1994

Surplus Labor and Mobility in Hebei, China: An Evaluation of the Litu Bu Lixiang Approach.

Chunxiao Li

Louisiana State University and Agricultural & Mechanical College

Follow this and additional works at: https://digitalcommons.lsu.edu/gradschool_disstheses

Recommended Citation
https://digitalcommons.lsu.edu/gradschool_disstheses/5738

This Dissertation is brought to you for free and open access by the Graduate School at LSU Digital Commons. It has been accepted for inclusion in LSU Historical Dissertations and Theses by an authorized administrator of LSU Digital Commons. For more information, please contact gradetd@lsu.edu.
INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

UMI
University Microfilms International
A Bell & Howell Information Company
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
313/761-4700 800/521-0600

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Surplus labor and mobility in Hebei, China: An evaluation of the *litu bu lizhang* approach

Li, Chunxiao, Ph.D.

The Louisiana State University and Agricultural and Mechanical Col., 1994
SURPLUS LABOR AND MOBILITY IN HEBEI, CHINA: AN EVALUATION OF THE LITU BU LIXIANG APPROACH

A Dissertation
Submitted to the Graduate Faculty of Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Philosophy in The Department of Geography and Anthropology

by Chunxiao Li
B.S., Hebei Normal University, China, 1982
M.A., Hebei Normal University, China, 1985
May 1994
ACKNOWLEDGEMENTS

There is nothing in the world can be compared to the feelings of getting a Ph.D. I am very grateful for the opportunity provided by the Department of Geography and Anthropology, Louisiana State University. I have enjoyed my education in LSU and knowing many fine professors and fellow students.

I would especially like to thank my major professor, Dr. Gregory Veeck. Without his guidance, belief, inspiration, and friendship, I would never get this point. I also want to thank my Committee: Dr. Carville Earle, Dr. Min Zhou, Dr. Nina Lam, and Dr. Anne Mosher. I know reading a long dissertation is not always enjoyable.

Finally, I would like to thank my wife, Huizhen, and my son, Joe. They had to put up with me and cheer me up when I was impatient and moody. It is my father's expectation for me, his only son, getting a Ph.D has kept me going. This is truly special because there were so many reasons and so many times that I wanted to give up.
# TABLE OF CONTENTS

ACKNOWLEDGEMENTS .................................................. ii

LIST OF TABLES .................................................. v

LIST OF FIGURES ................................................ vi

ABSTRACT ........................................................ viii

CHAPTER

ONE THE PROBLEM OF RURAL SURPLUS LABOR IN CHINA .... 1

TWO THEORIES, POLICIES, AND THE CHINESE RESPONSE TO LARGE-SCALE MIGRATION ........ 10

2.1. Theories on Rural-Urban Migration ................. 10

2.2. Migration and Urbanization ........................... 16

2.3. Theories and Models to Limit Migration and to Absorb Surplus Labor in the Countryside ........... 22

2.4. Models of Government Intervention Policies on Migration ........................................... 30

2.5. Integrated Rural Development ........................ 34


2.7. Recent Chinese Research and the Litu Bu Lixiang Program .......................... 44

THREE THE DEVELOPMENT OF THE LITU BU LIXIANG .... 53

3.1. A Brief History of China's Economic Reform Policies in Rural Areas .................. 53

3.2. Issues of Uneven Development in China ..................... 55

3.3. Rural Labor Redundancy: Push and Pull ............... 66

3.4. Unemployment in Urban Areas .......................... 68

3.5. The Implementation of the Litu Bu Lixiang Program .............................................. 69

FOUR RESEARCH DESIGN AND THE SELECTION OF STUDY AREAS ........ 83

4.1. Restatement of the Hypothesis ......................... 83

4.2. Data Requirements ....................................... 85

4.3. The Selection of Survey locations .................... 87

4.4. Objectives of the Field Work .......................... 94

4.5. Development of the Survey Form ....................... 96

4.6. Data Collection .......................................... 98

FIVE THE STUDY AREAS: GEOGRAPHICAL ISSUES ........ 105

5.1. Location and Population ............................... 105

5.2. Physical Geography ..................................... 106

5.3. Economic Conditions in Hebei ......................... 108

iii
5.4. The Development of Rural Industry and its Effects on Rural Surplus Labor.....................................111
5.5. Li County and Dingxing County..............................117
5.6. The Development of Small Towns.............................124

SIX
STATISTICAL METHODS OF ANALYSIS........................127
6.1. Household Data: Variables and Their Definitions........127
6.2. Individual Data: Variables and Their Definitions..........133
6.3. Xiang Level Data: Variables and Their Definitions.........139
6.4. Statistical Techniques..................................143
6.5. Summary.............................................154

SEVEN
RESULTS AND DISCUSSION........................................157
7.1. The Contribution of Non-agricultural Income on Total Income..........................157
7.2. The Source of Off-farm Income...............................159
7.3. Factor Analysis of Household Data...........................161
7.4. Self Sufficiency Versus a True Market Economy..................173
7.5. Logistic Regression: the Social Characteristics of Mobile Workers.................175
7.6. Economic Returns of Litu Bu Lixiang People and Litu Ye Lixiang People..........190
7.7. Locational Difference in the Implementation of Litu Bu Lixiang Program...............194

EIGHT
CONCLUSIONS..................................................230

REFERENCES..................................................241

APPENDIX: SURVEY QUESTIONNAIRE.................................252

VITA..........................................................268
LIST OF TABLES

TABLE

3-1 National Income Per Capita by Province, 1990 .............. 59
3-2 Rural Per Capita Net Income, 1978-1985 ..................... 65
3-3 Estimates of Urban Unemployment .......................... 70
4-1 The Household Distribution ................................... 99
5-1 Rural Industry Statistics of Hebei, China ................. 114
6-1 Sample T-test between Two Counties ......................... 129
7-1 Correlation Matrix for Household Survey Data ............. 160
7-2 Initial Statistics for Factor Analysis of Household Data ........................................ 162
7-3 Rotated Factor Matrix for Household Data ..................... 165
7-4 Rotated Factor Matrix for Household Data ..................... 167
7-5 Variables Not in the Equation ............................... 178
7-6 Variables in the Equation ................................... 179
7-7 Classification for Mobility .................................... 180
7-8 Mobility by Classified Age .................................... 182
7-9 Mobility and Sex ................................................ 183
7-10 Mobility by Education ......................................... 185
7-11 Education by Classified Age .................................. 186
7-12 Zero Order Correlation, Xiang Data ......................... 196
7-13 Initial Statistics for Factor Analysis of Xiang Level Data ........................................ 209
7-14 Rotated Factor Matrix of Xiang Level Data ................. 210
7-15 Rotated and Sorted Factor Matrix of Xiang Data ......... 211

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
LIST OF FIGURES

FIGURE

4-1 Location of Hebei Province in China.......................... 89
4-2 Location of Dingxing and Li County in Hebei.................. 92
6-1 Flow-Chart of Methodology..................................... 155
7-1 Factors and Their Eigenvalues.................................. 164
7-2 F-Score Distribution of Factor 1, Dingxing County
Vs. Li County, Hebei, China. Household Data.................. 169
7-3 F-Score Distribution of Factor 2, Dingxing County
Vs. Li County, Hebei, China. Household Data.................. 171
7-4 F-Score Distribution of Factor 3, Dingxing County
Vs. Li County, Hebei, China. Household Data.................. 174
7-5 Total Income of Townships in 1991, Dingxing County...... 197
7-6 Total Income of Townships in 1991, Li County.............. 198
7-7 Per Capita Income in 1991, Dingxing County............... 199
7-8 Per Capita Income in 1991, Li County....................... 200
7-9 Rural Industrial Income of Townships in 1991,
Dingxing County........................................ 202
7-10 Rural Industrial Income of Townships in 1991, Li
County................................................................... 203
7-11 Income from Construction for the Townships in 1991,
Dingxing County............................................... 205
7-12 Income from Construction for the Townships in 1991,
Li County......................................................... 206
7-13 Agricultural Income of Townships in 1991, Dingxing
County............................................................. 207
7-14 Agricultural Income of Townships in 1991, Li County... 208
7-15 F-Score Distribution for Factor 1, Township Data...... 213
7-16 F-Score Distribution for Factor 1, Li County............ 214
7-17 F-Score Distribution for Factor 1, Dingxing County... 215
7-18 F-Score Distribution for Factor 2, Township Data......217
7-19 F-Score Distribution for Factor 2, Li County..........218
7-20 F-Score Distribution for Factor 2, Dingxing County...220
7-21 F-Score Distribution for Factor 3, Township Data......221
7-22 F-Score Distribution for Factor 3, Dingxing County...222
7-23 F-Score Distribution for Factor 3, Li County.........223
7-24 F-Score Distribution for Factor 4, Township Data......226
7-25 F-Score Distribution for Factor 4, Dingxing County...227
7-26 F-Score Distribution for Factor 4, Li County.........228
ABSTRACT

The most fundamental economic reforms were introduced within the rural areas in China during the 1980s. The resulting greater efficiency in production, and the continued population growth have combined to result in a vast number of surplus laborers in rural areas.

While concerned about the rural surplus labor problem, the Chinese government also determined to avoid mass rural-urban migration. In 1984, the Chinese Government promulgated a policy called litu bu lixian (leave the land, but not the countryside). The basic idea is to absorb surplus labor through the retention of labor in the rural areas by creating non-agricultural opportunities.

The purpose of this dissertation is to evaluate the impact of the litu bu lixian policy. I conducted a field research in two counties—Li and Dingxing County—in Hebei, China in 1992. Multi-scale data—data on individual, household, township, and county levels—were collected.

My analysis indicates that the people who shift from agriculture to non-agricultural sectors (litu people) have higher income than the people who still remain in agriculture.

I also found that young, male, and more educated people are more likely to leave agriculture to pursue better opportunities. By creating non-agricultural
opportunities in local areas, the litu bu lixiang program has successfully retained "high-quality" labor in rural areas where such workers can continue to contribute in agricultural production. This not only prevents the decline of agricultural production, but also ensures future rural development.

For the households in my survey, seeking better economic returns was reported as the major reason for rural-urban migration. My results suggest that better opportunities are not necessarily in the cities; people would prefer to find non-agricultural job in the local areas, because moving to urban areas entails much higher costs, economically and psychologically, while not necessarily resulting higher returns.

The analysis of xiang level shows that the townships in Li County are more likely to have higher incomes than the townships in Dingxing County. The differences manifested that the local government plays an important role in initializing the litu bu lixiang program.
CHAPTER ONE: THE PROBLEM OF RURAL SURPLUS LABOR IN CHINA

The most fundamental reforms that swept through China during the 1980s were those introduced within the rural areas. Rapid changes occurred in the structure of Chinese agriculture due to the introduction of the household responsibility system in 1979 and the dismantling of the communes after 1980. The reorganization of production, the distribution of land to individual households, and the promotion of more diversified activities not only increased levels of output, but also motivated peasants to work harder and longer hours for material improvements in their lives. The resulting greater efficiency in agricultural production, and the momentum of population growth in rural areas bringing ever-growing cohorts to labor-force age, have combined to result in a vast and still growing number of surplus laborers in rural areas. Currently between 60 and 70 percent of China's population still resides in rural areas which also account for a similar percentage of the nation's total labor force. Some 98 percent of the agricultural labor force is engaged in cultivation, as distinct from forestry, fishing, and animal husbandry (Yu, 1987). It was estimated that 484 million people will still be engaged in agriculture in the year 2000. Perhaps 200 million of these people will be surplus to the labor
requirements of agricultural production at that time (Li, Q, 1986; Zhang, 1987).

The conditions facing these surplus laborers are profound. Many feel they have no opportunities for advancement if they solely rely on agriculture. Immediately after the Chinese New Year of 1993, for example, millions of peasants from around the country left home to find employment opportunities anywhere else. People travelled from interior areas to coastal areas and from rural areas to medium and large cities without knowing if they would have any reasonable chance of finding a job. The most important reason for such an exodus is that the amount of cultivated land is insufficient in virtually all rural areas of China to provide reasonable lifestyles and incomes. In addition, the creation of non-agricultural jobs in the rural areas has not kept pace with the ever-growing number of rural surplus laborers. From 1949 to 1991, the total area of cultivated land decreased from 1.468 billion mu to 1.425 billion mu. During this same time, the total number of rural workers increased from 173 million to 428 million persons. Although the development of rural industry during the 1980s absorbed nearly 100 million rural surplus workers, it is estimated over 150 million redundant laborers remain. In addition, it is estimated that an additional 6 million more rural workers enter the labor force every year. If these surplus laborers can not find
jobs locally, they must try to find employment opportunities in other more developed areas and in medium and large cities regardless of the consequence. Migration levels, then, will increase.

Since a large number of unemployed people already exist in most of China's urban areas, the capacity for cities to absorb additional rural laborers is very limited. It is estimated that the potential for China's urban areas to absorb rural laborers is currently limited to an additional 10 million people, which is less than 10% of the total estimated surplus rural workforce (You, 1993). In addition, any massive movement of people from rural areas to urban areas would put enormous pressure on transportation systems and other urban infrastructure. The Chinese government and the rural people themselves realize that the creation of non-agricultural employment opportunities in the rural areas is vital to economic growth and stability in the countryside.

The Chinese government appreciated the growing problem of surplus rural labor by the early eighties as the problem intensified with increased efficiency in agriculture and with the ever-growing population. While concerned about the productive absorption of surplus labor, the Chinese government is also determined to avoid the "overurbanization" that it perceives as having negatively affected the quality of life in many cities throughout the
Third World, including some large Chinese cites such as Shanghai, Beijing, and Guangzhou. Chinese policy makers feared that the large scale migration of people from rural areas and smaller urban locations to large cities might exacerbate the problems these cities already face in providing jobs, food, and adequate infrastructure to their residents, while at the same time entailing a major loss of human potential in rural area and smaller urban locations (Chan, 1988). The adoption of policies aimed at controlling the growth of large cities, and of permanent migration to them has been a response of the Chinese government to the growing set of socio-economic pressures generating rural to urban movement (Goldstein, 1990). As a corollary of this policy, China's migration policy has been to strictly limit migration to big cities; carefully control movement to medium cities; allow freer movement to small cities and towns; and to encourage migration from larger to smaller places (Ma, 1989). The policy has historically been enforced through the household registration system and through access to state-controlled jobs, housing, and rationed consumer goods (Goldstein, 1990).

