7	29662	13889	15773
Best Educated	60.0	24.1	106.8	5810	3286	2524
Middle Educated	89.8	13.8	175.7	13546	7186	6361
Poorly Educated	126.8	14.2	182.7	10305	3417	6889
Married	4.4	5.5	3.6	165673	70495	95178
Best Educated	9.2	9.7	8.7	30497	17434	13063
Middle Educated	4.5	4.5	4.4	61444	33139	28305
Poorly Educated	2.4	3.4	2.0	73733	19922	53811
			AGE GROUP			
17-19	14.9	12.3	17.5	107797	54100	53697
Best Educated	46.5	52.4	31.4	13219	7649	70832
Middle Educated	12.4	7.8	18.6	45414	25962	19452
Poorly Educated	8.7	3.1	12.8	49164	20489	28675
20-23	22.9	14.4	31.4	141677	70845	70832
Best Educated	36.9	36.0	38.1	25946	14997	10949
Middle Educated	20.6	10.1	34.0	65213	36546	28667
Poorly Educated	18.7	5.6	26.8	50518	19302	31217
24-29	9.1	8.3	9.9	142773	73118	69655
Best Educated	15.3	14.8	16.1	34188	20673	13516
Middle Educated	8.5	6.2	12.2	50436	30850	19586
Poorly Educated	5.9	5.0	6.4	58149	21595	36553

same outmigration propensity (28.2 per 1000 for females and 28.8 per 1000

for males). However, at the middle and low levels of education, the young

adult females were about 3 times as migratory as their male counterparts: 23.2

versus 8.2 per 1000 for the middle educated, and 14.9 versus 4.6 per 1000 for

the poorly educated. To know the reason for this large difference and to get

better insights into the education selectivity, we now stratify the young adults

by marital status and age.

5.2.1. Marital Status

For young adult females, the effect of education on the outmigration

propensity differed markedly between the wedded status (i.e. becoming

married during the migration interval) on the one hand and the single and

married statuses (i.e. being already married at the begining of the migration

period) on the other (Table 5.1). For the wedded females, the direction of

the education effect was completely reversed: the lower the level of education,

the higher the outmigration rate. Their outmigration rate was 106.8 per 1000

at the highest level of education but was as high as 175.7 and 182.7 per 1000

at the middle and low levels of education. This reversed relationship can be

put in sharp contrast with the situation in Japan where the better educated

females are much more migratory than the less educated females at the time

of wedding (Kawabe and Liaw, 1992).

A plausible explanation for this exception is that in rural areas of China, the education of the daughters tends to be ignored in poor families, and that the poor families are more likely to arrange their daughters' marriages to other villages and small towns to smooth the fluctuations in household consumption (Stark and Rosenzweig, 1991).[23] An examination of the reported reasons for the migrations of the young adult females reveals that marriage accounted for only 28.1 percent of the migrations of the best educated but as high as 68.8 and 86.9 percent for the middle and poorly educated.

For single and married young adult females in China, the education effect was normal: the higher the level of education, the higher the outmigration rate. The main contrast is between the higher rate of the best educated (single: 32.5 per 1000; married: 8.7 per 1000) on the one hand and the lower rates of the middle educated (single: 10.0 per 1000; married: 4.4 per 1000) and the poorly educated (single: 2.0 per 1000; married: 2.0 per 1000) on the other.

For young adult males, the normal education effect prevailed in all marital groups, with the minor exception of the wedded group in which the

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[23] Rural family income is low and is likely to be reduced to below subsistence level in some occasions due to unpredictable factors such as drought, flood and pests or crop diseases. By marrying daughters to other villages or towns, rural families may obtain essential help from the families of the son-in-laws in times of serious economic hardship.

outmigration rates of the middle and poorly educated were almost identical (about 14 per 1000, compared with 24 per 1000 of the best educated).

5.2.2. Age Groups

An indirect way of testing the validity of both "life-cycle event effect" and "information effect" of education is to compare the variation in outmigration rate by the level of education among the 17-19, 20-23 and 24-29 age groups. The former effect is most likely to dominate the first age group and becomes essentially irrelevant in the last age group, whereas the latter effect tends to be most important in the last age group.

For both males and females, we found that the normal relationship between the outmigration rate and the level of education was quite strong in both 17-19 and 24-29 age groups, implying the strength of both "life-cycle event effect" and "information effect" (Table 5.1). Omitting gender distinction, the outmigration rates of the 17-19 age group were 46.5 (highly educated), 12.4 (middle educated), and 8.7 (poorly educated) per 1000, whereas the corresponding figures of the 24-29 age group were 15.3, 8.5, and 5.9 per 1000.

In the 20-23 (transitional) age group, the normal relationship was strong for male (36.0, 10.1, and 5.6 per 1000 for best educated, middle educated and poorly educated, respectively). However, it was quite weak for

females (38.1, 34.0 and 26.8 per 1000, correspondingly), due to the overwhelming importance of marriage migrations in this age group. For females in the 20-23 age group, marriage accounts for 76.8 percent of the migrations. The corresponding figures are 51.5 percent in the 17-19 age group and 54.5 percent in the 24-29 age group.

5.3. Education Selectivity in the Migrations within the Urban/Rural Hierarchical System

For China, the study of the migrations within the urban/rural hierarchical system is particularly important, because the government policy on migration control is based on the strata within this system. The policy is designed to suppress the upward movements, particularly those towards cities, and to encourage downward movements. The main purpose of this section is to see how education selectivity works in the hierarchical system and whether it interacts with government control. For simplicity, our analysis is based on the division of the system into three strata: cities, towns, and rural counties. The distribution of the young adult population among the three strata was 19 percent in the city stratum, 19 percent in the town stratum, and 62 percent in the rural stratum.

We found that the positive effect of education on the outmigration rate prevailed in every stratum for each sex, with only one minor exception (Table

5.2). The exception involved the females in rural counties whose outmigration rate turned out to be slightly lower for the middle educated group (6.2 per 1000) than for the poorly educated group (6.9 per 1000). Note that the corresponding value for the best educated group was much higher (17.2 per 1000).

With an outmigration rate of only 1.8 per 1000, the poorly educated males in towns were by far the most sedentary. It seems that the control on upward movement was particularly effec'ive for this group of males. In contrast, with a high outmigration rate of 52.2 per 1000, the best educated females in rural counties were highly migratory. These were the females who were most effective in using not only the pursuit of education but also other means to migrate to cities. Consequently, the percentage of them selecting cities as their destination (48.0) was much higher than the corresponding figures for the middle and poorly educated rural females (21.5 and 14.1).

The destination choice patterns of the outmigrants in all three urban/rural strata displayed a common trend: the attraction of the rural strata was a decreasing function of the level of education. The decrease was particularly sharp between the middle and the best levels of education. For example, among the outmigrants of cities, the proportions choosing the rural stratum as the destination were 6.6 percent for the best educated, 38.5 percent for the middle educated, and 54.9 percent for the poorly educated.

Table 5.2 Out-, In- and Net Migration Rates of Chinese Young Adults (Aged 17-29) by Urban/Rural Type, Sex and Education, 1985-87