Taken by themselves, such policies are inadequate for solving the problems of the approximately 150 million surplus laborers estimated to currently exist in China's rural areas --not to mention the additional 100 million persons expected to be added to that number by the year
2000 (Wang, Liu and Wang, 1989; Banister and Taylor, 1989). Policies directed at closing off the cities as alternative places of permanent residence and employment required that other methods are needed to cope with surplus rural labor.

In April 1983, and again in January 1984, the State Council promulgated new regulations allowing rural laborers to "leave the land but not the countryside" (litu bu lixiang). Under this policy, peasants can leave agriculture and work in non-agricultural sectors while remaining in rural areas. They can also move to nearby rural market towns to engage in non-farming jobs (Hu, 1985, cited in Zweig, 1987). The basic idea is to absorb the surplus labor without putting pressure on major cities, while modernizing the rural economy through rural industrialization (Cai, 1989. Geng, 1990. Wang, 1989). The efficiency of this program will be the central topic of this dissertation.

Since the program was launched in 1984, the litu bu lixiang policy has been actively promoted by the Chinese central government working through local governments of rural areas. Some additional but related policies were also incorporated in the program to ensure that this policy will succeed. Restrictions on private business have been gradually lifted and migration policies have been eased. Rural people are now allowed to move to areas beyond their own communities. Since the adoption of the program and related policies, various types of rural industries have
developed quickly. More and more rural people have come to realize that they can not improve their living standards dramatically by simply depending on the production and sale of agricultural products. Many people have become more interested in finding non-agricultural jobs.

While the current assessment of the *litu bu lixiang* program by the Chinese government is favorable, in-depth research of this program is needed to evaluate how this program affects individuals, households, and communities at the local level. My dissertation research will assess the impact of the *litu bu lixiang* program through a detailed case study at the household and township level.

Hebei, one of the most densely populated provinces in North China, was selected for this field research. Further, two counties within Hebei, Dingxing and Li Counties, were chosen in which to conduct the household surveys and township research. By evaluating this program at multiple scales of analysis, it is hoped that a clearer and more realistic picture can be achieved. The data and information collected during this field research in China will be introduced and analyzed through the use of both qualitative and quantitative methods.

The purpose of this dissertation, then, is to investigate the current status of the *litu bu lixiang* policy and to examine the long term viability of this program as the solution to China's rural surplus labor
problems. Further, I wish to investigate the effect of this policy on China's rural development. In other words, I want to investigate if the absorption of rural surplus labor and the promotion of rural development can depend on social mobility—a change in status, e.g. of occupation—not on geographical mobility, e.g. rural-urban migration.

My dissertation will focus on several aspects of the litu bu lixiang program. Firstly, the benefits to households, and to rural areas which have adopted the litu bu lixiang program will be assessed. The effect of the employment of a household member in non-farming sectors on household and individual income levels will be evaluated. Changes in such economic factors are important elements in determining the viability of the program. Secondly, the significance of the litu bu lixiang policy to further rural development through the retention and effective absorption of surplus labor in rural areas is also a key issue which will be examined in this research. Thirdly, the influence of occupational shifts from the agricultural sector to non-agricultural sectors on further rural development will be examined. With this large scale movement of agricultural labor, can continuous growth in agricultural production be maintained? How will the development of non-agricultural activities affects the overall patterns of rural development? Fourthly, what continuous efforts should be made to encourage people to leave agriculture, but not
leave the countryside? That is, will the improvement of economic conditions in the rural areas through this program be sufficient to convince people to remain in rural areas? Finally, the implications of the policy for other developing countries facing similar migration problems will also be discussed in light of my findings for this case study in Hebei Province.

Based on the above mentioned objectives of this research, four general hypotheses have been formulated.

1. The assessment and participation by farm households of the litu bu lixiang program at household level is directly related to differences in family income composition and magnitude. The families with mobile (litu) laborers will better off than those without mobile laborers.

2. Mobility is selective with respect to sex, age, and education. I believe the program will prove to be successful in retaining high quality laborers (young educated workers) in rural areas, which is crucial to the continued growth of the agricultural sector and successful rural development.

3. The potential for economic gain is the major reason for mobility. When economic returns for the people participating in the litu bu lixiang program who are engaged in non-agricultural activities in rural areas are not statistically different from the incomes of the workers
who moved to urban areas, people will remain in local rural areas.

4. The adoption and accomplishments of the *litu bu lixiang* program will vary by location due to local differences in rural industrialization levels, off-farm employment opportunities, and, probably most importantly, the response of the local government to the program.

The *litu bu lixiang* policy can be considered as a retentionist-based policy. To place it into theoretical framework and to compare it with the efforts made by other countries to limit mass rural-urban migration, a large body of literature concerning rural urban migration, urbanization, integrated rural development will be reviewed in the following chapter. The *litu bu lixiang* policy and other Chinese approaches will also be reviewed.
CHAPTER TWO: THEORIES, POLICIES, AND THE CHINESE RESPONSE TO LARGE-SCALE MIGRATION

Most developing countries currently face problems related to over-population. Overpopulation, in conjunction with limited amounts of land and investment capital often result in surplus labor in rural areas. The governments of many countries as well as scholars throughout the world are eagerly seeking viable solutions to this problem. Basically there are two approaches to solve this problem: the promotion of rural to urban migration to reduce population in rural areas or the increase of employment opportunities in rural areas through the development of non-agricultural sectors.

2.1. Theories on Rural-Urban Migration

There are numerous theories and models of rural-urban migration. Theoretical explanations of rural-urban migration have a long history, dating from at least the 1880s when Ravenstein first proposed his "laws of migration" (Ravenstein, 1885, 1889). According to these laws, migrants move from areas of low opportunity to areas of high opportunity. The choices of destination is regulated by distance, with migrants from the rural areas tending to move to nearby places. He hypothesized that urban residents are less migratory than rural ones, and
that migration accelerates with growth in the means of transport and communications and with the expansion of trade and industry. Ravenstein's basic laws have long since been systematized and expanded by many investigators, while consistently emphasizing the importance of economic issues in the decision to migrate and the negative influence of distance.

Building on Ravenstein's law, Lee developed a "general scheme into which a variety of spatial movements can be placed" (Lee, 1966). He divided the forces exerting an influence on migrant perceptions into "push" and "pull" factors. The former are "negative" factors tending to force migrants to leave their original areas, while the latter are "positive" factors attracting migrants to new destinations in the expectation of improving their living conditions. Lee hypothesized that factors associated with social and economic conditions in the area of origin would be more important than those associated with destination areas. These forces, promoting migration associated with the area of origin and destination, are governed by personal factors "which affect individual thresholds and facilitate or retard migration" (Lee, 1966). The popularity of Lee's theory is reflected in a broad range of studies, particularly those dealing with migrant selectivity and push-pull factors (Oberai and Singh, 1983; De Jong and Harbison, 1981). Some researchers have argued that Lee's
approach is not actually a theory but rather a conceptual framework for classifying factors involved in migration decisions (Bilsborrow, Oberai and Standing, 1984).

The first well known economic model of development to include the process of rural-urban labor transfer as an integral element was that of Lewis (1954), later extended by Fei and Ranis (Fei and Ranis, 1961). This combined structure is now known by the initials of these researchers—the L-F-R model. This model considers migration as an equilibrating mechanism which, through transfer of labor from the labor surplus sector to the labor deficit sector, eventually brings about wage equity within both sectors. The model is based on the concept of a dual economy comprised of a subsistence, agricultural sector characterized by unemployment and underemployment and a modern industrial sector characterized by full employment where "capitalists" reinvest the full amount of their profit. In the subsistence sector, the marginal productivity of labor is zero or close to zero and workers are paid wages equal to their cost of subsistence, so that wage rates often exceed marginal productivity. In contrast, within the modern urban sector, productivity and the resulting wages are much higher. With differences in income between the two sectors, migration occurs as labor flows from the subsistence to the industrial sector. This increases industrial production as well as profit. Since
this profit is assumed to be reinvested in the industrial sector, it further increases the demand for labor from the subsistence sector. The process, in theory, continues as long as surplus labor exists in the rural areas.

Despite the appeal of the dual economy model, most observers have found it unsatisfactory due to a number of shortcomings (Bilsborrow, Oberai and Standing, 1986). Firstly, migration is not induced solely by low wages and underemployment in rural areas. Secondly, the assumption of near-zero marginal productivity and surplus labor in agriculture has been widely criticized on empirical grounds. Thirdly, the model assumes a high rate of expansion of employment opportunities through continuous investment in the urban sector. In fact, the rate of growth of employment in the modern industrial sector has generally not been sufficient in developing countries to absorb the increasing labor supply resulting from both natural population increase in the urban sector and net rural-urban migration.

In 1962, Sjaastad presented a theory of migration which treats the decision to migrate as an investment decision involving an individual's expected costs and returns over time (Sjaastad, 1962). Returns, as he defined them, are comprised of both monetary and non-monetary components, the latter including changes in "psychic benefits" as a result of locational preferences. Similarly,
costs also include both capital and non-capital components. Capital costs might be the costs of transport; of disposal of movable and immovable property necessitated by a shift in residence; of wages foregone while in transit; or of retraining for a new job. There are psychic costs as well including those incurred by leaving familiar surroundings; in many cases of giving up one's language and culture; and of adopting new dietary habits and social customs. Although Sjaastad acknowledges non-monetary costs as well as monetary costs and benefits, when actually calculating net returns to migration, he includes only monetary costs. To some extent, this reflects the problems accounted with incorporating qualitative information into quantitative analysis. His approach assumes that people desire to maximize their net real incomes over their productive life and can at least roughly compute their life time income streams in the present place of residence as well as in all possible destinations.

Zelinsky (1971) associated the macro changes in economic structure to a theory of "mobility transition". Mobility transition is linked, although not causally, through modernization to the demographic transition. Zelinsky argues that modernization is related to clearly specifiable patterns of mobility. As a society modernizes, spatial inequalities increase, particularly between urban
and rural areas, and subsequently there is an increase in migration, primarily from rural to urban areas.

Montgomery (1987) put the differences between urban and rural areas in slightly different perspective. He argues that agricultural markets are highly distorted by government policies, which keeps rural incomes artificially low and therefore stimulates rural-urban migration. Certainly, this has been the case in China, although recent changes in policy suggest that this may soon become less important.

Recently a number of authors have argued that the urban and individualistic biases in research have failed to address the question of why there are variations among rural areas within a given country in migration patterns (Balan, 1983. Amin, 1974.). The attempts to incorporate these patterns observed during field research have resulted in structural explanations of migration which stress the role of changing social structure as a major factor in determining migration flows. This type of explanation identifies variations in the propensity, selectivity, and direction of migration within the social milieu in which the individuals live. Because of the predominance of migration flows from rural areas, emphasis is placed on rural social structure as the major area of concern for the understanding of migration flows (Peek, 1981. Roberts, 1978.). Young, in an analysis of circular migration, points
out the different levels of social structure that may act to affect this form of migration (Young, 1982). An individual is imbedded within, and is influenced by, a number of structures—the family, local networks, and even up to the state or relations between states.

Some people also find that individual characteristics are highly predictive of mobility related behavior, although it appears from the literature that this is most true within particular social settings. This has led to attempts to explain individual probabilities of migration in terms of the social context in which the decision to migrate is made (Guest, 1989). Linking these studies of individual behavior to broader societal patterns has proven to be methodologically difficult, despite the intuitive logic of such associations.

2.2. Migration and Urbanization

In many developing countries, rural poverty manifested as low agricultural incomes, low productivity, and underemployment, is pushing many migrants out of rural areas towards areas with greater employment opportunities. Several recent studies have observed increasing surplus labor in rural areas and a further widening gap in the incomes of rural and urban populations (Peek, 1981). The pressure of population, resulting in smaller per capita land ratios, has been hypothesized as an important cause
of increasing poverty and rural out-migration. This "pushes" the transformation of agricultural labor. Traditional economic wisdom includes "the well-known fact that the fraction of the labor force involved in agricultural production is inversely related to the stage of development" (Bloom and Freeman, 1987). As the economic base of a society is transformed from agriculture to industry, many believe there will be an associated systematic rise in the level of urbanization (Gibbs and Martin, 1962). In other words, the sectoral transformation of the labor force is generally equated with a spatial redistribution of population.

There are positive and negative interpretations regarding rural-urban migration because there are different perceptions regarding the resultant urbanization which is directly related to migration. The arguments from the people who support continued urbanization are:

1) Economic growth is highly correlated with the degree of urbanization. Internal migration was thought to be a "natural process" in which surplus labor was gradually withdrawn from the rural sector to provide needed manpower for urban industrial growth. The process was deemed socially beneficial since human resources were being shifted from locations where a person's marginal product was often assumed to be zero, to places where this marginal product was not only positive but also rapidly growing as a
result of capital accumulation and technological progress (Todaro, 1985). Preston (1988) basing his ideas on his own research within many developing countries found that the simple correlation between the rate of the rural-urban migration and gross national product per capita in a selection of 29 developing countries was 0.61. In general, rates of rural-urban migration are greatest in the countries whose economic performances allow the best opportunities for accommodating the exodus. It is argued that rural outmigrants generally constitute a comparatively more resourceful and selective segment of human capital. Therefore, their relocation to a more dynamic urban environment will improve the resource-base of the national economy. Since their opportunity cost in the origin area is likely to be lower than their urban wage, their transfer to the urban labor force should enhance overall labor productivity, and lead to higher levels of national output.

It is also commonly believed that migrants have, on an average, a higher propensity to save than non-migrants. Consequently, it can be expected that migration will raise the economy's over-all rate of capital formation (Oberai and Singh, 1983). This is significant in that higher rates of savings leading to capital formation also assumes in turn there will be more money available for job-creating ventures.
2) Proponents of urbanization also suggest that, in theory, "overurbanization" does not exist (Preston, 1988). The proposition that the Third World countries are characterized by overurbanization was widely accepted beginning in the 1950s and through the 1960s. The relationship between the level of urbanization and the degree of industrialization provided the basis for either a synchronic or a diachronic argument. One of the key arguments underpinning the notion that urbanization in developing countries is abnormal is that their urban populations are "supported" by an unusually small industrial labor force and that the Third World countries were shown to have a degree of industrialization lower than that which characterized First World countries at comparable levels of urbanization in the past. Preston argues that the service sector is the substitute for industry (Preston, 1988). In his view, the evident bias against services is a bit odd in view of the fact that the vanguard of most developed countries has for some time been tracing out a definition of development in which services play the dominant role. The developing countries, in his opinion, should aspire to the twentieth-century European model rather than that of the nineteenth century.

3) It has also been suggested that rural areas benefit from mass migration. Gugler (1982) stated that an evaluation of the economic implications of rural-urban migration must
also take into account the consequences of migration at the rural end. Previously, the assumption was commonly made that the marginal productivity of rural labor is zero in many of the Third World countries. The mass of the rural population in many developing countries have insufficient, or no, access to land. Individual migrants and their families seem generally better off as a result of migration (Bilsborrow, Oberai and Standing, 1984). Some studies, based upon survey data, have observed that migrants have been able to increase their welfare as a result of migration in spite of adjustment difficulties and urban unemployment. Individual migrants and their families not only seem generally better off as a result of migration, but in many cases migrants also appear to be quickly assimilated and become similar in socioeconomic status to urban natives in remarkably short period of time (Yap, 1977. and White, 1979).

Still, unarguably, rural-urban migration has caused a lot of problems. Certainly rural-urban migration entails the loss of potential rural output. It brings workers to cities that are unable to fully apply their existing labor force to productive ends; and these additional new urban dwellers require more resources for their survival than they would in the countryside. Often, these costs are born by the state. Further, it is now abundantly clear from the recent experience of many developing countries that rates
of rural-urban migration continue to exceed rates of urban job creation and to surpass greatly the absorption capability of both industry and urban social services. Todaro notes that migration exacerbates these rural-urban structural imbalances in two direct ways (Todaro, 1985). First, on the supply side, internal migration disproportionately increases the growth rate of urban job seekers relative to urban population growth, which itself is at historically unprecedented levels in many nations, because of the high proportion of well-educated young people in the migrant flow. Their presence tends to swell the growth of the urban labor supply while depleting the rural countryside of valuable human capital. Second, on the demand side, urban job creation is generally more difficult and costly to accomplish than rural employment creation because of the need for substantial complementary resource inputs for most jobs in the industrial sector.

On the negative side of rural-urban migration, the deterioration in the quality of urban life caused by the influx of migrants has been widely commented upon. Shanty-towns, slums, and squatter settlements have become permanent features of almost all the cities and urban settlements in Third World countries. (Oberai and Singh, 1983). Findley (1977) views rural-urban migration as a factor causing uneven development. While it may deprive a region of innovative human resources by diverting cheap,
sometimes highly skilled productive labors to growth and service centers in large industrial cities which have an initial advantage of capital investments, it is likely to impair development of small and medium sized towns by further reducing their viability. This polarization may result in an growing imbalance of income and development among regions: those which encompass major metropolitan areas grow, others do not (Findley, 1977). Oberai and Singh (1983) also argue that several recent studies indicate that beyond a certain level when infrastructural facilities are fully used up, concentration of capital and labor in large cities may also lead to a sharp decline in returns to scale and may lower overall rate of growth in the economy. There is often no room for rural migrants in the cities where the recorded unemployment rate is already very high. In some developing countries, it is even higher than in rural areas (Todaro, 1985). Given these effects, many policymakers and researchers within developing countries are searching for policies which might reverse, or slow, the urbanization process while trying to find some other way to solve the problem of surplus labor in rural areas.

2.3. Theories and Models to Limit Migration and to Absorb Surplus Labor in the Countryside

In the latter part of the 1960s, interpretations regarding urban growth began to change, at a time when many economic observers felt that the high rate of urban
population growth was detrimental to capitalist development (Todaro, 1969). True enough, migration was beneficial in that it expanded the available urban labor force, but problems also arose. Rapid migration created urban congestion, accelerated the demand for social services and more adequate urban infrastructure and, above all, resulted in a growing mass of workers who could not be absorbed into the urban industrial sector. This led to the emergence of an urban proletariat, whose formation was seen as potentially dangerous in political terms. These arguments led to the conviction that rising rates of migration were not in the interest of capitalist expansion. Its benefits, such as a cheap supply of urban labor, are reduced by the costs of an increasingly expensive urban infrastructure and by the political danger of a concentrated and growing mass of unemployed urban workers. This way of thinking provides the background for the emergence of the Harris-Todaro Model (Todaro, 1969; Harris and Todaro, 1970; Todaro, 1976).

In a theoretical sense, the Harris-Todaro model is complementary to the Lewis framework. It focuses particularly on the decision to migrate, an element that can be readily integrated into the Lewis model. But, despite this similarity, it has resulted in quite different interpretations. While the labor-surplus model advocates rural-urban migration, the Harris-Todaro model has been
used as a justification for controlling, and if necessary, reducing cityward migration. It assumes that people will move to take up residence elsewhere if they perceive a higher level of expected income than in their current place of residence. The expected income differential is defined as having three parts: The average income at both origin and destination, the probability of obtaining future employment, and a non-wage component (this includes psychic benefits such as family ties). The level of migration can be explained in terms of a person's differences in average expected income over time after allowing for the discounted costs of moving. It is the role of the unemployment rate in the decision to migrate that is of particular importance. A migrant may enjoy a higher expected income in urban areas, but it is also equally possible that the same person will often be unemployed. According to the model, migration under these circumstances is still "rational" as long as expected benefits generally exceed expected costs. However it may be that the private costs exceed the benefits of the migrant to urban society because the unemployed migrant will require social services and will add to urban congestion. According to Todaro, at this point government policy can be introduced to reduce the divergence between social and private costs. In this respect the Harris-Todaro model justifies state intervention in situations where the rate of migration is
not considered "socially optimal" (Collier and Rempel, 1977).

Most Third World governments are searching for policies to slow down rural-urban migration, whether because they believe that it has negative consequences for economic growth or that it adds to the pressure that the urban masses can exert on politicians and bureaucrats alike. Some scholars have begun to turn their attention from the study of urbanization processes and rural-urban migration to research fostering population retention and return-migration of the rural population. This seems to be an important and significant trend in the literature related to this research.

Ugalde (Ugalde, 1988) has studied the situation for many nations of the Third World. He focuses on the feasibility of modern industrial development in rural areas as a mechanism for improving the quality of life and increasing the retention of the rural labor. Using data from Negeri Sembilan Timur in West Malaysia, he shows that the dispersion of population, the rural infrastructure, and the lack of formal training in industrial skills are not necessarily constraints for modern rural industrialization. One of his interesting ideas is that the development of rural industry and the employment of rural surplus labor can be achieved through the effective promotion of part-time industrial workers. Part-time industrial workers would
continue to work in agriculture as well while investing some of their industrial earnings in the modernization of the local agricultural sector. Ugalde's contention is that this system of "planned dual employment" could be particularly attractive in socialist economies of the Third World and in countries with a political commitment to rural development. Clearly, for Ugalde, the two basic questions remain: how to promote genuine development, and how to alter the cityward drift of the rural population. His answers to these questions may appear radical and "harsh", because he considers that rural development cannot reasonably be based solely on agricultural development. He sees no alternative path to rural development or to rural population retention other than the planned industrialization of the countryside. In his view, there exist two possible models of industrialization which affect rural areas: (1) industries are brought to the countryside or alternatively (2) peasants flow spontaneously to industries in the cities. With both approaches, the end result is a dual economy of some sort, but the social costs are different for each. Instead of developing labor-intensive industries in the countryside, his position is that "modern industries in the countryside could precede, and be the catalyzers for increasing agricultural production and productivity. At the same time, the wages of these workers would serve as a mechanism for increasing the
demand of basic consumer goods and for rural development. Alfreo Mendez-Dominguez (1988) focuses more on the political and cultural dimensions of rural labor retention and migration. For him, rural-to-rural migration, from small towns and crowded rural areas to nearby depopulated lands could be seen as a form of retention.

Even for some people who believe that urbanization is necessary to development, there is agreement that limitations must be made on the pace of rural-urban migration. Lipton (Lipton, 1988), for example, concedes that urbanization is a important process to development. It accompanies labor specialization, mobility, learning, and market integration. So in the long run, urbanization is indispensable, but to reach the long run, one must survive the short run. Rapid urbanization may damage the economy.

As mentioned earlier, the factors influencing migration of labor from rural to urban areas are sometimes described as "push" and "pull" factors. However, an increasing number of studies recognize the "push" mechanism as the major factor at work, causing massive drifts from the countryside to the cities. Greater emphasis has to be placed either on the conditions in rural area which make life unbearable or on factors which tend to reduce the rural standard of living. Rather than emphasizing rural-urban differences in income and in socio-economic amenities, contemporary research must look for solutions,
not documentation. The goal to retain the rural people has then to begin with improvements in rural conditions.

To search for solutions, rural industrialization has gradually come to be recognized as the major dynamic force of rural development, and more realistically, for the absorption of rural surplus labor.

Increasingly, then, scholars and development planners favor the development of rural industry rather than promoting the movement of rural surplus labor to industrial sectors in urban centers. Industrialization can make a significant contribution to rural development through increased rural production, improved access to goods, improved per capita productivity, the diversification of employment opportunities, a greater satisfaction of basic needs, and the establishment of linkages with other sectors of the economy (Hogg, 1977). Hogg believes that in order for rural industrialization to take place, industrial policies need to be integrated with those of rural development. To do this, appropriate institutions need to be established at all levels and all industrial programs need to be developed based on clearly defined socio-economic objectives.

Employment generation has been considered as a prime objective of rural industrialization (Misra, 1985). Since large-scale capital-intensive industries located in large urban centers cannot even completely employ the labor force
added annually through natural increases of population already in the urban areas, and subsistence agriculture cannot support the existing rural population, rural industrialization policies and programs have been launched as a means to generate non-farm employment in rural areas. Misra, based on his extensive studies in the industrialization of the Third World, also described the other benefits that rural industry can provide. Rural industrialization can help to diversify the rural economy and thus help modernize agriculture and raise the income levels of rural people. The traditional format of the first rural industries to develop is that they are closely integrated with the agricultural sector: processing agricultural goods and generally re-selling those processed products in rural areas. Another role of rural industries is to reduce spatial inequity in socio-economic development. Rural industrialization can become an important instrument of rural economic transformation and thus of bridging the widening gap between rural and urban areas. Bar-el et al. (Bar-el, Erickson and Nesher, 1987) agree that rural industrialization can play positive roles in generating employment, improving the standard of living, preventing rural-urban migration, and reducing the inequality in income distribution. They noted that the expected rapid rural-urban migration which occurred in other countries did not take place in Israel as rural
industries developed rapidly. In this case, rapid industrialization and the relative decline in importance of the agricultural sector were not accompanied by rural to urban migration, because most rural settlements in Israel began to engage in non-agricultural activities as a part of the process of national development.

2.4. Models of Government Intervention Policies on Migration

Many researchers agree that government intervention to manage and plan for rural-urban migration may well be necessary (Oberai, 1983, Todaro, 1985, Simmons, 1988, Simmons, 1979). Governments of many developing countries have already adopted a variety of policies to control migration. Migration-influencing policies are generally classified as direct policies, explicitly designed to alter migration behavior, or indirect policies, whose impact on migration is secondary to the basic goals of the policy. Direct policies are those that prescribe residence and movement patterns. They include bans on urban immigration, rural emigration, travel restrictions, and resettlement programs. Indirect policies are generally aimed at improving conditions in the areas of origin or offering alternative destinations such as frontier zones or intermediate cities (Oberai and Singh, 1983). The purpose of both types of policies is to reduce the relative attractiveness of large cities by improving living
conditions in other areas. Rural development and rural industrialization are seen as crucial elements for indirect measures.

While most countries recognize the problems resulting from rural-urban differences and their impact on urbanization, governments differ widely in their interpretation of what should be done. At one extreme are nations such as Colombia which have in recent years concluded that the best solution may be, paradoxically, even more rapid urbanization. In the middle are a large number of LDCs which recognize the problem, but take little action to counter them, because the underlying problems are perceived to be too large, and/or because they see these underlying problems as temporary ones, related to an early stage of agricultural modernization and industrialization. At the other extreme are nations which view the unequal distribution of regional, and rural, wealth and urban growth patterns as serious, interrelated problems which must be dealt with simultaneously in development planning. Several countries in Asia as well as in other regions have taken direct measures to reverse the flow of migration and to stop or discharge migration to the urban areas. The most obvious policy—to restrict rural-urban migration through direct controls—constitutes an attempt to keep the "haves-nots" out, to erect a boundary that will shelter the urban population from the competition of migrants. In short,
legal boundaries are drawn, and barriers erected, to protect privileges. In many countries, particularly middle income countries, the decentralization of economic activity from large cities and the closing of the welfare gap between rich and poor regions are stated policy objectives (De Jong and Harbison, 1981; Oberai, 1983).

Many people agree that policies which attempt to reduce out-migration must consistently attend to the improvement of rural conditions. Griffin (1973) argues that the lack of access to resources forces the rural poor to migrate. If this is true, then increased opportunity for land ownership through land reform should improve the economic status of the farm population and reduce the propensity to migrate (Lipton, 1977). This may be important when land is available for redistribution. Riddell; Oberai; and Yap all suggest that increased off-farm employment in rural areas, an improvement in the terms of trade between rural and urban areas, and improvements in the rural marketing system may slow out-migration. But there are numerous components of rural development programs that may, in the long run, stimulate out-migration. For example, rural development schemes frequently aim to provide better educational opportunities for the rural population. It has been found repeatedly, however, at both the aggregate and the individual levels, that increases in educational level stimulate migration (Riddell, 1978; Yap, 1975; Todaro,
1976; Simmons et al. 1977). Todaro (Todaro, 1976) also pointed out that non-farm employment may even have the long-term unexpected consequence of increasing out-migration if it trains workers in skills that they can then take to use more effectively in the urban areas.