	Outmig. Rate (/1000)	Dest. Share (%)			Inmig. Rate (/1000)	Net Mig. Rate (/1000)	Net Migration Volume (person)				Stock (persons)	Composition (%)
		to si	to zn	to xg			Total	with si	with zn	with xg		
BOTH SEXES												
City (si)	13.4	58.1	24.5	17.4	28.8	15.4	1143	0	-33	1176	71143	100.0
Best Educated	23.3	68.9	24.5	6.6	40.7	17.4	517	0	-48	564	29743	40.1
Middle Educated	7.2	35.8	25.7	38.5	19.3	12.1	385	0	13	372	31801	42.9
Poorly Educated	5.7	24.6	20.5	54.9	24.9	19.2	242	0	2	240	12599	17.0
Town (zn)	11.4	24.9	43.1	32.0	28.9	17.4	1290	33	0	1256	74058	100.0
Best Educated	18.4	42.2	43.9	13.9	41.5	26.1	411	48	0	363	15745	21.3
Middle Educated	11.1	20.0	45.3	34.7	27.8	16.7	541	-13	0	554	32459	43.8
Poorly Educated	7.6	8.3	38.0	53.7	20.7	13.0	337	-2	0	339	25854	34.9
Rural County (xg)	17.6	31.3	35.5	33.2	7.7	-10.0	-2433	-1176	-1256	0	244046	100.0
Best Educated	39.8	55.0	36.4	8.7	6.5	-33.3	-928	-564	-363	0	27865	11.4
Middle Educated	18.1	26.3	38.8	34.9	8.5	-9.6	-926	-372	-554	0	96803	39.7
Poorly Educated	12.1	19.3	30.8	49.9	7.3	-4.9	-579	-240	-339	0	119378	48.9
MALE												
City (si)	16.0	57.6	25.6	16.8	30.5	14.5	547	0	-40	587	37800	100.0
Best Educated	29.0	66.4	26.1	7.5	48.9	19.9	306	0	-47	353	15354	40.6
Middle Educated	8.1	32.9	26.7	40.4	16.3	8.2	142	0	6	137	17243	45.6
Poorly Educated	4.0	34.1	8.7	57.1	23.0	18.9	99	0	1	98	5203	13.8
Town (zn)	7.9	39.0	43.7	17.3	20.7	12.8	473	-40	0	432	36988	100.0
Best Educated	17.4	44.2	41.9	13.9	45.0	27.7	250	47	0	203	9039	24.4
Middle Educated	6.6	36.2	43.4	20.4	16.6	9.9	176	-6	0	182	17760	48.0
Poorly Educated	1.8	13.4	59.9	26.7	6.3	4.5	46	-1	0	47	10189	27.5
Rural County (xg)	11.3	49.5	34.7	15.7	3.0	-8.3	-1019	-587	-432	0	123276	100.0
Best Educated	34.0	60.1	35.0	4.9	4.6	-29.4	-556	-353	-203	0	18926	15.4
Middle Educated	8.7	38.0	40.6	21.4	3.2	-5.5	-319	-137	-182	0	58356	47.3
Poorly Educated	5.2	45.8	21.5	32.7	2.1	-3.1	-144	-98	-47	0	45994	37.3
FEMALE												
City (si)	10.7	58.8	22.8	18.4	27.1	16.4	597	0	8	589	36344	100.0
Best Educated	17.2	73.3	21.8	4.9	31.9	14.6	210	0	-1	212	14389	39.6
Middle Educated	6.2	40.3	24.2	35.5	22.8	16.7	242	0	8	235	14559	40.1
Poorly Educated	6.9	20.7	25.3	54.0	26.3	19.4	144	0	1	143	7396	20.3
Town (zn)	14.9	17.4	42.8	39.8	37.0	22.0	817	-8	0	824	37071	100.0
Best Educated	19.8	39.9	46.1	13.9	43.8	24.0	161	1	0	160	6707	18.1
Middle Educated	16.5	12.1	46.3	41.6	41.3	24.8	365	-8	0	372	14699	39.7
Poorly Educated	11.4	7.8	35.7	56.6	30.0	18.6	291	-1	0	292	15665	42.3
Rural County (xg)	24.1	22.7	35.9	41.5	12.4	-11.7	-1413	-589	-824	0	120770	100.0
Best Educated	52.2	48.0	38.2	13.8	10.6	-41.5	-371	-212	-160	0	8939	7.4
Middle Educated	32.3	21.5	38.1	40.4	16.5	-15.8	-607	-235	-372	0	38447	31.8
Poorly Educated	16.4	14.1	32.6	53.3	10.5	-5.9	-435	-143	-292	0	73384	60.8

Note: (1) A migrant is defined as a person migrating between sub-provincial administrative areas.
(2) Inmigration Rate = Number of Inmigrants * 1000 / Population at Destination.

The likelihood that the migrants from cities would also end up in cities is much stronger for the best educated than for the middle and poorly educated. The percentage of the male migrants from cities who ended up in cities was 66.4 percent for the best educated, 32.9 percent for the middle educated, and 34.1 for the poorly educated. The figures for the corresponding females were 73.3, 40.3, and 20.7 percent. Thus, among the outmigrants from cities, the females were even more likely to remain in the city stratum than were males.

The best educated migrants were clearly more capable of moving up the urban/rural hierarchy than were the less well educated. This was true for both males and females. For example, the proportions of the outmigrants from towns choosing cities as the destinations were 42.2 percent for the best educated, 20.0 percent for the middle educated, and only 8.3 percent for the poorly educated. Similarly, the proportions of the outmigrants from rural counties choosing cities as destinations were 55.0 percent for the best educated, 26.3 percent for the middle educated, and 19.3 percent for the poorly educated. Since the standard of living is higher at the higher level of the urban/rural hierarchy, the best educated individuals clearly had a better chance of improving their living standard through migration.

What are the implications of the education selectivity in migration on the qualities of human capital in the three strata? At the rural stratum, the

net outmigration rates of both sexes were much higher for the best educated (males: 29.4 per 1000; females: 41.5 per 1000) than for the middle educated (male: 5.5 per 1000; female: 15.5 per 1000) and the poorly educated (male: 3.1 per 1000; female: 5.9 per 1000). Thus, the education selectivity resulted in a decrease of the quality of human capital in the rural stratum.

The net migration gains of the city and town strata were almost exclusively from the rural stratum, because there were very small net transfers between the two upper strata. For males, the net transfers from the rural stratum to the city and town strata were nearly equal. For females, the net transfer to the town stratum was about twice the net transfer to the city stratum.

It is an interesting paradox that the education selectivity in migration did not improve the human capital in the city stratum, although it clearly resulted in the deterioration of the human capital in the rural stratum. Actually, for females, the net inmigration rates of the city stratum were 14.6 per 1000 for the best educated, 16.7 for the middle educated, and 19.4 for the poorly educated. Behind this paradox was the big difference in the educational composition of population between the city and rural stratum at the beginning of the migration interval. In the population of the city stratum, the composition was 40.1 percent best educated, 42.9 percent middle educated, and 17.0 percent poorly educated. In the population of the rural

stratum, the corresponding percentages were 11.4, 39.7 and 48.9. When the populations are disaggregated by sex, the contrast is sharper for females than for males.

For the male population of the town stratum, we found that the net gain of migrants was accompanied by a substantial improvement in the quality of human capital. Its net inmigration rates were 27.7 per 1000 of the best educated, 9.9 per 1000 of the middle educated, and 4.5 per 1000 of the poorly educated.

An interesting but small part of the net migration picture is the net transfer of the best educated male migrants from the city stratum to the town stratum. This is interesting because it is an exception to the general upward orientation of the selectivity with respect to education. A plausible explanation is the return migrations immediately after the completion of higher education.

For the female population of the town stratum, the net gain of migrants was accompanied by a moderate improvement in human capital. Its net migration rates were 24.0 percent for the best educated, 24.8 percent for the middle educated, and 18.6 percent for the poorly educated.

5.4. Education Selectivity in the Migrations within a Three-Region System

Whether the different parts of the extensive territory of China can

remain united depends partly on the avoidance of excessive interregional economic disparities. Education selectivity in migration undoubtedly plays an important role in influencing such disparities. For simplicity, we divide the territory of China into three regions: (1) Metropolitan Region, including Beijing, Tianjing and Shanghai; (2) Coastal Region, including all coastal provinces from Liaoning on the north to Guandong on the south; and (3) Interior Region, including all the remain provinces. Note that Tibet is excluded, because it was not covered by the survey. The distribution of the young adult population among the three regions is 3 percent in the Metropolitan Region, 35 percent in the Coastal Region, and 62 percent in the Interior Region.

In all three types of regions, the level of education had a strong positive effect on the outmigration rate (Table 5.3). The effect was stronger for males than for females. Except for the females in the Interior Region, the main contrast was between the high outmigration rates of the best educated individuals (ranging from 23 per 1000 for the females in the Metropolitan Region to 32 per 1000 for males in Coastal Region) on the one hand, and the very low rates of the poorly educated males in all three types or regions (about 4 or 5 per 1000) on the other.

With respect to the destination choice patterns, the education selectivity was particularly strong for the outmigrants of the Metropolitan

Table 5.3. Out-, In- and Net Migration Rates of Chinese Young Adults (Aged 17-29) by Region, Sex and Education, 1985-87

	Outmig. Rate (/1000)	Dest. Share (%) to 3M	to CP	to IP	Inmig. Rate (/1000)	Net Mig. Rate (/1000)	Net Migration Volume (person) Total	with 3M	with CP	with IP	Stock (persons)
					BOTH SEXES						
Three Metropolitan Areas (3M)	17.5	82.6	9.6	7.9	25.9	8.4	98	0	68	30	11645
Best Educated	24.8	79.6	9.5	10.9	34.5	9.7	53	0	30	23	5448
Middle Educated	11.8	93.2	5.4	1.4	18.3	6.5	33	0	26	·	5028
Poorly Educated	7.6	56.8	38.4	4.8	18.5	11.0	13	0	12	⌐	1168
Coastal Provinces (CP)	15.5	4.1	86.8	9.2	15.5	-0.0	-5	-68	0	63	138094
Best Educated	31.6	5.2	85.7	9.0	30.0	-1.6	-42	-30	0	-12	25867
Middle Educated	13.7	3.5	85.8	10.7	13.5	-0.2	-13	-26	0	13	61538
Poorly Educated	9.5	3.2	90.2	6.6	10.5	1.0	50	-12	0	62	50689
Interior Provinces (IP)	15.7	1.2	6.8	92.0	15.3	-0.4	-93	-31	-63	0	242508
Best Educated	27.1	3.3	5.4	91.3	26.9	-0.3	-11	-23	12	0	42038
Middle Educated	15.2	0.5	7.2	92.3	15.0	-0.2	-19	-7	-13	0	94497
Poorly Educated	11.6	0.1	7.7	92.2	11.0	-0.6	-63	-1	-62	0	105973
					MALE						
Three Metropolitan Areas (3M)	16.6	74.3	11.4	14.2	27.3	10.7	63	0	42	21	5873
Best Educated	27.0	71.4	10.9	17.8	41.6	14.6	40	0	22	17	2720
Middle Educated	8.3	88.0	10.0	2.0	14.7	6.4	17	0	13	4	2628
Poorly Educated	4.6	41.0	41.3	17.7	16.5	11.9	6	0	7	-0	525
Coastal Provinces (CP)	12.5	6.1	78.0	15.9	11.2	-1.4	-96	-42	0	-54	69444
Best Educated	32.2	6.0	83.0	11.0	29.0	-3.2	-50	-22	0	-27	15702
Middle Educated	8.3	5.2	71.3	23.5	7.0	-1.2	-42	-13	0	-29	35098
Poorly Educated	4.0	10.2	70.6	19.3	3.8	-0.2	-4	-7	0	3	18644
Interior Provinces (IP)	10.8	2.6	6.4	91.0	11.0	0.3	33	-21	54	0	122746
Best Educated	26.8	4.6	4.3	91.2	27.2	0.4	10	-17	27	0	24897
Middle Educated	8.1	1.0	8.5	90.5	8.6	0.5	25	-4	29	0	55632
Poorly Educated	4.8	0.0	8.5	91.5	4.7	-0.1	-2	0	-3	0	42218
					FEMALE						
Three Metropolitan Areas (3M)	18.3	90.2	7.8	2.0	24.5	6.1	35	0	26	9	5772
Best Educated	22.6	89.4	7.9	2.7	27.5	4.8	13	0	8	6	2729
Middle Educated	15.6	96.2	2.7	1.1	22.1	6.5	16	0	13	2	2400
Poorly Educated	10.0	62.7	37.3	0.0	20.2	10.2	7	0	5	1	644
Coastal Provinces (CP)	18.5	2.1	92.7	4.6	19.8	1.3	91	-26	0	117	68651
Best Educated	30.7	4.0	90.2	5.8	31.4	0.8	8	-8	0	15	10165
Middle Educated	20.9	2.6	93.4	4.1	22.0	1.1	29	-13	0	42	26441
Poorly Educated	12.6	1.9	93.8	4.3	14.3	1.7	54	-5	0	59	32045
Interior Provinces (IP)	20.7	0.5	7.0	92.5	19.7	-1.1	-126	-9	-117	0	119762
Best Educated	27.6	1.5	7.1	91.4	26.4	-1.2	-21	-6	-15	0	17141
Middle Educated	25.3	0.3	6.6	93.1	24.1	-1.2	-45	-2	-42	0	38864
Poorly Educated	16.1	0.1	7.5	92.4	15.1	-1.0	-61	-1	-59	0	63756

Note: (1) A migrant is defined as a person migrating between sub-provincial administrative areas.

     (2) Inmigration Rate = Number of Inmigrants * 1000 / Population at Destination.

Region: the best educated (79.6 percent) and the middle educated (93.2 percent) were much more likely to remain in the Metropolitan Region than were the poorly educated (56.8 percent). Most of the poorly educated outmigrants who left the Metropolitan Region did not go very far: they mostly ended up in the Coastal Region. For the outmigrants of the Metropolitan Region, the education selectivity in destination choice pattern was basically the same between the two sexes.

Education selectivity in the destination choice pattern was also quite strong for the male outmigrants of the Coastal Region: the best educated (83.0 percent) were more likely to remain in the Coastal Region than were the middle educated (71.3 percent) and the poorly educated (70.6 percent). The less well educated males who left the Coastal Region mostly went to the Interior Region. For the female outmigrants of the Coastal Region, education selectivity in destination choice pattern was relatively weak. However, among the outmigrants who left the Coastal Region, the best educated were in general more prone to go to the Metropolitan Region than were the middle and poorly educated. This was particularly true for females.

It appears that there was little education selectivity in the destination choice pattern of the outmigrants of the Interior Region. At every level of education, about 90 percent of them ended up within the Interior Region. However, among the migrants who left the Interior Region, the best educated

were much more likely to end up in the Metropolitan Region than were then

middle and poorly educated. For example, despite the fact that the

Metropolitan Region's population share (3 percent) was much less than that

of the Coastal Region (35 percent), the Metropolitan Region attracted

somewhat more (4.6 percent) male outmigrants of the best educated group

of the Interior Region than did the Coastal Region (4.3 percent).

In general, the education selectivity in the migrants' destination choice

pattern was weaker for females than for males. Irrespective of the level of

education, the Metropolitan and Coastal Regions retained substantially higher

proportions of their female migrants than male migrants, whereas the Interior

Region showed the same capacity to retain its male and female migrants.

The net transfers of migrants among the three regions differed

markedly between the two sexes. Although the Metropolitan Region

experienced net gains of both male and female migrants, the Coastal Region

was a net loser of male migrants and a net gainer of female migrants, whereas

the Interior Region was a net gainer of male migrants and a net loser of

female migrants.

At every level of education, the net transfers of female migrants

followed a simple and reasonable pattern: from lower income regions to

higher income regions. The net transfers of the male migrants also tended

to display this pattern, with two major exceptions: the net transfers of the

best and middle educated migrants from the Coastal Region to the Interior Region. These exceptions were helpful to the prevention of the relative decline of the quality of the human capital in the Interior Region.

Because education selectivity in the net transfer of migrants among the three regions was in general rather weak for females and somewhat irregular for males, the impact of migration on the interregional disparities in the quality of human capital appeared to be rather weak. With the net outmigration rates being higher for the poorly educated than for the middle and best educated, the Interior Region experienced some improvement in human capital. In contrast, the quality of human capital in the Coastal Region declined. Although the best educated migrants from the other regions were more prone to choose the Metropolitan Region as the destination than were their middle and poorly educated counterparts, the existing interregional difference in the quality of human capital was so large that the education selectivity in migration propensity was not strong enough to further improve the quality of the Metropolitan Region's human capital.

5.5. Concluding Discussion

We have found that the level of education had a positive effect on the propensity to migrate in China. This is a very general and robust finding. A major exception, however, occurred to the females who got married during

the migration interval: the poorly and middle educated were extremely migratory (183 and 176 per 1000 per year), whereas the best educated had a much lower migration rate (106.8 per 1000 per year). Interestingly, this exception is in sharp contrast to the situation in Japan where the best educated females were much more migratory than the less well educated at the time of marriage. A plausible explanation for this exception is that in the rural areas of China, the education of the daughters tends to be ignored in poor families, and that the poor families are more likely to arrange their daughters' marriages to other villages and small towns to smooth the fluctuations in household consumption. Consistently, we found that among females, the dependency on marriage as a reason for migration was much greater for the less educated than for the better educated.