Another policy approach is to redirect migration toward alternative rural or new town locations. The approach to redirection has taken three major forms: (1) the redistribution of rural migrants to other rural areas, (2) the forced redistribution of urban residents to rural and frontier areas and (3), the redistribution of migrants to new towns and new cities (De Jong and Harbison, 1981). Diffuse urbanization is one policy approach aimed at directing rural migrants to other rural areas. Diffuse urbanization policies are based on the thesis that the future economic growth in many regions within developing countries lies in agriculture-based industries. Policy planning for diffuse urbanization involves the creation of social capital through the establishment of dispersed school systems, health programs, and technical assistance activities throughout rural areas, and government sponsorship of incentives to entrepreneurs planning to invest in rural areas (Hackenberg, 1980).

Where jobs are temporary or seasonal in nature, circular migration becomes increasingly important (Goldstein, 1978). Farm to town commuting and circular
mobility as alternatives to more permanent forms of migration have emerged as the use of highway buses and other grass-root local carriers have developed to provide transportation. A diffuse urbanization policy would appear to integrate well with circular mobility patterns, which tend to "tap" off some rural migrants to metropolitan centers. The development of new cities and towns represents another, more striking approach to population redistribution (De Jong and Harbison, 1981). New towns permit the policy manipulation of industrial development, housing, and high-quality living environments as key elements in the emergence of population centers (De Jong, 1975; Sundquist 1975). Israel's placement of immigrants in new towns and the industrial expansion to new towns are examples of such policy mechanisms.

2.5. Integrated Rural Development

Any attempt to limit rural-urban migration must start with efforts to improve rural conditions. The integrated rural development approach is increasingly considered to be of particular importance.

According to the Rehovot Group, a group of researchers who actively promoted the approach, the integrated rural development (I.R.D) strategy is based on three basic assumptions: The first is that agricultural growth is the key to rural development; the second is that the
development of agriculture requires concomitant development of the secondary and tertiary sectors; and the third is that social improvement play an important role in rural development (Weitz, 1980).

In the developing countries within which IRD methods have been applied, the agricultural sector is required to absorb an increasing number of employees, but at the same time, the non-agricultural sectors must also expand sufficiently to decrease the relative share of people employed in agriculture relative to the total labor force. This means that agricultural growth has to be attained through two concurrent processes: an increase in the total employment capacity and an increase in the efficiency of agricultural production.

The rural labor redundancy problem facing all the Third World countries cannot be solved by just increasing employment in agriculture. Again, from the IRD perspective, rural industrialization is the key factor in rural development. The introduction of rural industry can not only initiate the process of farm diversification by creating a market for agricultural products, but, more importantly, to provide employment beyond the agricultural sector.

Weitz (1980) argues that the selection of suitable technology is very influential. The introduction of sophisticated capital-intensive and labor-short industrial
facilities, for example, would not be successful. Labor-intensive and local resources-based rural industry is suggested.

Another basic goal of the integrated rural development strategy is to improve the living conditions by providing social and physical infrastructure in rural areas. People migrate to the cities not only for employment, but also for improved access to education, health, and housing.

Based on this review of existing literature, it is clear that any program which aims to limit rural-urban migration must work to improve rural living conditions. The countries which have been successful in restricting rural to urban migration, to date, are those which developed and introduced integrated rural development programs.

In Asia, there are several examples where integrated rural development projects have been successful. The slow pace of rural-urban migration in Sri Lanka, for example, is attributed to the retentive capacity of the rural sector, which is considered to have resulted from the social welfare measures introduced by successive governments since independence (Findly, 1977). These measures include free medical services and education, consumer subsidies, and income support for poor farmers in the form of guaranteed prices for their produce. A major scheme was also introduced in 1973 with the aim of providing better housing to lower income groups in rural areas. The equitable
distribution of these and other amenities reduced the disparities between rural and urban living conditions and slowed migration to urban areas.

In the Republic of Korea, rural development programs have also been actively pursued, particularly through a Korean-style community development movement called the "Saemaul undong", which started in 1970 with the objective of revitalizing the rural areas. After a three-year period of experimentation the program was enlarged, and by 1976 it was being carried out on a nation-wide basis. Despite some political problems and charges of fraud, the program has clearly helped to bring about the expansion of rural roads and bridges and improvements in housing, irrigation and organizational infrastructure at the local level. In fact, the movement, along with its concurrent agricultural pricing policies, is considered to have significantly reduced rural-urban income inequalities (Whang, 1981).

2.6. China's Policy Response and Theoretical Models

In China, migration constraints are considered to be a key policy tool. Chinese policy makers have decided to find alternatives to solve the overpopulation problems in rural area (Zweig, 1987). The focus of this research, the policy of litu bu lixiang is one of the major policies adopted in China to achieve this goal.
From 1949 when the People's Republic of China was founded, to the early 1980s, very little research had been conducted concerning rural surplus labor, rural to urban migration and non-agricultural activities. Western researchers working on rural development had no access to information because China was closed during that period and Western scholars were generally prohibited from conducting most types of social research in China. Most Chinese scholars during this same period were afraid of causing trouble with this type of research and so they chose to keep silent or simply to find evidence to support and praise the then-existing policies. In retrospect, it seems that the policies in place from 1949 to the early 1980s were not necessarily based on sound research. One of the pioneers, and still an active scholar, who conducted research on rural development, peasant life, and small towns is the Chinese sociologist Fei Hsiao-tung. Fei Hsiao-tung published his book *Peasant Life in China* in 1939. The volume is now considered to be a classic in the study of Chinese rural life. In this field study of Kaihsienkung (Kaixian'gong), a village in his native Wujiang county, Jiangsu Province, he developed the theme that, due to a huge population and the scarcity of cultivable land, Chinese peasants derived a substantial part of their income from household sideline and handicraft industries. In *Earthbound China* (Fei and Hua, 1945), three villages were
surveyed representing different degrees of commercial evolution and varying distances from urban centers in the relatively underdeveloped southwestern province of Yunnan. In this book, Fei confirmed his earlier analysis of rural needs. He was even more specific in advocating a return to the traditional principle of supplementing the family income of the peasants with a diversified economy, incorporating handicraft industries, small-scale rural cooperative factories, and workshops making machine parts. These activities were to be carried out in addition to agriculture. He believed that such diversification would enable the peasants to share in the profits of China's industrialization and at the same time prevent the concentration of population in urban centers.

In 1957, he revisited Kaixian'gong and reiterated and expanded this perspective. He was allowed to resume his systematic research in 1980s. From the late spring of 1983 to November 1984, Fei's research group undertook four "investigation tours" of varying lengths covering eleven small towns in Jiangsu. Fei's four essays reporting his research findings were collected and published as a book titled *Xiao Cheng Zhen Siji* (four essays on small towns) in 1985. The four essays, "Small Towns, Great Significance", "Probing Deeper Into Small Towns", "Small Towns in Northern Jiangsu", and "Small towns in Central Jiangsu"—view small towns as joint places in which household and joint-
household enterprises, as well as collectively owned industries, have developed rapidly since the government relaxed its control. The assumption behind this policy shift is that the development of small towns and township enterprises will improve the peasants' living conditions and also absorb the huge pool of surplus labor in the countryside, thus lessening people's desire to go to the already overpopulated big cities.

Among the limited research efforts found on this topic for China, few adopted a comprehensive approach incorporating issues related to rural surplus labor, rural-urban migration and rural non-agricultural sectors. The previous conditions in China made it impossible to conduct family level research. Further the Chinese government never admitted that there was surplus labor in China though obviously, for many years, rural labor was severely underemployed.

Prior to the early 1980s, rural to urban migration was strictly prohibited. The population of China is administratively classified by the household registration system into two groups: the agricultural population (nongye renkou) and the nonagricultural population (fei nongye renkou). The major difference between the two is that whereas the latter is guaranteed by the state a supply of commodity grain and other subsidized urban rations and social services, the former is not. This system worked to
effectively constrain rural-urban migration for more than 40 years. The urban growth during this period had mainly come from the natural growth of urban populations.

Rural development in China has drawn the interest of Western scholars because the approach is often quite unique. Some past researchers have looked for solutions to the problems of other countries from China's experience and lessons. Aziz (1977) conducted research on extensive issues concerning rural development in China including the social transformation of rural China, the technical transformation of agriculture and "the people's commune" system. He emphasized that a good strategy for rural development should achieve equality of opportunity, eliminate rural poverty, and solve the problems of unemployment. He concluded that many developing countries could learn from China because that in the relatively short period since 1949, China has transformed its disorganized and impoverished village economy into viable production units capable of organizing themselves to improve their land, control their water resources, apply improved technology and increase agricultural production to meet the growing basic needs of the population. Arguing in support of the commune system, Aziz felt the communes were important because they created a social system in which there is equitable distribution of income and social welfare. He felt that China solved the rural poverty problem by
distributing available land and other more assets more equitably among the rural population. After rural reorganization, steps were taken to create rural institutions that provide opportunities for everyone to participate in agricultural improvement and in the diversification of the rural economy in order to absorb the unavoidable additions to the labor force. Unfortunately, and in retrospect, he failed to understand that the "so-called" equity was based on mass poverty and low efficiency in production. It is also true that the absorption of agricultural surplus labor at that time was based on underemployment. The limited amount of good and accurate information available to researchers at the time goes a long way in explaining Aziz's conclusions which were shared by many prominent researchers working on China's economy during years prior to 1978.

While evaluating international policies for rural development, several studies investigated the development of rural small-scale industries in China in 1970s (Perkins et al, 1977; Sigurdson, 1977; Riskin, 1978a; Riskin, 1978b; Gurley, 1975). Perkins chaired a rural small-scale industry delegation to China in 1976 as part of the exchange program between the Committee on Scholarly Communication with the People's Republic of China and the Chinese Scientific and Technical Association. The investigation was conducted mainly in North China and resulted in a monograph on
Chinese rural small-scale industry (Perkins et al, 1977). They discussed the reasons why rural small-scale industries developed and highlighted the role of industry in rural development such as helping agriculture by supplying machinery and fertilizers, improving rural transportation and irrigation systems and other infrastructure. The research team noted that the expansion of rural nonagricultural employment opportunities did not at that time appear to be a major goal of China's small-scale industry program. Sigurdson (1977) investigated this matter from the policy perspective and the long-run impact on rural development. He believed the encouragement of small-scale industries in rural areas in China was an essential element of China's regional development programs which focus on agricultural development and diversification, local raw material utilization, resource mobilization, and long term employment impact. He also discussed rural-urban relationships and the linkages between agriculture, rural industry, and modern industry. Based on his research in the late 1970s, he agreed that there exist two basically different development alternatives for China's rural areas. The first was to concentrate the majority of resources on the development of the modern, city-based industrial sector, and meet the needs of the rural sector only when a sufficiently large city-based industrial sector has been created. The rural areas (periphery) would then be left for
a considerable period of time, more or less, alone and only selectively be drawn into the modernization process on the basis of modern technology and deliveries of machinery from the center (core). The second alternative involved a fundamental change in the relationship between rural areas and urban centers and in providing rural areas with appropriate technologies. The result of this latter policy would be that a considerably larger portion of China's rural areas would be drawn into the modernization process. It seemed to him that the second alternative to develop rural economy and control migration through industrialization in rural areas was more appropriate for China.

2.7. Recent Chinese Research and the Litu Bu Lixiang Program

In recent years, issues concerning rural surplus labor, rural-urban migration and rural non-agricultural activities have received considerably more attention. Far more studies have been conducted in the past decade than in all the previous years by both Westerners and Chinese.

In the past, China was regarded as unique by western analysts due to her supposed ability to absorb increasing numbers of workers into agriculture without experiencing underemployment (Taylor, 1986). For many years, it was argued, China succeeded in reducing the ranks of surplus rural labors by increasing the labor intensity of crop
production and promoting non-agricultural work in the off-seasons. But more recent research has found that there is a huge number of rural surplus laborers (Taylor, 1986; Taylor and Banister, 1991; Zhao and Yao, 1983; Gu, 1988; Li, 1986. Feng and Jin, 1988).

In this earlier period, it was reported that all the agricultural labors participated the process of production, while in fact there existed a large number of hidden surplus labor because so many workers are underemployed (Feng and Jin, 1988). The nation's land/population ratio of 2.7:1 mu/person (1 mu 1/15 hectare) is unfavorably low and decreasing.

The problem of rural surplus labor in China is complex for a number of reasons. First, there is the traditional seasonal labor surplus, reflecting the fluctuations imposed by the crop cycle. For most of the country, this occurs in the months between autumn planting and spring harvest and replanting. Second, there exists a structural surplus determined by specific changes in the structure of the rural economy such as local shift to different kinds of crops. More important is "the common surplus" arising from steady improvement in the level of agricultural technology as well as steady population growth (Gu, 1988). Zweig (1987) argues the new development strategy which allows peasants the mobility to move to small towns apparently has helped narrow the urban-rural gap. In some areas of China,
income differentials between peasants and urban workers have declined. He agrees that small rural towns should play a major role in raising rural productivity and incomes in addition to creating employment opportunities. Though the restrictions has been reduced, much of the migratory movement takes the form of temporary migration (Goldstein, 1990). Goldstein found that young, male persons are more likely to migrate than any other group.

Several studies have investigated the impact of rural-urban migration on the urbanization process and urban growth in China (Ma, X. 1988; Zweig, 1987; Goldstein, 1990). Ma (1988) divided new China's history into four periods from 1949 to 1984 and looked at the internal migration at different times. She believes that internal migration is constrained by national economic and social planning policies, and also by urban development policies adopted in different stages. Most importantly, China's internal migration was controlled by strict administration through the household registration system. She also states that peasants in China have long lived in closed communities based on a natural economy. Under normal circumstances, they will not leave their homes to move long distances. So the most likely destination for them would be locations which offer similar lifestyles, and production environments which are most likely provided by neighboring communities.
Rural industry plays an important role in the scene of research. The role of rural industry (or town, village, private enterprises (TVP)) has to be considered in a larger perspective, not just as a sector supporting agriculture. Its potential for rural development, and particularly for the creation of non-farm employment opportunities should be emphasized (Lee, Y. 1991). *China's Rural Industry*, edited by Byrd and Lin, investigates the issues related to the development of rural industry such as employment, ownership, management, and the government's role in rural industry (Byrd and Lin, 1990). Their conclusions, based on their research on the post-reform years, strongly support the expansion of rural industry in order to promote rural economic development.