The education selectivity had a strong effect of decreasing the quality of the human capital in the rural areas of China. This is an unavoidable side effect of the migration decisions made by numerous individuals who are interested in improving their socioeconomic circumstances. As demonstrated by the experiences of Japan and other economically successful countries, the proper way to deal with this problem is not to control migration. Rather, it should be in the form of transferring tax revenues from urban to rural areas so that the basic infrastructures in the rural areas can be maintained or even improved. An important and helpful aspect of the rural-urban migration in

many Asian countries is that large amounts of the earnings of the migrants are sent back to the parental families. Such remittance has helped make the rural areas in Taiwan remain economically viable and, in some cases, prosperous. Since the family system remains quite strong in China, the negative effect of the education selectivity on the rural areas of China can be at least partially neutralized by the remittances sent back by the outmigrants. It can be further neutralized by the role model effect. A successful migration by a well educated person (e.g. going to an university and then getting a good job) may induce more family investment in children's human capital in the migrant's previous rural community.

Despite an overall net loss of migrants, the Interior Region of China did not suffer a decrease in the quality of its human capital as a consequence of the migration process. Actually, due to the larger net outmigration rate of the less well educated, the Interior Region experienced an improvement in human capital. The smaller net losses of the best and middle educated migrants by the Interior Region were due to its net gains of the best and middle educated **male** migrants from the Coastal Region. Such a net transfers from high wage to low wage region is apparently counter-intuitive. However, it would be quite understandable if we incorporate urbanization process into interregional population redistribution. The 'invasion' of urban areas in interior land by the better educated rural migrants from the much

more commercialized Coastal Region is not a surprise. For example, the well organized construction teams from the rural areas of some coastal provinces have entered into the urban areas in various part of the country, with a large proportion entering into the Interior Region. As early as 1983, the number of migrants exported from only one coastal province (Jiangsu) in this form amounted to about 160,000 persons (Luo, 1990). Zhejiang is another coastal province which has the tradition to 'expc.t' labor from its rural areas to other parts of the country (even to Xinjiang in Northwest).

If investment capital continues to concentrate in the Metropolitan and Coastal Region, it is quite likely that the migration process will soon result in the decrease of the quality of human capital in the Interior Region. If this indeed happens, we would also suggest that transfer of tax revenues to the Interior Region, rather than another scheme of migration control, be seriously considered.

Chapter 6

Spousal Residence Separation among Chinese Young Couples

6.1. Introduction

China has been well known for its traditions of **universal and stable
marriage** (Coale, 1984; Zeng, 1990), and **strong family** ties that are still
holding a large number of large families of three or more generations
together (Zeng et al, 1992). Divorce has culturally long been out of favor and
hence rare: the proportion of divorced women of the childbearing age (15-49)
was only 0.20 percent in 1982 and 0.29 percent in 1990 (SSB, 1991).
Although the nuclear family has become the most common family type in
China, the extended family remains an important family type, accounting for
more than 18 percent of the family units through the 1980s (Zeng et al, 1992).

What is largely unknown to the outside world is the relatively **high
incidence of spousal residence separation** (fu qi fen jiu) within the stable
marriage, which has been a social problem in the country for decades. Such
separations can last for years and their number has been considerable. Based
on data from China's 1982 and 1990 censuses, Zeng and Liang (1993) recently
revealed that families with separated parents accounted for 7.6 percent of all

nuclear families in 1982 and 4.4 percent in 1990, amounting to as many as 11.4 and 8.3 million separated couples in 1982 and 1990, respectively. Unfortunately, census information is not sufficient to identify other separated couples among the married children in nuclear families and the married individuals in other types of household (including stem and joint family households, and non-family households such as single-person and collective households). The total number of separated couples in each year should be considerably greater than what can be revealed from the census data. Thus, in terms of spousal coresidency, Chinese families may not be as complete as suggested by the traditions of stable marriage and strong family ties.

The spousal separation has many undesirable effects--not only to the separated couples who lose their normal family life but also to the normal psychological development of their children. A better understanding of Chinese families (including family size and structure) can be achieved by studying spousal coresidency in all types of family and non-family households. Although the study on Chinese families has become an important part of demographic research, spousal residence separation has, however, not been studied yet, partly due to the lack of suitable data. Fortunately, such a study is now possible with the availability of the micro data of China's 1987 National Population Survey (NPS87), which contain rich household and personal information for identifying coresided and separated couples in all

types of family and non-family households.

In this chapter, we focus on the coresidency problem of Chinese young couples. Compared with older adults, married young adults are more involved in changes in employment and hence are more subjected to the existing socioeconomic constraints and government assignments. Spousal separations among them are more likely to result from these constraints and assignments. Thus, how spousal separation has become a social problem in China can be better understood through this age group.

This chapter aims at (1) describing the socioeconomic context within which spousal separations in China take place; and (2) using a multivariate framework to explain the prevalence of the separation among the married young adults by their personal and household characteristics.

6.2. Spousal Residence Separation: the Socioeconomic Context

The phenomenon of spousal separation had not been strongly evident and did not become a social problem until the Cultural Revolution (1966-76), when thousands of local cadres and intellectuals (including university teachers and professors) in urban areas were assigned coercively by the government to rural areas for ideological reasons, namely, 'learning from workers and peasants'. Many of them had to be separated from their spouses and children. In the 1980s, many of the separated individuals gradually returned

to their place of origin and were united with their families, thanks to the new policy since 1978. And this is one of the important reasons for the much lower proportion of the separated parents in nuclear families in 1990 (4.4 percent) than in 1982 (7.6 percent) (Zeng and Liang, 1993).

However, spousal residence separation remains to be a serious problem, because of the continuing presence of some socioeconomic constraints. One of the constraints that affect spousal coresidency is the **urban housing shortage**. Under the official allocation system, housing for urban employees in China is supposed to be provided by their working units[24]. After several decades of emphasizing industrial production over improvement in living conditions (since 1949), the urban housing shortage has been so severe that the average housing space per urbanite was less than 4 square meters in the late 1970s and gradually rose to about 6 square meters in 1987 (SSB, 1990)[25]. Many administrative units, enterprises, factories and particularly schools (including universities) simply can not provide sufficient housing for all married employees. Within a working unit, a ranking score is

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[24] Despite the rapid commercialization of housing since later 1980s, allocation remains as the main form of getting housing units for urban employees.

[25] Housing space per capita is much larger in rural areas (9.4 and 16 square meters in 1980 and 1987, respectively). However, rural families have to manage the housing themselves. Many of rural houses are self-built and hence poor in quality.

used to determine the priority of getting housing space for the married population on the waiting list. The score for a married person is usually higher for being (1) more senior, (2) best educated with college and university degree, (3) late in marriage, and (4) fully committed to the one-child policy. The lack of seniority puts most of the newly married in an unfavorable position in competing for limited housing space. Many of the newly married are unable to reside with their spouses and have to share collective dormitories with singles or stay in their parental homes.

Another important factor is the **urban registration constraint**, which is imposed by the government to control upward migrations from rural to urban or from small to large urban areas. Under the household registration system, each individual is assigned a residential registration, which ties his (or her) education, employment, food and housing allocation to the place of registration. Since more urbanized areas have a higher level of development and a better quality of life, city registration is superior to town registration, which is in turn much more superior to rural registration. With respect to the change of registration, the upward change from rural to urban or from small to large urban areas is strictly controlled, whereas the lateral change or downward change to less urbanized areas is less controlled. The control on upward registration change is even stricter for migrants' dependents (their spouses and children).

Spousal residence separation may occur to a couple whose places of registration differ in urban/rural strata (city, town and rural county), especially if the husband is registered in a more urban location. Once separated, the husband will keep on pleading for his wife's upward registration change, using spousal residence separation as a strong reason. However, such a pleading is usually unsuccessful. And the registration of his children, if any, can not be changed either, because children are required to be registered with their mother. Without having the registration changed, his wife can not have access to the job opportunities in the husband's place of registration and his children can not enter the school in his registered community. In this situation, he faces two choices. First, he may give up the superior registration as well as the associated better benefits, and join his family in less urbanized areas; or, second, he may remain separated from his spouse and children for a period of time and keep on pleading or fighting for the upward registration change for his dependents. Usually, the couple will not give up the hope of uniting at more urbanized areas even if the chance is small.