As mentioned earlier, during the past several years, Chinese scholars and China's leaders realized that the huge surplus labor force in rural China must somehow be more productively employed. All now agree that the surplus labor must be absorbed to further the development of the rural economy, but opinions differ greatly with respect to the approaches that should be used. The different perspectives on this problem might be summarized as four distinct approaches. 1). Litu bu Lixiang (to leave the land, but not the countryside).

Litu bu lixiang was first adopted as a national strategy in 1984, though the approach was discussed in
Chinese research as early as 1982, and was put into practice at the time by local authorities in certain areas of China (Lee, 1991). The policy encourages the peasants to leave agriculture for non-agricultural positions, while requiring them to retain their agricultural household status and maintain their residence in the villages. This model agrees completely with the government's policy based on the following conditions of China:

a. A large amount of surplus labor exists within both rural and urban areas, and most large cities already have enough difficulties employing their own laborers (Feng and Zhao, 1982; Zweig, 1990). In fact, in some places, it is reported that return migration is taking place in recent years (Xu, 1989; Chen, B. 1989).

b. Cost differences. The economic and social costs for the rural people to live in cities is much greater than in the countryside.

c. Bottleneck characteristic of rural labor demands. In certain seasons many more labors are needed. If they are employed in the local non-farming sectors, they can work in agriculture during these seasons.

The basic idea of litu bu lixiang program is that industrialization comes before urbanization (Cai, 1989). The implementation of this policy or approach must be based on the creation of non-agricultural employment opportunities in the rural areas (Lee, 1991; Gu, 1988.).
Among other options, rural industry seems to have the greatest potential in generating off-farm employment, in supporting agriculture, in improving rural living conditions, and in retaining people in rural areas (He, 1988; Ugalde, 1988). Potentially, rural enterprises should be able to create jobs at very low cost. Some researchers (Griffin and Griffin 1984) reported that in 1978, it cost only 821 yuan to create a job in the rural enterprises they studied. By 1981, the cost was 1250, still remarkably low. Based on their research, they concluded that rural industries are an inexpensive way of creating employment in the countryside at a higher level of labor productivity than is, at present, possible in agricultural activities.

2). Litu ye Lixiang (Leave the land and also leave the countryside).

This is a approach that requires that industrialization and urbanization take place simultaneously. The arguments in support of such a policy include:

a. The dual economic structure in place in China at the present time makes migration from rural to urban areas unavoidable. Individuals will be inclined to move into cities to seek better conditions regardless of efforts to counter this trend. Cities evolve and grow because they have advantages as locations to perform certain types of economic activity. These advantages—the ways in which
economic goods and service can be produced more efficiently in cities than in elsewhere—make urban growth both desirable and inevitable as countries develop (He and Li, 1989).

b. Dual social systems. The way of life in cities civilization is very attractive to peasants (Geng, 1989).
c. Labor should be treated as a commodity. The movement of surplus labor should be decided by an unconstrained labor market, not by policy (Wang, 1989). This unconventional approach has rarely appeared in recent years.
d. Efficient land utilization. Permitting rural-urban migration in China, it is argued, will bring about the aggregation and concentration of land and improve agricultural efficiency (He and Li, 1989).

3. The Promotion of Small Town Development.

Peasants should be allowed to leave their land and be permitted to move freely to small towns. Compared with large cities, small towns have many advantages. They serve as the links between the cities and countryside. They have the functions of the cities and yet are located in the country, having close contact with agricultural production and the life of farmers. Small towns are not densely populated. They do not have the problems that the large and some medium cities have, but they currently have some significant and growing demand for surplus labors (Zhang and Jiang, 1989). Fei Hsiao-tung strongly believed that
the promotion of small towns, a social and economic entity located in-between rural communities and urban centers, is of utmost importance in developing the rural economy and finding an outlet for rural surplus labor (Fei, 1984). He foresees small towns as organizations mainly composed of the members of the rural population who are not engaged in farming. In terms of their geographical location, population, economy, and surroundings, small towns are both different and yet inseparable from the countryside. Based on his research in Luoshe Zhen of Wuxi County in Jiangsu, Kirkby (1985) argues that firstly, small towns can supply nearby farming communities with agriculture-related products and services. Secondly, some of the enterprise profits can be used to aid the rural community directly for the purchase of farm equipment, the improvement of the land. Thirdly, as Zhang and Jiang (1989) agree, the development of enterprises in small towns can absorb a large number of people who are no longer needed in crop cultivation. He agrees that the long-term ability of a small town to act as a "storage reservoir" for the rural population depends on the kind of living conditions it can offer. Locally financed health, education and welfare facilities are seen to be vitally important.


In searching for solutions to Chinese rural surplus labor, the step-by-step approach is widely appreciated.
Some scholars have identified several stages to solve the surplus labor problem (He, 1988; Chen, Jiyuan, 1989; Liu, Pinan, 1991). The first stage is called internal agricultural movement. In this stage, surplus labor is transferred from field cultivation to other elements of agriculture such as husbandry, forestry, and fishery. In second stage—litu bu lixiang (leave the land but not the countryside), peasants find employment opportunities in rural industry and commercial sector. This leads to the third stage—urbanization. Rural surplus labor migrates to cities and incorporates itself into modern industries and the tertiary sector once expanded employment opportunities exist in these areas.

In summary, mass rural-urban migration, once favored before mid-1970s by both researchers and policy-makers, is causing more and more concern because of problems already existed or caused by large scale rural-urban migration in the large cities. People are seeking approaches to develop the economy and, at the same time, solve rural redundant labor problem without mass rural-urban migration. Based on their own problems, the Chinese government introduced the litu bu lixiang policy to limit rural-urban migration and to absorb surplus labor from rural areas. The next chapter will describe the ideas and conditions the litu bu lixiang program is based and development process of this program.
CHAPTER THREE: THE DEVELOPMENT OF THE LITU BU LIXIANG

3.1. A Brief history of China's Economic Reform Policies in Rural Areas

As of mid-December in 1978, the Chinese people sensed the impending major shift in national policy. One of the most important meetings, known as the Third Plenum of the CCP, took place at that time in Beijing and served as the platform at which Deng Xiaoping's reforms were introduced. This meeting triggered the celebrated economic reforms which have evolved continuously since that time.

The most influential of the early reform policies were enacted in rural areas. Based on the Third Plenum meeting, the government proposed sweeping changes in rural organization and economic policies. In place of a lopsided stress on grain production, the new policy encouraged the development of a "diversified economy". Few, if any, government officials realized the implications of this policy shift at that time. In selected areas, a small number of production teams began to try out a system of contracting land and other resources to individual households toward the end of 1978 in Feixi County and also in Chuxian Prefecture in Anhui Province, which were both areas frequently victimed by flood and drought. In exchange for use of the contracted land, these households were required to agree to meet output quotas arrived at via negotiations with local officials. A year later, these
teams brought in yields far larger than those of other teams not participating in the program. The central authorities later adopted and endorsed this practice and named it "the household responsibility system" (baochan daohu), albeit restricting this practice to the poor agricultural regions (J.Lin, 1990). This restriction, however, was never put into effect. Rich regions welcomed the household responsibility system as enthusiastically as the poor regions and the new system spread rapidly. Full official recognition of the household responsibility system as a national policy was eventually given in late 1981. By the end of 1983, almost all households in China's rural areas had adopted some variation of this new system. Under the arrangements stipulated by the household responsibility system, land is contracted by individual households from the state in exchange for specified amounts of grain which were to be sold to the state at a predetermined price. After fulfilling the procurement quota obligations, farmers were entitled to sell their surplus products at local markets or retain it for their own use.

The change from the production team system to the household-based farming system fostered immediate improvements in the efficiency of agriculture. The reforms greatly improved peasants's work incentives. Peasants were inspired to work harder, and put in longer hours, since their efforts were directly related to their own individual
gains. It is estimated that the total productivity increased 15 percent throughout China through the adoption of this new strategy (J. Lin, 1990).

The household responsibility system reforms began in 1979 and were virtually completed in 1984. During this period, China's total agricultural output increased 45 percent. About one third of the total output growth of the country's economy between 1979 and 1984, therefore, might be attributed to the household responsibility system reform alone. China's agriculture as a whole has been growing at a respectable rate of 4.1 percent per year since the household responsibility system was fully implemented in 1984 (J. Lin, 1990).

The responsibility system also brought about significant structural changes in the agricultural sector. The individual household were given much more autonomy in production decisions, and so farm households tended to allocate more resources to crops that commanded higher profits. Shifts toward more profitable cash crops tended to require far better transportation, better market development, and better commodity price information.

3.2. Issues of Uneven Development in China

1). Interior versus Coastal areas

One of the most widely documented elements of the Chinese economic model is the high priority assigned to
regional objectives and, more specifically, to "balance" in the distribution of productivity and equity in the distribution of income and, hence, consumption. During the Maoist era, the central government was concerned with raising the development level of the interior provinces of central, northwest, and southwest China to match that of the coastal provinces in the east. The government pursued regional objectives through such measures as interregional transfers of investment resources (effected by the planning system), subsidization of health and education expenditures in poor regions, and attempts to maintain a safety net of state relief (Lyons, 1987a). In short, there is little doubt that prior to 1979 Chinese leadership placed an unusually high value on the equitable spread of modern growth and the improvements in welfare associated with it and persistently acted to limit the emergence or widening of interregional disparities. Although regional gaps were never closed, the share of industrial production in the interior provinces does increase substantially relative to the coast during the pre-reform period (Kueh 1989), but the cost in terms of comparative advantage and production efficiency was great (Lyons, 1987a, 1987b; Yang, 1990).

Although China's leaders after Mao Zedong also have expressed concern with such goals as balance and equity, they certainly put more emphasis on production efficiency. The new leadership assembled under Deng Xiaoping shifted
national investment policies in favor of the more developed coastal areas. Initially, four Special Economic Zones were established in 1980, and fourteen coastal cities were "opened" to foreign investments in 1984, with special development incentives and privileges. Special status was later extended to the areas surrounding these cities effectively comprising the entire coastal region (Beijing Review, 1988, 7).

After years of de-emphasizing China's links with foreign countries, China's leaders decided to encourage foreign investment and exports. The new "open door" policy has affected the coastal areas more than other areas because conditions along the coast were especially conducive to forging international links based on manufacturing, technology transfer, and trade (Beijing Review, 1984, 6). To exploit these conditions, the open-door policy gave local governments and enterprises in coastal areas permission to pursue joint ventures and other capital-generating business arrangements with a degree of autonomy not known in China for decades. Those special incentives, complemented by workers with better skills and more advanced technology, permitted those areas to develop first.

The apparent logic behind the coastal-led strategy was that the coastal provinces would establish "forward" links to foreign markets but also "backward" linkages to interior
provinces. The benefits were to be many. The development of the low-wage, labor-intensive exports would provide capital to pay for much needed imports. The resulting industrial concentration would also spawn technological advances. Finally, perhaps most importantly, the prosperity of the coast would eventually "trickle-down" to the less developed areas of the interior. In theory, interior development, then, would be only a question of time. By concentrating resources where conditions were most suitable, planners believed that the interior would benefit sooner than if resources were spread thinly. Inland areas would then be in a position to expand their own ties directly with the international market. The slogan "let some prosper first, so that others may follow" exemplified China's new development policy.

The post-Mao economic reforms have improved economic conditions in all areas in absolute terms, but so far, in relative terms, the coastal areas have gained the most. One measure of inter provincial development levels is a comparison of per capita national income by province. In 1990, per capita national income ranged from 4,822 yuan (1 US dollar equalled about 4.7 yuan in 1989) in Shanghai to 654 yuan in Guizhou. Table 3-1 divides China's provinces into three per capita income groups. Using this measure, the relative affluence of the coastal areas is clearly
Table 3-1. National Income Per Capita by Province, 1989

High: over 1300 yuan

<table>
<thead>
<tr>
<th>Province</th>
<th>Income (yuan)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shanghai</td>
<td>4822</td>
</tr>
<tr>
<td>Beijing</td>
<td>3577</td>
</tr>
<tr>
<td>Tianjin</td>
<td>2842</td>
</tr>
<tr>
<td>Liaoning</td>
<td>1990</td>
</tr>
<tr>
<td>Guangdong</td>
<td>1842</td>
</tr>
<tr>
<td>Zhejiang</td>
<td>1717</td>
</tr>
<tr>
<td>Jiangsu</td>
<td>1695</td>
</tr>
<tr>
<td>Heilongjiang</td>
<td>1659</td>
</tr>
<tr>
<td>Jilin</td>
<td>1383</td>
</tr>
<tr>
<td>Xinjiang</td>
<td>1374</td>
</tr>
<tr>
<td>Shandong</td>
<td>1350</td>
</tr>
<tr>
<td>Fujian</td>
<td>1313</td>
</tr>
</tbody>
</table>

Middle: 950 to 1299 yuan

<table>
<thead>
<tr>
<th>Province</th>
<th>Income (yuan)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hubei</td>
<td>1236</td>
</tr>
<tr>
<td>Hebei</td>
<td>1134</td>
</tr>
<tr>
<td>Shanxi</td>
<td>1124</td>
</tr>
<tr>
<td>Qinghai</td>
<td>1099</td>
</tr>
<tr>
<td>Neimonggu</td>
<td>1080</td>
</tr>
<tr>
<td>Ningxia</td>
<td>1022</td>
</tr>
<tr>
<td>Hunan</td>
<td>976</td>
</tr>
<tr>
<td>Yunnan</td>
<td>954</td>
</tr>
</tbody>
</table>

Low: 0 to 949 yuan

<table>
<thead>
<tr>
<th>Province</th>
<th>Income (yuan)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jiangxi</td>
<td>943</td>
</tr>
<tr>
<td>Gansu</td>
<td>938</td>
</tr>
<tr>
<td>Anhui</td>
<td>933</td>
</tr>
<tr>
<td>Shaanxi</td>
<td>930</td>
</tr>
<tr>
<td>Sichuan</td>
<td>895</td>
</tr>
<tr>
<td>Henan</td>
<td>880</td>
</tr>
<tr>
<td>Xizang</td>
<td>865</td>
</tr>
<tr>
<td>Guangxi</td>
<td>798</td>
</tr>
<tr>
<td>Guizhou</td>
<td>654</td>
</tr>
</tbody>
</table>


Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
depicted. Out of the twelve provinces that fall into the high income per capita group (over 1300 yuan), only Xinjiang is not on the coast. Hebei is the only coastal province that falls into the middle income group (950 to 1299 yuan), and none of the coastal provinces fall into the low (0-949 yuan) income group.