The temporary residence separation could even be a 'rational' choice for rural-urban migrants, because the risk as well as the cost of rural-urban migration are magnified by the registration system. Without urban registration, many of the rural-urban migrants can not have access to urban subsidized food and housing. In addition, the chance for them to be

employed is relatively small and the jobs they can get are highly insecure. Consequently, married migrants (young males, usually) in rural areas are likely to move **solitarily** to urban free markets for manual work and commerce (e.g. construction work, repairing, or small scale food processing and sale), leaving their dependents at their village homes. By retaining a base at rural origin, they can also spread the risk of being unemployed (or underemployed) between the urban destination and rural origin (Hugo, 1982; Stark and Levhari, 1982).

The strategy of leaving spouse and children at origin can also be used in downward migrations for rather different reasons. Such migrations are usually associated with a high risk of not being able to return because of the difficulty in upward registration change. If a married person has to migrate downward (e.g. assigned by government or self-decision to seek a better paid job), it is highly likely that he (or she) migrates solitarily and leaves his (or her) spouse and children at more urbanized origin for pleading for future return, which would be much more difficult if all family members had migrated downward and had their registration changed. By staying put, the migrant's spouse and children can continue to enjoy the better benefit (including better education for their children) at more urbanized residence. A recent study shows that this strategy was adopted by nearly seventy percent of outmigrants from Beijing, one of the three biggest metropolitan areas (Luo

and Zhang, 1990).

In addition to the socioeconomic factors, there is a tradition in some rural areas that results in temporary spousal residence separation for the just married, although coresidency of family members (including spousal coresidency and coresidency with the elderly parents) is favored by most families. According to this **tradition of 'hui-men'** (return home), daughters who have just married are required to return to their parental homes and work for their parents for about a year before staying permanently in the place of their husband's home. During the period of 'hui-men', the married daughters are occasionally visited by their husbands but mostly, the couples are separated in residence.

Although they can not be measured directly by the data in NPS87, the above-mentioned constraints and tradition can help us understand the effects of certain personal and household characteristics of the individuals under study.

6.3. Search for Hidden Couples and Their Coresidence Statuses

There are 655,123 useable records in the micro data of NPS87, with 531,745 individual records nested under 123,378 household records. Each individual record contains information on important demographic factors (such as age, sex and marital status and for the ever-married, **age at first**

marriage), household type (family or collective household), relation to the household head (head or head's spouse, child, grand child, parent, grandparent, relative, or non-relative), registration type (with or without the local registration), urban/rural type (city, town or rural county) and the duration of the current residence.

Individuals in both family households (Jiatinhu) and collective households (Jitihu) are covered in NPS87. **Family household** in this survey refers to a group of persons who coreside mainly through family ties such as marriage, blood or adoption. Family households also include those who have no kinship relation with the family but reside in the household to serve certain purposes (e. g. nursemaid). **Collective household** in this survey refers to a group of persons who coreside in a space (dormitory, mostly) provided by an organization, office, school, enterprise or business and have their meals at the 'canteen' run by the working unit to which they belong, including both those with the collective registration (e. g. students at university) and those without (e. g. a group of construction workers from rural areas). Since organizations, offices, schools, enterprises and businesses are concentrated in urban areas, collective households are usually in urban areas and contain mostly young males, especially those who are single. There were as many as 32 million people living in collective households in both 1982 and 1990 (SSB, 1983; SSB, 1991), accounting for around 3 percent of the total population in

each year. It is worth noting that military personnel, who are mostly in collective households, were not covered in NPS87. A person who has a collective registration but resides principally at home is classified in NPS87 as a member of his (or her) family rather than a member of the collective household.

The information on the relation to household head makes it easy to identify whether a married household head coresided with or was separated from the spouse by looking at whether there is a record in the household coded as 'the spouse of the household head'.

The identification is somewhat more complicated for a married person who was neither the head nor the head's spouse, because the survey did not attempt to identify the spousal relationship for such a household member. The calender year at first marriage is determined from the information on the age at survey and the **age at first marriage**. Since the chance of having a brother and a sister getting married in the same year and remaining in the same household is very small, a married person who was not the head or the head's spouse is regarded as coresiding with his (or her) spouse if there was another married person in the family/household with (1) different gender, (2) the same relationship with the household head, and (3) the same year of first marriage. Otherwise, he (or she) is considered to be separated from the spouse. In a collective household, a coresiding couple can be identified if two

consecutive records satisfy these three conditions, with the remaining married persons being classified as spousal-separated.

In order to match married young adults by sex, married young adults are defined in this chapter as the married male aged under 35 and the married female under 33. In the micro data of NPS87, there were 48,170 married male young adults aged under 35, and 49,230 married female young adults aged under 33. They are more or less matched in total number and by duration of marriage (see Table 6.2 later).

6.4. Specification of Personal and Household Factors

The following six factors are likely to be important from either the **individual** perspective (factors 1 through 5) or the **household** perspective (factor 6). For each factor, the order and the direction of the strength of the effects on spousal separation is bracketed after the name.

(1) Migrant/Stayer Status (Employment & Education Migrants > Stayers > Marital Migrants): Since migrants who migrated for employment and education reasons (job transfer, job assignment, manual work and commerce, and education) are more likely to be subject to various socioeconomic constraints, spousal separation is likely to be more prevalent among these types of migrants than stayers. According to Chapter 3, migrations due to

manual work and commerce are mostly rural-to-urban and mostly temporary in nature. Thus, we expect that migrants of this type are more likely to be spousal-separated than migrants who migrate for permanent job transfer. By contrast, those who migrated for marriage reason (young females, mostly) are most likely to coreside with their spouses, because marriage-induced migration is expected to enhance the probability of coresidence.

(2) **Registration Type (Non-registered > Registered):** We expect that non-registered residents are more likely to be spousal-separated than registered residents, because the former are more likely to be the victims of the registration constraint.

(3) **Duration of Marriage (-):** In China, many of newly married are short of crucial 'capital' such as a house and money to form their own families. Compared with those with longer durations of marriage, they are more likely to stay in the parental home or collective household, living away from their spouses. Spousal separation of the just married in rural areas is furthermore enhanced by the tradition of 'hui-men'. Thus, the spousal separation is likely to be much more prevalent among the recently married, particularly among the just married. To reflect such a declining marginal effect, **log of duration of marriage** is used as an explanatory variable in the multivariate framework

presented in next subsection.

(4) Urban/Rural Settlement Type of the Current Residence (City > Rural County; Town > Rural County): Since the housing shortage has been much more severe in urban areas, married young adults are much more likely to be separated from their spouses for housing reasons in an urban stratum (city or town) than in the rural stratum. In addition, the spousal separations between a rural stratum and each urban stratum tend to result in higher separation rates for urban areas due to the composition effect (smaller population base in town and city than in the rural stratum). Note that in NPS87, towns are officially defined to include only those officially **designated by governments at provincial level** and are hence classified as urban, whereas the remaining small towns are included in rural counties.

(5) Level of Education (+): Since the better educated are more concerned with improving their socioeconomic status, they tend to be more exposed to various socioeconomic constraints. Hence, the better educated are more likely to be spousal-separated. We expect the order in the likelihood of being spousal-separated to be university students or graduates, high school graduates, middle school graduates, and primary school graduates and illiterates.

(6) Status in Current Household (Head or Spouse < Married Child < Relative < Non-relative): The importance of a married person in a household can be reflected by his (or her) household status. The more important he (or she) is in the household, the less likely that he (or she) is spousal-separated.

To determine the importance of a household member, we first divide all households into two broad groups: **family households** (Jiatinhu) and **non-family households**. The former group is further divided into **nuclear family households, stem family households** with less than or equal to two married children in the middle generation, and **other family households**. Non-family households include both collective households (Jitihu) and single-person households (Danshenhu).

The importance ranking of married individuals is: (1) head and spouse, (2) child in stem family household, (3) child in other family household, (4) relative in any family household, (5) non-relative in any family household, and (6) non-relative in non-family household.

We expect the order of the likelihood of being spousal-separated to be household head or spouse, head's married child, relative and non-relative. Among married children, we expect that married sons in stem families (usually the eldest) are less likely to be spousal-separated than the others, because the former are the principal descendants of the household heads.