There is also evidence that the gaps between developmental levels in the provinces have increased over time. According to Lakshmanan and Hua (1987), in 1979, Guizhou produced only 39 percent of the national average per capita output, while Shanghai produced 516 percent. By 1984 Guizhou's percentage had increased to 46, but Shanghai's had increased to 654. This phenomenon has carried over to regional groupings as well. According to China's categories of East, Central, and West provinces, comparing 1985 with 1980, percentage increase in production value for the eastern provinces surpassed the other areas in both agricultural and industrial output (Beijing Review, 1986, 22). The higher percentage increase occurred despite the fact that Eastern Region started with substantially higher base values. Industrial output value in the East increased 79.5 percent over the five-year period compared with 71.6 percent in the Central provinces and 70.5 percent in the Western Provinces; agricultural output value increased 51.8 percent in the East compared with 49.5
percent in the Central provinces and 46.3 percent in the West.

2). Urban versus Rural Areas

Urban areas are traditionally considered to be the centers of economic development and the rural areas, while the peripheral zones comprise the subsistence sector. Though the predominant goal of the Maoist era was to eliminate the disparities between the cities and the countryside, the inequalities between rural and urban places and between the industrial sector and the agricultural sector have always been considerable.

China's revolution came to power on the basis of rural strength, and Mao Zedong attached great importance to the peasantry. Yet beginning with the attempted construction of socialist institutions and the initial developmental drive, in the early 1950s, China has embarked on a course of development and sectoral differentiation that, in practical terms, subordinated agriculture and the collective countryside to the state's industrial, military, and urban priorities. Between 1952 and the late 1970s, fixed assets per industrial worker rose from 3,000 yuan for five million workers to nearly 9,000 yuan for fifty million workers. By contrast, in the late 1970s, there were just 30 yuan of fixed assets per rural worker (Perkins and Yusuf, 1984). The effect of three decades of concentrated state investment is also mirrored in the relative income and
welfare patterns established for the two sectors. From the mid-1950s forward, the gap in income and benefits grew significantly in favor of the city over the countryside as population movement from rural to urban areas which tended to narrow differentials disappeared and the state curbed important sources of rural labor mobility and income, including household marketing and sideline enterprises (Bhalla, 1990).

In 1955, coinciding with the campaign of collectivization, the Chinese state implemented a nationwide system of population registration (hukou). Following the frenetic migration to the cities during the Great Leap Forward and the subsequent but related economic crash, the state effectively barred the rural people from migrating to the cities. The population registration and control system is the central institutional mechanism defining sectoral differentiation and restricting inter-and intra-sectoral mobility. The registration system, in conjunction with elaborate rationing mechanisms that restricted food purchases in the cities to those with urban registrations, and tight restrictions on jobs and housing, froze and formalized sectoral positions. Most individuals were required to reside and work in the village of their birth or, in the case of women, within the village of their husband's family. The registration system created a nationwide locational hierarchy with Beijing, Shanghai, and
Tianjin at the apex, smaller cities in the middle, and the poorest rural areas accounting for the broad base.

The consequences of the registration system were far-reaching and multifaceted. It virtually barred relocation of rural people coveting the benefits associated with urban status and state jobs as well as controlling traditional flows of seasonal job seekers. Though China's cities did not experience the familiar Third World syndrome of marginalized, unemployed, and homeless masses of workers, the other side of the coin, however, was that severe poverty was effectively confined to the rural periphery. The registration system and associated state controls on jobs, housing, rations, and travel made possible the widening urban-rural inequalities of income and opportunity.

This urban-biased policy resulted in a considerable widening of urban-rural income and welfare differentials from the mid-1950s to the late 1970s. Dwight Perkins and Shahid Yusuf (1984) reported an increase in income gap from 3.9:1 in 1957 to 4.9:1 in 1979 on average between the urban and rural Chinese. Mark Selden (1988) estimated that if subsidies to the state sector were included, the gap increased from 4:1 to 5:1.

As mentioned earlier, beginning in 1978, economic reform took place initially within rural areas in an effort to improve the performance of chronically poor area. The
stimulus of the household responsibility system, in conjunction with the rejuvenation of market forces, the redevelopment of rural sideline operations, the expansion of rural industrial production, and a substantial boost in state agricultural purchasing prices, generated the first sustained spurt in the rural economy since collectivization in 1952. Rising productivity and expanding market activity translated into substantial income gains for the rural population after twenty-five years of stagnation of per capita income and consumption.

Between 1978 and 1985 rural net per capita income tripled from 134 to 398 yuan (Table 3-2). In contrast to the income patterns of the commune era, the reforms appear to have worked to the advantage of the countryside. For the first time since 1955, with the possible exception of a brief period in the early 1960s, the long-growing gap between urban and rural areas, may have narrowed. Official data show per capita rural income and consumption gains far outstripping those in the urban areas in the years 1978 to 1984. A 1985 State Statistical Bureau survey of 12,050 households in 80 cities and 31,435 households in 600 counties showed average annual income growth rates for comparable prices of 15 percent for rural households compared with 7 percent for urban households; rural consumption on a household basis rose by 13 percent per year compared with 7 percent for urban households (Li,
Table 3-2. Rural Per Capita Net Income, 1978 to 1985  
(Percentage distribution)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 500 yuan</td>
<td>-</td>
<td>1.6</td>
<td>3.2</td>
<td>6.7</td>
<td>11.9</td>
<td>18.2</td>
<td>22.3</td>
</tr>
<tr>
<td>400 - 500</td>
<td>2.4</td>
<td>2.9</td>
<td>5.0</td>
<td>8.7</td>
<td>11.6</td>
<td>14.1</td>
<td>15.8</td>
</tr>
<tr>
<td>300 - 400</td>
<td>-</td>
<td>8.6</td>
<td>14.4</td>
<td>20.8</td>
<td>22.9</td>
<td>24.5</td>
<td>24.0</td>
</tr>
<tr>
<td>200 - 300</td>
<td>15.0</td>
<td>25.3</td>
<td>34.8</td>
<td>37.0</td>
<td>32.9</td>
<td>29.2</td>
<td>25.6</td>
</tr>
<tr>
<td>100 - 200</td>
<td>49.2</td>
<td>51.8</td>
<td>37.9</td>
<td>24.1</td>
<td>19.3</td>
<td>13.2</td>
<td>11.3</td>
</tr>
<tr>
<td>Below 100</td>
<td>33.3</td>
<td>9.8</td>
<td>4.7</td>
<td>2.7</td>
<td>1.4</td>
<td>0.8</td>
<td>1.0</td>
</tr>
<tr>
<td>Average Income</td>
<td>133.6</td>
<td>191.3</td>
<td>223.4</td>
<td>270.1</td>
<td>309.8</td>
<td>355.3</td>
<td>397.6</td>
</tr>
</tbody>
</table>

Source: State Statistical Bureau, 1986. Data for 1979 are not recorded.
Chengrui, 1985). While per capita rural income tripled from 120 yuan in 1978 to 397 yuan in 1985, the average annual income of workers in state enterprises increased at barely half that rate.

The household responsibility system improved rural incomes during the period from 1978 to 1984. But since that time, the growth of agricultural production of major crops has slowed down or stagnated. China's policy makers soon were aware that economic reform could not rely solely on rural reform. They began to develop reform policies for urban areas. As a result, the process which had previously reduced the gap between the rural and urban areas has again reversed itself. It is reported (Khan etc, 1992) that the national per capita rural income in 1988 was 760 yuan. In contrast, the estimate of per capita income for the urban areas is 1942 yuan, almost three times the rural figure. Based on my own investigation, the rapid growth of rural industries in recent years has narrowed the overall gap.

3.3. Rural Labor Redundancy: Push and Pull

The Chinese population has more than doubled since 1949. Though family planning programs were first implemented in the early 1970s, the rate of growth of the rural population has not declined as quickly as that of the urban population. From 1949 to 1984, the rural population increased by 87.5%--from 447 million to 838 million at an
annual rate of 1.8 percent. For the same period, the rural workforce increased from 165.49 million people to 359.68 million people. The rate of increase was 2.2% annually. The people, then, born during the baby boom of the late 1950s and 1960s are all now in the labor force.

In early 1950s, China's total cultivated land was 1,680 million mu (1 mu=1/15 hectare). Since then, the total amount of cultivated land has been steadily decreasing. In 1955, the estimate of per capita arable land was 2.69 mu and the average area for each rural laborer was 9.89 mu. In 1984, the total cultivated land was 1,438 million mu. Compared with 1955, this figure has decreased 12.6 percent. Also, as of 1984, per capita land and land per worker for rural people and rural labor decreased, respectively, to 1.42 mu and 4.76 mu.

The considerable increase in population and the absolute decline in arable land, along with the promotion of production efficiency have resulted in a large number of rural surplus laborers. The household responsibility system allow peasants to manage their own land. People work harder and are willing to put in longer hours for themselves when compared to their performance during the commune period. One person now can take care the same amount of land that used to require the efforts of two or three people before the Household Responsibility System. Technological improvements also reduced the amount of labor required by
the agricultural sector. Primitive farming tools have been replaced by machinery in many areas. Although it is difficult to estimate exactly how much surplus labor is created by the adoption of mechanization because it has occurred in conjunction with other factors, the impact of mechanization should be considerable.

If the unfavorable population-land ratio and increases in production efficiency are the major push factors for surplus labor, we must expect the surplus labor pool to increase. The rural population will continue grow and land available for cultivation will continue to decrease in the future. Trends in farm mechanization will also continue. These factors will continue to push people from the agricultural sector in increasing numbers. Since a severe unemployment problem within urban areas already exists, "pull factors" for rural surplus labor may not actually exist, despite the perceptions of some portion of the rural workforce.

3.4. Unemployment in Urban Areas

In the years immediately following 1976, urban unemployment became a major policy problem in China. During the decade 1966 to 1976, as many as 17 million young people had been "rusticated" or forcibly transferred to the countryside. Once this program was reversed in 1978, virtually all of the 17 million young people who were
relocated have returned to the cities (Feng, 1981). All of these returning workers needed to be employed. In addition, the estimated 8 million people fired during the Cultural Revolution also had to be reinstated in their jobs (Feng, 1981). Meanwhile, urban middle schools were graduating new job-seekers at a rate of roughly 3 million a year. The resulting urban unemployment is considerable in the table (Table 3-3). These figures reflect only those unemployed people who registered with the municipal labor bureaus. True unemployment rates may easily have been higher as many people chose not to register.

During the 6 years from 1978 to 1983, more than 44 million urban job-seekers found employment (Taylor, 1986). Urban enterprises were prodded into accepting many more workers than they truly needed. By 1983, although the "official" amount of unemployment was greatly reduced, the number of instances of underemployment have, in reality, grown considerably.

By 1983, it was clear that enterprises in urban areas could not accommodate all rural surplus labor and alternative approaches were needed to alleviate the rural surplus labor problem.

3.5. The Implementation of the Litu bu lixiang Program

The Litu bu lixiang policy was implemented to solve the surplus labor problem and to simultaneously develop the
Table 3-3. Estimates of Urban Unemployment in China

<table>
<thead>
<tr>
<th>year</th>
<th>million</th>
<th>percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td>5.31</td>
<td>5.3</td>
</tr>
<tr>
<td>1979</td>
<td>6.36</td>
<td>5.5</td>
</tr>
<tr>
<td>1980</td>
<td>4.09</td>
<td>3.6</td>
</tr>
<tr>
<td>1981</td>
<td>3.05</td>
<td>2.6</td>
</tr>
<tr>
<td>1982</td>
<td>3.04</td>
<td>2.6</td>
</tr>
<tr>
<td>1983</td>
<td>2.71</td>
<td>2.3</td>
</tr>
</tbody>
</table>

Source: Beijing Review, 3/28/83 p 21
rural economy. The basic idea of this Chinese policy is similar to Ugalde's (1988) retention model. Given that there are large numbers of surplus laborers in China, rural development cannot reasonably be based solely on agricultural development. If non-agricultural sectors can be promoted and expanded in rural areas, rural surplus labor can be employed and migration can be limited through market forces. In addition, as more and more people work in non-agricultural sectors, the basic living conditions in rural areas should also improve.

The "bottle-neck" characteristics of the seasonal labor demands in the agricultural sector also creates many temporary surplus labors. During the busy seasons of planting and harvest, much more labor is required in agriculture. If workers can be employed by local industries, these people can also help when required during these seasons. They also can help by investing part of their earnings within the agricultural sector to promote agriculture efficiency. Many of these workers can eat and live at home which will also greatly reduce per capita living expenses and the social costs to the state. Actually this is the situation in many Chinese rural areas at the present time (Cai, 1989). Managers of many rural factories allow workers to take vacations during the sowing and harvest seasons to meet seasonal agricultural demands.
The development of the rural nonagricultural sector was not initiated just as a consequence of recent government policies. Rather, it has existed in limited form for more than three decades, comprised mainly of commune and brigade enterprises (Lee, 1991). Rural industry, sometimes referred to as township enterprises or nonagricultural enterprises, are no longer called "commune and brigade industries" because of the rapid development and diversification of these enterprises and the recent addition of privately owned enterprises. According to Lee (1991), the term "township enterprises" was formally introduced in March 1984 in a State Council circular. "Township Enterprises are considered to comprise five categories—in terms of ownership—of rural non-farm enterprises: (1) township enterprises (formerly commune enterprises); (2) village enterprises (formerly brigade enterprises); (3) cooperative enterprises run by commune members; (4) other forms of cooperative industrial enterprises; and (5) enterprises run by individuals. These five categories are commonly regrouped, again in terms of ownership, into two major classifications: collective enterprises (township and village enterprises) and privately owned enterprises (cooperative and individual enterprises). The operation of the former is controlled by township and village officials. But the new form of nonagricultural enterprises, that is, the joint ownership
by township and village government and individuals are not, but should be, included in this definition given that in recent years many individual entrepreneurs have sought cooperation with local government for a variety of reasons.