6.5. The Statistical Model

To study the effects of personal and household factors on the prevalence of spousal separation within a multivariate context, we use the following logit model:

$$p[i,s] = \exp[A'X[i,s]]/\{1+\exp[A'X[i,s]]\} \qquad (6.1)$$

where p[i,s] is the probability of being spousal-separated for an individual with personal attributes i and household status s. A'X[i,s] is a linear-in-parameters function of vector X[i,s], which contains both personal and household factors. The factors that are categorical are represented by dummy variables. In addition to this general form, we use two other model specifications, one from the individual perspective, by suppressing household factor from equation (1), the other from the household perspective, by suppressing personal factors from equation (1).

The unknown parameters are estimated by the maximum quasi-likelihood method (McCullagh, 1983). Note that the commonly used maximum likelihood method is not appropriate for our data, because the proper values of the dependent variable are the weights rather than zeros and ones.

Our approach is better than the combination of a linear regression

model and the weighted least squares method, because we not only allow the observations with greater weights to be more influential in determining the values of the parameters but also guarantee that all the predicted proportions are bounded between zero and one.

Whether the effect of a selected variable is significant or not is judged by the t-ratio associated with the estimated coefficient of the variable. Since our sample size is very large (48,515 male married young adults and 49,637 female married young adults), a t-ratio of a magnitude of 2.0 or greater is considered to be an indication of a statistically significant relationship.

The measure of the overall goodness of fit of a given specification of the model is

$$\text{Rho-square} = 1 - L/L[0] \tag{6.2}$$

where L is the logarithm of the maximum quasi-likelihood value of the given specification, and L[0] is the logarithm of the quasi-likelihood value of the null model. Rho-square can assume a value between 0 and 1.0. The greater the value, the better the fit. According to Mcfadden (1974), Rho-square has a tendency of assuming low values so that a value of 0.2 may indicate a very good fit.

For a group of married young adults with identical personal attributes i and household status s, the probability p[i,s] can be represented by the

proportir: who are spousal-separated, P[i,s]. This proportion is a **prevalence rate** (rather than a transition rate) and is useful for descriptive purposes.

6.6. Empirical Findings

We found that 7.2 percent of the married young males and 9.2 percent of the married young females were spousal-separated in 1987. The two-percent difference can be partly attributed to the under-representation of males in the survey due to the exclusion of all military personnel (male, mostly) from the survey, among whom the married were most likely to be spousal-separated. In addition, some spousal separated rural-urban migrants (males, usually) for manual work and commerce who resided in a casual space (e.g. workshop or street) were also more likely to be missed in the survey. Thus, the female's proportion in this respect should be more reliable. In other words, there were about 9 percent of the married young adults being spousal-separated, amounting to about 9 million separated couples.

Three specifications of the logit model have been tried for each sex (Table 6.1). The first reflects an individual perspective, the second a household perspective, and the third reflects both perspectives. For descriptive purposes, we also present the observed proportions of being spousal-separated for the married young adults, stratified by sex and each of the six factors (Table 6.2). Note that these observed proportions, though

relatively easy to read, are less reliable for making inferences than are the estimated coefficients in the multivariate model, because the observed proportions are computed without control for the effects of other factors.

6.6.1. Findings from the Individual Perspective

The model specification from the individual perspective (Specification 1 in Table 6.1) includes all five personal fr..tors defined in Section 4. It turns out that most of the coefficients have the expected signs and are statistically significant.

We found that spousal separation was enhanced by employment and education migrations (*job transfer, manual work & commerce, education* and *job assignment*), particularly if the migrants were male. For each sex (especially males), employment and education migrants were significantly more prone to be spousal-separated than were stayers. In Specification 1, all the coefficients of the dummy variables representing the four types of employment and education migrations are positive and significant. The coefficients and their associated t-ratios in the male model are much greater than those in the female model.

With respect to job-related migrations, we found that the migrants who migrated to do manual work and commerce in urban free markets (mostly rural in origin and temporary in nature) were more likely to be spousal-

separated than the migrants who migrated for permanent job transfer. This is reflected by the larger coefficients for **manual work & commerce** than the ones for *job transfer* (1.6 vs. 1.2 for male, 0.6 vs. 0.4 for female). We also see in Table 6.2 that a very high proportion (55.3 percent) of male migrants who migrated for manual work and commerce was spousal-separated, whereas a moderately high proportion (29.3 percent) of male migrants due to job transfer was spousal-separated. It seems that the strategy of leaving dependents at the place of origin was more frequently used by the migrants in the search of temporary employment elsewhere than by the migrants who shifted their permanent jobs.

It is not surprising that married students who migrated recently for pursuing post-secondary education, and married university gradates who recently migrated because of government job assignments were even more prone to be spousal-separated. In the male model, the coefficients of the dummy variables representing these two types of migrations are very large: 3.96 for education migration and 2.04 for job-assignment migration. The corresponding coefficients in the female model are also quite large: 3.02 and 0.79. Table 6.2 shows that a huge majority of education migrants (89.0

Table 6.1. The Explanation of Spousal Residence Separation among Chinese Young Couples in 1987 by Personal and Household Factors

	Specification 1				Specification 2				Specification 3			
	Male		Female		Male		Female		Male		Female	
	Coefficient	(T)	Coefficient	(T)	Coefficient	(T)	Coefficient	(T)	Coefficient	(T)	Coefficient	(T)
Constant	-2.5659	(-57.5)	-2.1701	(-63.3)	-5.0842	(-71.8)	-3.2265	(-113.6)	-5.0142	(-55.9)	-3.4766	(-70.2)
I. Types of Migration (Ref: Stayer)												
job transfer	1.2293	(11.8)	0.4090	(2.5)	------		------		0.2456	(1.3)	0.5380	(2.8)
manual work & commerce	1.6141	(9.8)	0.6160	(2.4)	------		------		0.0593	(0.2)	-0.2960	(-0.9)
job assignment	2.0416	(12.7)	0.7944	(3.0)	------		------		0.9028	(2.6)	0.1117	(0.3)
education	3.9628	(8.6)	3.0196	(3.6)	------		------		-0.2387	(-0.3)	0.4334	(0.4)
move to relatives	-0.8097	(-1.8)	0.7596	(3.0)	------		------		0.0918	(0.2)	0.6946	(2.5)
family migration	-0.0495	(-0.1)	0.1396	(0.6)	------		------		0.6397	(0.9)	0.1151	(0.4)
unknown reasons	0.4196	(1.9)	0.6179	(2.4)	------		------		-0.0811	(-0.2)	0.3925	(1.3)
marriage migration	-2.4552	(-4.6)	-1.0463	(-12.6)	------		------		-2.1646	(-3.7)	-1.0699	(-12.6)
II. Non-Registered (Ref: Registered)	1.1883	(10.1)	-0.0329	(-0.3)	------		------		0.5631	(2.7)	-0.1667	(-1.4)
III. Log of Marriage Duration	-0.5626	(-33.7)	-0.4576	(-29.9)	------		------		-0.1924	(-8.2)	-0.0809	(-4.3)
IV. Level of Education (Ref: Primary School & Illiterate)												
university	0.4255	(3.5)	1.1362	(6.9)	------		------		0.3596	(2.0)	1.1527	(6.3)
high school	0.2238	(4.2)	0.9413	(20.2)	------		------		0.0170	(0.2)	0.9105	(18.5)
middle school	0.0445	(1.0)	0.5429	(14.2)	------		------		-0.1251	(-2.2)	0.4996	(12.5)
V. Urban/Rural Type of Current Residence (Ref.: Rural County)												
city	0.8936	(19.3)	0.2159	(5.0)	------		------		0.7708	(13.3)	0.1959	(4.4)
town	0.9642	(21.6)	0.3628	(8.8)	------		------		0.4093	(6.7)	0.3078	(7.0)
VI. Relation with the Household Head (Ref: Head&Spouse in Family Households)												
child in stem family	------		------		2.0901	(23.5)	1.5204	(36.7)	2.0183	(22.7)	1.4823	(34.2)
child in other types of family	------		------		3.7625	(48.7)	2.0023	(45.8)	3.5143	(42.4)	1.9109	(38.7)
relative	------		------		4.1483	(31.6)	2.4275	(23.9)	3.9636	(29.6)	2.4121	(22.5)
non-relative in family household	------		------		6.4407	(21.6)	3.2451	(7.8)	5.9140	(18.9)	2.9624	(6.4)
non-relative in nonfamily household	------		------		7.6367	(63.1)	4.2472	(37.8)	7.3564	(59.5)	3.9152	(31.9)
Rho-square	0.127		0.070		0.475		0.135		0.488		0.165	