Before 1949, China was a poor and backward agricultural country, and most of its rural areas had only a few small workshops and handicraft industries. In 1949, the output value of such household "sideline" production totaled only about 1.16 million yuan in fixed 1957 prices. After the founding of the People's Republic of China, the new government almost immediately launched its program for economic development, with a central economic strategy more or less based on the Soviet model. Sideline production developed rapidly. By 1954, more than 10 million Chinese farmers had taken part-time jobs in the commercialized handicraft industry, which yielded a total output value of 2.2 billion yuan that year (1957 fixed price). During the period from 1955 to 1957, China launched a large-scale agricultural cooperative movement. Farmers who were working in handicraft industries, as well as individual handicraft workers, were organized into specialized sideline production teams under the control of agricultural producers' cooperatives. The excessive emphasis that some cooperatives placed on agricultural production caused their sideline production to stagnate. Decentralization measures were taken by the authorities to remedy the problem.
Decentralization efforts were aimed not only at improving economic coordination by reducing central control and by slowing down cooperative process, but also more specifically at creating conditions which would activate and speed up economic development for the most dominant sectors of the rural economy: agriculture, and related medium- and small-scale industry. Sideline production accordingly was restored and expanded. By 1957, the total output value of sideline production in China's rural areas reached 2.29 billion yuan, about 4.3 percent of the total value of all agricultural output. Commune and brigade enterprises, the predecessors of the TVPs (township, village and private enterprises), subsequently began to emerge and develop on the basis of collective sideline production.

In 1958, the people's commune movement swept across the vast rural areas of China. China launched the Great Leap campaign in order to reach the "paradise of communism" by building the golden bridges of the people's communes. Industrialization was once again overemphasized as all rural workers throughout China were encouraged, and sometimes forced, to contribute to industry by manufacturing products locally. Rural people's communes quickly established a large number of commune and brigade enterprises. By the end of 1958, commune and brigade enterprises in China employed 18 million people and
generated a total output value of 6 billion yuan. This campaign not only damaged the agricultural sector through the severe reallocation of investment capital, but also precipitated a crisis for the national economy. In 1960, the Chinese government was forced to suspend the program and again adjusted the national development strategy. As a result, many commune and brigade enterprises were dismantled. In 1961, the total output value of commune and brigade enterprises declined to 1.98 billion yuan, and the figure dropped further to 790 million yuan in 1962 and 410 million yuan in 1963.

After realizing the implications of the decline of commune and brigade enterprises and considering the needs of rural industry required to support agriculture, the Chinese leaders formulated the economic policy of the "Five Smalls" in 1965. Cement, fertilizer, iron and steel, electricity from hydro-electric generating plants, and agricultural machinery were selected to lead the way. The counties were empowered to produce cement, fertilizer, and iron and steel products. The production of the remaining smalls-agricultural machinery, and electricity from hydro-electric generating plants—was assigned both to the counties and the communes. For the first time, the communes were told that major industrial activities were to be based, at least partly, within the scope of their operations. Because of this policy shift, the development
of commune and brigade industrial enterprises resumed during the later part of the Cultural Revolution period (1966-76). At the North Agricultural Conference (August-October 1970) the State Council called for efforts to speed up agricultural mechanization. Rural areas began to develop factories and workshops to produce agricultural machinery and farm tools. Meanwhile, there was great shortage of agricultural machinery on the market due to the Cultural Revolution which caused the cessation of production in many cities. Some "gutsy" rural communities took advantage of this opportunity to set up factories without official permission despite the fact that such enterprises were then widely regarded as the "tail of capitalism" and their existence faced all kinds of punitive restrictions and attacks. The output value of commune and brigade enterprises increased from 9.25 billion yuan in 1970 to 27.2 billion yuan in 1976, an average annual growth rate of 25.7 percent. In 1978, there were more than 1.52 million such enterprises, and their output value reached 49.3 billion yuan. Governments of all levels set up administrative bureaus to strengthen the management of these enterprises. So, while rural industrialization is often seen as a major portion of the 1978 rural reforms, the rapid expansion of township collective industries might more properly be seen as a result of continued efforts at
expansion, and diversified investment, which began several decades earlier.

From 1949 to 1978, the expansion of commune and brigade industries was aimed mainly at promoting the development of the agricultural sector. Hydro-electricity and chemical fertilizers were used to increase production in agricultural output. Increased production of agricultural machinery was intended to promote the wholesale mechanization of agriculture. Iron, steel, and cement contributed to the construction of agricultural facilities, as well as the improvement of the rural transport system and rural housing. These small scale industries located were close to their markets so that they always knew what to produce for the market. In addition, this policy of local production helped to overcome the poor transport conditions facing most of rural China. Small scale industries which are located in rural areas tend to narrow the gap between city and countryside, which is extremely important from the Chinese point of view.

Interestingly, because the Chinese government never officially recognized that there was an unemployment, or underemployment, problem and that inter-regional rural to rural and rural-urban movements of rural laborers was restrictly controlled, the expansion of rural non-agricultural employment opportunities did not appear to be a major goal of China's small scale industry program. These
enterprises did create employment opportunities, but there was considerable effort expended to keep these enterprises from cutting heavily into the supply of labor available to agriculture. Officially, agriculture has priority over rural industry, and rural industry's main priority was in fact to serve agriculture. Another interesting thing is that in commune and brigade enterprises, workers usually continue to do some, and often a great deal of, work in the fields. Furthermore, in most cases, their wages were paid in the form of work points by their production teams or brigade, and hence their incomes differed little if any from their farming neighbors. It seems clear, then, that the development of these small-scale industries was not aimed at improving the income of rural residents. The government was more concerned about equality than the improvement of living conditions. So during this time, non-farm employment opportunities were not as attractive to agricultural workers as they might first appear.

In the late 1970s, the introduction of the Responsibility System and other rural reforms gave peasants a much greater degree of control over their own activities. The increased efficiency in agriculture and the steady increase in the number of agricultural laborers exposed the long-ignored problem that there was a great number of surplus workers in rural areas of China. Numerous articles in the Chinese press now assert that 30 to 40 per cent of
China's rural workers are redundant (Taylor, 1986). Assuming that the 1986 reported employment base of 380 million workers is accurate, this suggests that between 114 million and 152 million peasants are surplus to the requirements of agricultural production at the present time. At the same time, the large scale movement of rural surplus laborers to cities remains strictly controlled because the cities in China are already experiencing a high rate of unemployment. Also, the large-scale movement from rural areas and smaller urban locations to the big cities is seen as exacerbating the problems these cities face in providing jobs, food, and adequate infrastructure to their residents. The migration of rural elite, a form of "brain-drain", also entails a potential drag on rural development. Alternatives must be found to accommodate rural surplus labor in China.

Non-agricultural local employment opportunities had to be created. Under these circumstances, the program called "Leave the land, but not the countryside" (litu bu lixianq) emerged as a solution for this problem. This phrase has become one of common catch phrases circulating among rural development experts and is widely found in Chinese literature which discusses peasant workers.

It is not very clear when and where the litu bu lixianq idea came into existence. The phrase appeared in a Chinese article in 1982 (Wang, 1982). Before it was
formally adopted as a national strategy by the central government through publication as a 1984 State Council circular, it had already been put into practice for at least two years by local authorities in certain parts of China. Fundamentally, the policy encourages rural laborers to leave agriculture for non-agriculture employment. But they are required to remain in their agricultural households and maintain their residence in rural areas. Since then, many people's employment has shifted from agriculture to non agricultural activities, although most participants still relate to agriculture as part time agricultural workers. It was estimated that as of 1985, 36 million persons in China (about 10 percent of the rural labor force) were "peasant workers". That is, these people were registered in rural areas but engaged in non-agricultural work (Muo, 1985). The people whose income is derived mainly from nonagricultural activities are engaged in construction, commerce, and most importantly, rural industry.

Many studies agree that the creation of non-farm employment opportunities primarily depend on the development of rural industry, although the service sector may become equally important in the long run (You, 1993; Chen Jiyuan, 1989; Liu Pinan, 1991). With the inception of this program, the development of rural industry, for the first time, was explicitly connected to the creation of
non-farm employment as a solution to the problem of agricultural surplus labor. Rural industry has, then, in recent years, expanded its role for the rural development of China to not only promoting economic growth but also serving as a drag to migration. This redefined role has attained support from all levels of government. In 1983, to reduce discrimination against township enterprises, the State Council issued regulations which reaffirmed that "commune and brigade enterprises also belong to the cooperative economy, and great efforts must be made to continue to consolidate and develop such enterprises". The Central Committee Circular on Agricultural Work of January 1, 1984, stated that, in addition to actively supporting the development of rural industry, governments of all levels should "encourage peasants to invest in, or buy shares of, all type of enterprises and encourage collectives and peasants to pool their funds and jointly set up various kinds of enterprises by following the principle of voluntary participation and mutual benefit." Since then China's TVPs have flourished at a remarkable pace. The output values of TVPs totaled 171 billion in 1984, 273 billion yuan in 1985, and 354 billion yuan in 1986. During the past several years, private enterprises grew faster than Township and Village-run enterprises. Service activities, mainly owned by individuals, also experienced rapid growth over the course of the past
decade. TVPs in economically backward areas made quicker progress than those in economically advanced areas.

In summary, the implementation of the Household Responsibility System produced a large amount of surplus labor in the rural areas. While realizing there must be limits to rural-urban migration because of the problems already present in urban areas, the Chinese government decided to take measures to retain the rural surplus laborers in the rural areas. The litu bu lixiang program was introduced in response to these issues. The purpose of this program is to improve the living conditions of the rural people and, at the same time, to absorb rural surplus labor, by creating non-agricultural employment opportunities in the rural areas.

To evaluate the litu bu lixiang program, I conducted field research in two counties in Hebei Province, China. The following chapter reports on the selection of research areas, the research design, and the data collection process.
CHAPTER FOUR: RESEARCH DESIGN AND THE SELECTION OF STUDY AREAS

4.1. Restatement of the Hypothesis

As mentioned earlier, the purpose of this research is to evaluate the litu bu lixiang program. The introduction of this program was intended to provide farmers with opportunities to improve their incomes by seeking non-farm employment while maintaining their residence within their local areas. Some criteria have been developed in order to evaluate this program: first, a successful program must be effective and successful at both household and local community levels. A sound program for rural development has to improve the living conditions for rural households. Some measure of economic growth must be channelled to the individuals in the rural areas to satisfy their basic needs. Improvement of social and economic conditions within rural areas, and for the families in these areas, is required for the policy to be considered a success. Second, a successful program must demonstrate a diminished desire of participants to migrate to the large cities, that is, people are willing to remain in the countryside, even if the political constraints on rural-urban migration are removed. Third, the adoption of litu bu lixiang program should not adversely affect agriculture. The agricultural sector has long been considered to be the central basis for
Chinese economy and its continued growth is very important policy goal for further rural development. Fourth, a sound program must not only be workable, but also sustainable. I believe the strong government in China can enforce any policy, but only those workable, rational, and sustainable policies can and should survive. This research evaluates the program by investigating the merits of the program itself and how people react to the program. The research will also assess this program with respect to its long-term viability in solving the rural surplus labor problem.

Based on these objectives, four general hypotheses have been developed.

a. The assessment and participation by farm households of the litu bu lixiang program at the household level is directly related to differences in family income composition and magnitude. The families with mobile (litu) laborers will have higher total incomes as compared to families without mobile laborers.

b. Mobility of the workforce is selective with respect to sex, age, and education. I believe the program will prove to be successful in retaining high quality laborers in rural areas, which is crucial to continuing agricultural growth and rural development.

c. The potential for economic gain is the major reason for labor mobility. When economic returns for the people participating in the litu bu lixiang program and who are
engaged in non-agricultural activities in rural areas approximates the incomes of workers who moved to urban areas, people will remain in rural areas.

d. The adoption and accomplishments of the litu bu lixiang program vary by location owing to local differences in rural industrialization, off-farm employment opportunities, and, probably most importantly, the response of local governments to the program.

4.2. Data Requirements

Given the multiple goals of this paper, several types of data at several different scales are required for the analysis.

1. Family-level data. The litu bu lixiang program was initially launched to limit potential rural-urban migration and improve conditions in China's rural areas. The impact of this program, thus, should be evaluated at the family level because the dismantling of the communes in the 1980s, the family has become the basic economic unit. Currently, farm households contract their land from the state and can decide by themselves what crops to farm. Any given households' income no longer depends on their association with production units (shenchandui) as it did prior to 1978. An evaluation of the participation of family members in the program, and their returns for their efforts should reflect the successfulness of this program. High-quality,
detailed family-level data are not available either from publications or in local statistical bureaus. All family-level data must come from individual surveys. A family survey, then, is required to collect family level data for this research on the *litu bu lixiang* policy.

2. **Xiang (township)-level data.** In China, the *xiang* or township is the local community administration level immediately below county. Though the *xiang* administration can no longer generate mandatory orders on many aspects of people's lives, the *xiang* level remains as the crucial link between policy makers and individuals, and the *xiang* level is now the major administrative and organizational level of the *litu bu lixiang* program. In some sense, the success of the *litu bu lixiang* in any given areas might depend on the implementation and the interpretation of this program by officials at this level. The *xiang* level data which I collected through *xiang* surveys is also useful to determine if the patterns reflected in the family survey can be extrapolated to mesoscales.

3. County-level data. County level data are most widely used for rural research in China. Most studies which have been conducted so far on China's economic development are based on county level data because these figures are widely available. The Chinese government collects and publishes county level data every year. In my research, county level data will serve as background information to
place the household and xiang survey data in their appropriate contexts.