Table 6.2 The Proportions of Being Spousal-Separated among Chinese Young Couples in 1987

		Married Male (Age<35)		Married Female (Age<33)		# of Sep. Males*100
		Separated (%)	Total #	Separated (%)	Total #	# of Sep. Female
Total		7.2	48170	9.2	49230	77.1
I. Migrant/Stayer Status						
stayer		6.4	46633	9.3	44592	71.8
marital migration		1.7	211	5.0	3816	1.9
non-marital migration		37.5	1326	21.7	823	279.4
job transfer		29.3	525	22.4	235	291.7
job assignment		58.0	181	40.1	68	384.7
manual work & commerce		55.3	283	20.3	121	639.0
education		89.0	51	81.3	10	569.4
move to relatives		5.8	93	20.1	117	23.0
family moving		16.0	21	11.7	173	16.6
other reasons		16.6	172	22.2	98	131.1
II. Registration Type						
registered		6.8	47289	9.2	47477	73.7
non-registered		32.6	823	9.5	1579	179.6
waiting for registration		5.0	57	4.9	175	33.2
III. Duration of Marriage (year)						
	0	25.7	2714	27.2	2779	92.3
	1	11.4	5856	12.9	6000	85.7
	2	7.2	5674	9.4	5861	73.4
	3	6.2	4887	8.5	5058	71.1
	4	5.8	4600	7.7	4748	73.3
	5	5.0	4738	7.7	4961	62.0
	6	5.0	4441	7.9	4647	60.1
	7	4.9	3760	6.3	3873	75.9
	8	4.9	3057	6.4	3040	76.0
	9	4.1	2343	6.0	2241	72.0
	10+	4.1	6102	5.1	6023	80.9
Age	<20	12.1	485	13.3	1305	33.7
	20-24	9.9	11602	10.6	17785	61.1
	25-29	7.0	19578	8.3	21375	76.7
30-34 (male) 30-32 (female)		5.5	16505	7.7	8765	134.2
IV. Level of Education						
university student		52.0	107	42.8	30	439.3
university		19.0	578	24.3	215	209.8
high school		9.6	9839	17.2	6448	85.2
middle school		7.1	21657	11.6	14919	88.9
primary school		5.4	13438	6.8	16137	65.5
illiterate		4.4	2551	4.4	11482	21.8
V. Urban/Rural Type of the Current Residence						
city		12.3	9264	13.2	9186	94.3
town		11.5	9747	11.3	9683	102.0
rural county		4.2	29159	7.3	30362	55.2
VI. Status in the Current Household						
head & spouse		0.6	32362	3.8	33466	15.5
child in stem family		4.8	7513	15.4	8383	27.8
child in other families		21.1	6280	22.7	6434	90.5
relative		28.2	400	31.0	488	74.4
non-relative in family households		79.5	73	59.5	23	491.5
non-relative in non-family households		92.8	1537	73.5	432	449.3

percent for males and 81.3 percent for females) were spousal-separated. The observed level of spousal separation was very high among the migrants whose migration reason was job assignment: 58.0 percent for males and 40.1 percent for females. One of the important reasons is the severe housing shortage in universities. Most of the married students and the married young teachers at universities have to share dormitories with the singles, living away from their spouses[26].

In addition to employment and education migrations, we found that young **females** who migrated to their relatives or migrated due to unknown reasons were also more likely than stayers to be spousal-separated. The statistically significant coefficients of the dummy variables representing these two types of migrations are moderately large: 0.76 and 0.62. The observed levels of spousal separation for these two types of female migrants are 20.1 and 22.2 percent, compared with 9.3 for the female stayers (Table 6.2). The females who were pregnant and migrated to give birth to infants beyond the

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[26] Students (including married students) usually live in student dormitories divided by sex. A dormitory room of 18 square meters (3*6) in Tsing-hua or Peking University, the two best universities in the country, can be crowded with four bunk beds, four student tables and eight undergraduate students. Graduate students and young university teachers (many of them married) also live in those dormitories, with three or four of them in a room.

At the time of graduation, students are subject to job assignment. The basic principle of the government's regulations in the assignment is "nalei-naqiu", which means "return to where you are from", especially for those who came from poor remote regions. Spousal separation may occur when the assigned place differs from the spouse's location.

officially allowed limits are most likely to be found among these two types of migrants.

The migrants who migrated recently for marriage reasons (female, mostly) were much less likely than stayers to be spousal-separated. This is reflected by the very negative coefficients for marriage migration (-2.4552 for male, -1.0463 for female) and the relatively large magnitudes of their associated t-ratios (4.6 for male and 12.6 for female). The observed proportions of being separated were much lower among marriage migrants (1.7 percent for males and 5.0 percent for females) than among stayers (6.4 percent for males, 9.3 percent for females). Among all types of migrations, marriage migration was the only type that contributed significantly to a low level of spousal separation.

We found that the spousal separation of the young males was also enhanced by the absence of local registration. In Specification 1, this is indicated in the male model by the very positive coefficient of *non-registered* (1.1813) and its associated high t-ratio (10.1). The level of spousal separation among the non-registered male young adults was 32.6 percent, which was nearly four times higher than that of the registered (6.8 percent). For females, such an enhancing effect, however, was evident neither in the multivariate model nor in the observed prevalence rates. One of the plausible reasons for such a gender contrast is the role differential: husbands were

more affected because of their role as the major breadwinner of the family and wives were much less so because of their subservient role.

The importance of duration of marriage in the explanation is reflected in Specification 1 by the very high magnitude of the t-ratios (33.7 for male, 29.9 for female) associated with the negative coefficients of *Log of Marriage Duration* (-0.5626 for male, -0.4576 for female). The prevalence of the separation declined at a slower pace as the duration increased. The observed proportion of being spousal-separated was around 26 percent for the married individuals who had not yet celebrated the first anniversary of their marriage, dropped to around 12 percent for those who just had, and then declined gradually to around 5 percent for those who had been married for five or more years.

For each sex, the better educated were more likely to be spousal-separated. This education effect was particularly strong for females. For males, the estimated coefficients are 0.43 (university and college), 0.22 (high school), and 0.04 (middle school). For females, the corresponding coefficients are 1.14, 0.94, and 0.54. The associated t-ratios are much larger for females than for males (Specification 1 in Table 6.1). From the observed prevalence rates, we found that among the high school graduates, 9.6 percent of the males and 17.2 percent of females were spousal-separated. In contrast, among the primary school graduates, 5.4 percent of the males and 6.8 percent

of females were spousal separated.

Finally, we found that the prevalence of spousal separation were greater in each of the two urban strata than the rural stratum. The much greater coefficients of *city* and *town* in the male model tell us that such an urban/rural contrast was stronger for males than for females. For males, the proportions of separation at each of the two urban strata (12.3 at city and 11.5 at town) were three times that at rural stratum (4.2 percent). For females, the corresponding proportions were 13.2, 11.3 and 7.3 percent.

6.6.2. Findings from the Household Perspective

From the household perspective (Specification 2 in Table 6.1), we found that household status is rather powerful in explaining the prevalence of spousal separation among Chinese young adults, as reflected by its Rho-squares (0.475 for male, 0.135 for female). We found that the lower the status a married individual had in a household, the more likely that he (or she) was spousal-separated. By using head and spouse as the reference status, the coefficients of the other statuses are all very positive and highly significant. The coefficients increase monotonically as the status becomes less important, indicating that the likelihood of being spousal-separated was least for the household head's couple and increased as the status changed to the household head's children, relatives and non-relatives. In addition, consistent

with their more important family role as the principal descendent of the household head, the married sons in stem families were less likely to be spousal-separated than those in other types of families. The non-relatives who were residing in a non-family household (single household or collective dormitories) were most likely to be spousal-separated.

Consistently, we found that the observed proportion of being spousal-separated was higher for those with a less important household status (Table 6.2). In family households, it was the least for the household head's couple (0.6 percent for male, 3.4 percent for female) and the greatest for non-relatives (79.5 for male, 50.5 for female). With a proportion of 4.8 percent, married sons in a stem family were less likely to be separated than other types of children (15.4 percent for married daughters in stem family, 21 and 23 percent for married sons and daughters in other types of families, respectively), who in turn were less likely to be so than relatives in family households (28 percent for males, 31 percent for females). It is not surprising that a vast majority of those who were residing in non-family households (collective or single-person households) were spousal-separated (93 percent for males and 74 percent for females).

6.6.3. Combining the Two Perspectives

Most of the patterns found in the previous two specifications are also

evident in Specification 3, where both personal and household factors are combined. With respect to household status, the monotonically increased order of the coefficient remains as it was in Specification 2. With respect to the enhancing effect of being (1) an urban resident, (2) a non-registered male, and (3) a better educated female, and the reducing effects of being (1) with a longer marriage duration, and (2) a marriage migrant, the patterns of the coefficients of personal factors still hold as in Specification 1.

Specification 3 also shows the overlap of the effects between some of the personal factors and the household factor. We found that the enhancing effect for employment and education migrants was not strongly evident in this specification. This is mainly because many employment and education migrants were prone to reside in non-family households. Thus, when personal and household factors are combined, the explanatory powers of employment and education migrations are largely stolen by the dummy variable *non-relative in non-family household*.

6.7. Summary

A relatively high incidence of spousal residence separation (fu-qi-fen-jiu) exists within the stable marriage system in China and has been a social problem for decades. Apart from urban housing shortages, migration control through urban registration constraints is a main contributor to the separation.

In 1987, the prevalence of spousal residence separations among the Chinese young couples (aged less than 35 for males and 33 for females) is astonishing: about 9 percent (or 9 million separated young couples).

By using a multivariate framework (logit model), we found that the behaviors of Chinese young adults experiencing spousal separation can be well explained by their personal and household characteristics in a sensible way.

From an individual perspective, we found that spousal separation was aggravated greatly by migrations due to employment and education. For males, it was further aggravated by the absence of a local registration. These two findings suggest that (1) migration control has caused enormous human costs to migrants and their families (including their children), who have to suffer the pain of the residence separation; and (2) that many migrations by married individuals, which could have enhanced the productivity of the individuals and improved the labor market, were deterred by spousal separation.

Between the two types of employment-related migrations, we found that migrants who migrated due to manual work and commerce (mostly rural in origin and temporary in nature) were more likely to be spousal-separated than migrants who migrated for a permanent job transfer, suggesting that temporary migrants (male, mostly) are more likely than permanent migrants to leave their dependents at the place of origin.

In addition, we found that a married young adult was less likely to be spousal-separated if he (or she) was a marriage migrant, but more so if he (or she) was newly married, better educated, or an urban resident in a city or town.

From the household perspective, we found household status is rather powerful in explaining the prevalence of spousal separation among Chinese young adults: the lower the status a married individual had in a household, the more likely that he (or she) was spousal-separated. The likelihood of being spousal-separated was least for the household head couple and increased as the status changed to household head's children, relatives, and then non-relatives. Consistent with their more important family role as the principal descendants of the household head, the married sons in stem families were less likely to be spousal-separated than those in other types of families.

To conclude, migration control in China has resulted in enormous human costs. Spousal residence separation is an important aspect of such costs and has been a social problem for decades in China. Its effects on family life are detrimental. Quick and serious action towards the unification of the separated families are needed, to bring happiness to the families and to avoid the loss of productivity caused by the separation.

Chapter 7

Conclusion

Migrations of China in the mid-1980s were characterized by an extremely low overall migration level (only 7.0 per thousand per year), rather unusual migration schedules without the declining slope from early to late childhood, and a large sex differential. We found that males were more likely than females to migrate for employment- and educational-related reasons, whereas females were more likely to migrate for family-related reasons, particularly for marriage reasons.

With respect to migrations within the urban/rural settlement system, our findings point to, the effectiveness of the government migration control on upward migrations. It was more effective on town-city migrations, mainly through the restriction on permanent job transfers from small to large urban places, but less so on rural-urban migrations. We found, however, that many rural folk (male, especially) were able to avoid the government control by entering the free markets in cities, whereas a considerable number of rural young females were able to move up to towns through marriage.

Downward migrations to less urbanized areas, which were one of the main forms of government-sponsored migrations in the 1960s and early 1970s,

were found to be very unpopular in the mid-1980s, despite government encouragement. As a result, the migration efficiency (net migration divided by gross migration) in China's urban/rural system was very high in magnitude, at the level of 50 to 75 percent. And the net effect of such migrations was a fairly large net transfer of population from rural counties to cities and towns.

Better insights into the migration behaviors of Chinese young adults have been achieved by using a well-designed multivariate framework (nested logit model) for a simultaneous study of both inter-stratum and interprovincial migrations. We have found that the highly selective migration behaviors of Chinese young adults can be well explained by a combination of personal factors and ecological variables in a sensible way.

With respect to the destination choice behaviors, we found that despite government control on migrations, Chinese young migrants were more prone to select destinations with better economic opportunities. The pull effect of higher income at destination was significantly positive on all migrants, in general and was particularly strong on the young migrants who originated from rural areas and who were seeking temporary employment elsewhere. Young migrants were more prone to select the fast growing coastal provinces as their destinations and were very unwilling to engage in downward migrations from cities to towns or rural counties.

However, in the search for better opportunities elsewhere, the scope

of the destination choices was narrowed by various structural constraints, partly reflected by strong distance-decay effects and the negative effect of "intervening opportunities" for interprovincial migrations. The choice behaviors were further affected by the governments efforts in controlling cityward migrations. We found that such efforts were most effective in directing intraprovincial migrations toward the town stratum, mainly through job assignments and job transfers.

With respect to departure behaviors, we found that personal factors (age, education and marital status) were of paramount importance in explaining such behaviors. The departure propensities dropped sharply from the early 20s (20-23) to the late 20s (24-29) and the event of marriage had an overwhelmingly positive effect on the female's departure propensity. Similar to the findings in other countries, the level of education had a strong positive effect on the departure propensities in China. Within the context of the personal factors, we found that the departure propensities were enhanced by the attractiveness of the rest of the system and reduced by the income level at origin.

The education selectivity of migration had a strong effect of decreasing the quality of the human capital in the rural areas of China. However, such an effect may not be as serious as it appears, partly because it can be neutralized by the effect of the migrant's urban-rural remittance, which can

be turned to rural prosperity. It can be further compensated for by the role model effect, in the sense that a successful rural-urban migration by a well educated person may induce more family investment to children's human capital in the migrant's previous rural community.

Despite an overall net loss of migrants, the Interior Region of China did not suffer a decrease in the quality of its human capital as a consequence of the migration process. Actually, due to the larger net outmigration rate for the less well educated, the Interior Region experienced an improvement in human capital. The smaller net losses of the best and middle educated migrants by the Interior Region were due to its net gains of the best and middle educated **male** migrants from the Coastal Region, partly because of the 'invasion' of urban areas in interior land by the better educated rural migrants from the much more commercialized Coastal Region.

Migration control in China has incurred enormous human costs, partly reflected by the high incidence of spousal residence separation (fu-qi-fen-jiu) among Chinese young adults, particularly among the employment migrants. In 1987, the prevalence of spousal residence separations among the Chinese young couples (aged less than 35 for males and 33 for females) is astonishing: about 9 percent (or 9 million separated young couples). A married young adult was found much more likely to be spousal-separated if he (or she) migrated recently for employment (job transfer, job assignment, or manual

work and commerce), or education reasons. For males, the proportions were 30, 55, 58 and 89 percent for migrants who migrated recently due to job transfer, manual work and commerce, job assignment and pursuing post-secondary education. For female migrants, the corresponding numbers were 22, 20, 40 and 81 percent. This might be the main reason for the complete absence of the declining curve from early to later childhood in the migration schedules of China.

Our overall conclusion is that the internal migration process in China has undergone fundamental changes. Individuals (or families) have replaced the government as the main decision-maker of their migrations. As a result, the two main trends of government sponsored migrations in the 1960s and early 1970s, westward to less developed interior land and downward to less urbanized areas, have been totally reversed. The introduction of market system since the later 1970s has had its immediate effect: a clear responsiveness of the migration behaviors of Chinese young adults to market forces despite government controls. Further studies should focus on the integration of migration in the development process of the country, particularly on the critical role of migration in the development of a efficient labor market and hence the whole market system, which is the ultimate goal of its economic reform.

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