4.3. The Selection of Survey Locations

The problem of rural surplus labor is a nation-wide problem and some progress has been made in every province in implementing the litu bu lixiang policy. Unfortunately most existing studies which have tried to evaluate this program have either been conducted in more advanced coastal provinces such as Jiangsu and Guangdong or alternatively in very underdeveloped regions such as Shaanxi and Qinghai. When China was first opened to the foreign scholars, early Westerners were encouraged by the Chinese government to conduct their research within the developed coastal areas (Veeck, 1988). Certainly the more advanced areas are more likely to be indicative of the direction which China is headed and the viability of each new program, but studies in advanced regions do not well reflect current conditions in other areas. While the advanced-area research legacy continues, many local studies are also conducted in the most underdeveloped areas. This trend is found especially among the Chinese researchers charged with improving conditions in these areas. The proponents of this type of research argue that poorer regions are more likely to show what should to be done to achieve more balanced economic development and further to shrink existing regional gaps.
Further, many of these poorer regions are considered to have rich but underutilized resources, including human resources. It is assumed if those resources were properly used, then economic development could be quickly accelerated.

Neither the advanced areas nor the underdeveloped areas are good representatives of the country as a whole. In the advanced areas like Jiangsu, non-farm activities are more developed and more people are involved in non-agricultural activities (Veeck, 1988). In poor areas like Shaanxi, located within inner China, the agricultural sector is still predominant and there are far fewer opportunities in the non-farm sectors.

Hebei province (Figure 4-1), which was selected for this research, lies between these two extremes. Hebei is more indicative of the nation as a whole. The province is in a transitional phase from an agricultural to a non-agricultural economy. Prior to the adoption of the *litu bu lixiang* program, Hebei clearly had an agriculturally oriented economy. The *litu bu lixiang* program was adopted specifically to diversify the rural economy. Although Hebei is a coastal province, its national per capita income is within the middle income group with the provinces located in the central portion of China.

Hebei's overall economy and its internal diversity resemble China's as a whole. Hebei's 1987 per capita
national income (net material product) of 785 yuan was the lowest of all coastal provinces, substantially below the coastal average of 1220 yuan. Measured by this indicator, its level of development, like its population density, was closer to the average for the central region (with per capita income of 694 yuan) than to that of the coastal region (Putterman, 1993).

Most of Hebei Province is located within the North China Plain, one of the most densely populated areas in China. Agriculture has been the basis of the economy from dynastic times. Hebei's population was 61.1 million persons in 1990. It accounts for 5.4% of the total population of China and represents the fifth most populous province after Sichuan, Henan, Shandong, and Guangdong. Its population density of 325 per square kilometer is almost three times the national average (118). The cultivated land average is only 1.73 mu/person (1 mu=1/15 hectare). Given the unfavorable population/land ratio, the adoption of litu bu lixiang policy was quickly embraced by provincial planners once it was proposed by Beijing.

As suggested by Putterman (1993), Hebei's claim to representativeness within China is not only based on both its overall "averageness" in terms of income and level of economic development, but also on the high degree of internal heterogeneity which permits it to serve as a microcosm of China as a whole.
Two rural counties, Dingxing and Li counties, were selected for the household survey and the collection of other types of data (county, xiang surveys) (Figure 4-2). These two counties are under the administration of Baoding Prefecture (the sub-provincial unit). They are both over 60 kilometers away from medium cities. Usually the counties located immediately around the cities are greatly influenced by urban economies and there are far more non-agricultural opportunities in such counties. The selection of such counties was avoided so that more typical results could be obtained.

The selection of Li county was suggested by several Chinese geographers and economists. It was also recommended by the local government because it is well known for a thriving rural industry and service sector which have developed since the inception of the rural reforms in 1978. There are also many private businesses which have developed during the past several years. More people are engaged in non-agricultural sectors than in most other counties in Hebei. The country's total population in 1990 was 431,565 and the population density was 670 per square kilometer. Given the enormous pressure coming from the unfavorable population land ratio (1:1.6 mu), Li County was one of the first counties in Hebei to experiment with shifting surplus labor from agriculture to non-agricultural sectors under the litu bu lixiang program. The development of rural
Figure 4-2. Location of Dingxing and Li County in Hebei
industry and the service sector was actively encouraged by the local government. I am in agreement with Chinese researchers that local government support is vital to the success of the program. In 1990, the output value of rural industry was 777 million yuan, which accounted for 65.6% of the total output of this county. If other non-agricultural sectors are also added, the output from non-agricultural activities are predominant. I estimate from my investigation that over 60% of the rural laborers are employed in non-agricultural sectors. Most of these non-agricultural laborers engaged in rural industries. Among the 14,046 rural enterprises, 12,400 or 85% are privately owned businesses. The development of private businesses in Li County has been, and continues to be, strongly encouraged by the local government.

Dingxing, also located within the North China Plain, is the other county selected for the survey. To date, rural industry is not as developed as in Li County, but more and more people wish to find non-agricultural jobs. The production of construction materials and the manufacturing of clothing are the most important industries in this county. There are also a large number of people who work in cities as temporary workers. It is estimated that around 30% of the total rural workers are non-agricultural workers. Among them, about 50% work in the rural areas. Unlike Li County, where non-agricultural sectors employ a
large number of workers from other areas, most non-agricultural workers employed in Dingxing are from local villages. The total population of the county is 505,000 persons and the population density is 712 per square kilometers. The population-land ratio is 1:1.47 person/mu. Clearly, the limited amount of land available to each household raises considerable problems regarding to rural labor redundancy.

4.4. Objectives of the Field Work

At present there is no consensus regarding exactly how many rural laborers are redundant or seasonally redundant in rural China, but both Chinese government and scholars agree there are certainly a large number of surplus laborers. A general estimate which is frequently cited was that 100 million workers were surplus in 1988 (Banister and Taylor, 1989). The litu bu lixiang policy currently in place in China is projected to provide solutions to the surplus labor problem. To evaluate the viability of this program, field interviews and household surveys were conducted in China throughout the Spring of 1992.

One of the objectives of my field work was to conduct a household survey to examine the issue of rural surplus labor transformation and mobility patterns at the local level. The household level data can be effectively used to evaluate the litu bu lixiang program in this context.
A further objective of this field work was also to collect some xiang (township) level data. The xiang is the political unit immediately below the county level. Depending on population density, each xiang has between 5 and 30 villages under their jurisdiction. Xiang level governments have direct control over all towns and villages of their assigned rural areas and are responsible for implementing the litu bu lixiang program. This responsibility makes analysis at this level vital to the topic. I believe, then, that the xiang-level data, which are rarely used because of their inaccessibility, represents a very important data set to further investigate how the litu bu lixiang program works at local levels. Only through extensive visits to each xiang can this information be acquired since it is not published for general uses.

An increasing amount of data has been published and become available in China since early 1980s due to the economic and social reforms. Social and economic data at the county level are readily available and have been the basis for many studies. County level data were also collected during this field work.

In short, then, I propose to evaluate the litu bu lixiang program at multiple scales—the county, the xiang, and the household. Only by collecting and analyzing the social-economic data related to labor mobility and people's
livelihood at these three levels can a full and complete assessment of the effectiveness of the litu bu lixiang program be completed.

4.5. Development of the Survey Form

The development of a household questionnaire for use in the research areas was a long process. To conduct household surveys in China, questions should be both practical and appropriate. After discussions with Dr. Gregory Veeck and correspondence with Mr. Liu Hongpu, the leading official (xiang zhang) of Liuzhuo xiang in Dingxing County, a initial questionnaire was developed six months before I went to China. Mr. Liu Hongpu did a pretest survey using this initial draft of the questionnaire. The survey results, then, were sent back to me. After reviewing the results from the pretest, I felt the survey form was ready for use. I then took the survey form with me when I began my field work in China and talked with other Chinese officials and scholars. Many additional discussions were held with researchers who had conducted similar household surveys, and with government personnel in China, regarding what type of questions would receive reasonable and objective answers. The questionnaire was then updated for a second time. Among other people, the people who provided the most constructive suggestions include: Professor Tian
Guang of Hebei Finance and Economics University; Professor Zhang Zhixiu, Professor An Guohui, Professor Liu Lian, and Mr. Tang Jinjiang of the Department of Geography of Hebei Normal University. My survey form was modified to accommodate their opinions regarding individual survey forms suitable for use in Hebei. I am very grateful for the time and effort they spent on my behalf.

In addition to the questions concerning economic factors, some non-economic questions were added to the questionnaire. I also learned how to obtain some variables such as income and expenses. Family income and income per person in the workforce are very important variables in this research, but are not easily obtained. For people who work in agriculture, product sales are sporadic and seasonal. Net returns are not always calculated, and so people are often not clear about their actual income. Agricultural income, then, must be computed as the sum of grain, cash crops, forest products, aquaculture, and animal husbandry minus costs of production. Household non-agricultural income is taken as the sum of net income from rural industry, sidelines (cottage industries), construction, services and other types of work for all members in the households. In keeping with standard practice for agricultural economic research in China, labor costs are not include in these assessments.
4.6. Data Collection

200 households, 100 from each county were chosen to complete my household survey (Table 4-1). Within these 200 households, 362 laborers were identified and interviewed using separate forms developed simultaneously for individual workers. The households are from 13 cun (villages) are under the administration of 7 different townships (xiang) within the two counties. Efforts were made to make the sample as random and representative as possible. The townships and villages selected to do the survey were suggested by the local officials to provide for locational and economic variance. Before I began my interviews, I had to go to the government center of each of the 13 villages. With my colleagues from Shijiazhuang, I asked the village officials to provide the household registration list so we could randomly select the households to be surveyed without previous knowledge of those households. In each village, we would normally find one or two people, usually including the village secretary, to introduce us to the households. Because I was accompanied by some friends from the provincial government, the local officials (ganbu) were very cooperative. After we explained that the survey was purely for research and their names would not, in any case, be disclosed, people were willing to answer the questions and participate in interviews.
Table 4-1. The Household Distribution

<table>
<thead>
<tr>
<th>Counties</th>
<th>Xiang (Townships)</th>
<th>Villages</th>
<th>No. Households</th>
<th>No. labors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Li</td>
<td>Dabaichi</td>
<td>Baichi</td>
<td>20</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Beijiehe</td>
<td>15</td>
<td>27</td>
</tr>
<tr>
<td>Liushi</td>
<td></td>
<td>Xiwangcun</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dawangcun</td>
<td>14</td>
<td>21</td>
</tr>
<tr>
<td>Xinxing</td>
<td></td>
<td>Liangzhuang</td>
<td>14</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Liuzhuang</td>
<td>17</td>
<td>33</td>
</tr>
<tr>
<td>Hongshanbu</td>
<td></td>
<td>Wufang</td>
<td>15</td>
<td>27</td>
</tr>
<tr>
<td>Dingxing</td>
<td>Liuzhuo</td>
<td>Xijiangcun</td>
<td>20</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dongjiangcun</td>
<td>26</td>
<td>50</td>
</tr>
<tr>
<td>Yishang</td>
<td>Yishangcun</td>
<td>17</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wangcun</td>
<td>14</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>Xiao zhuzhuang</td>
<td>Gejiazhuang</td>
<td>17</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Zanganying</td>
<td>6</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>
The questionnaire incorporated 10 tables, fourteen additional open-ended questions, and two brief sections specifically for each household and each worker in the household (see Appendix I for a complete survey form in English and Chinese). The first part of the questionnaire was designed to collect household data. The section of this part was about household demographic information. A second form was introduced to collect income data which was divided into six categories. The household form also included sections on the division of labor between agriculture and non-agricultural activities, on family property, household expenses, and crop production.

The second part of the questionnaire surveyed individual labor. Every individual worker from each household participating in the survey was asked to fill out this form. The first section of this form included questions about the personal attributes of the workers, e.g., their age, sex, education, occupation, technical skills. Then, information regarding each person's occupations in 1979, 1984, and 1991 was collected to determine the changes in occupation of each worker during the past 12 years. In addition, changes in residence along with occupational changes, shifts in their income composition, and the characteristic of their occupations were also requested. Several open-ended, qualitative, and non-economic questions were asked at the end of the
individual surveys. These qualitative questions were designed to determine the conditions which would encourage people to migrate to the cities; how the public media such as television, newspapers, and magazines would affect their decisions; the conditions that might keep them in the agricultural sector; and the occupation they would like to choose in the future. These issues are very important with respect to the continued performance of the litu bu lixiang program. While the main hypothesis of this research is that improvements in income will be the principal determinant of program participation, it may well be that perceptions of future advancement are as important as actual improvements in income regarding future changes in people's residential or occupational status.

The household interviews took place between January 20, 1992 and February 21, 1992. The time selected for the interviews was very important because it was the Chinese New Year Holiday (chunjie) period. No matter where people live and work, most Chinese people come home for a family reunion during the Chinese new year, and remain at home with their family for approximately one month. Scheduling the survey at this time gave me a chance to meet the people who had already moved out of their communities and who now worked in the cities—defined in this research as litu people. In addition, people had more free time and were willing to talk with us during this holiday season. I
interviewed an averaged 6 or 7 households each day during that period.

The questionnaire was also designed to collect data on household economic and residential situations for earlier years (1979, 1984) as well as 1991 data. Given that 1979 was the beginning year of the profound economic reforms and 1984 was the year when the litu bu lixiang program was launched, I wanted to know how conditions changed for each household since these dates. In this report, the 1979 and 1984 data are used as background information.

In addition to the questionnaire survey, I also conducted many interviews with local officials, peasant entrepreneurs, and ordinary workers to obtain first-hand information about their opinions on the litu bu lixiang program. Ten tours in each county to rural industries and markets were also made during my research. During these trips, I was accompanied by the local officials and several colleagues.

As mentioned earlier, the collection of high-quality township (xiang)-level data was also one of the objectives of this field work, given the importance of the townships in implementing the litu bu lixiang program. Generally, the xiang level data are not published for reasons of confidentiality. The economic and political development of the recent years, however, has made the xiang level data more available than in previous years. The Statistical
Bureau of the two counties—Dingxing and Li—collect social and economic data at the xiang level in their annual yearbooks. Unlike the standardized provincial yearbooks, the county yearbooks from different counties often include different sets of variables. The Dingxing County yearbooks include more variables than the Li county yearbooks. I copied all the relevant pages for years from 1980 to 1991 because the county officials and agencies do not circulate their data. The variables extracted for analysis are those which appear in both county yearbooks.

County-level data were also collected. The Hebei Statistics Bureau has been publishing economic yearbooks since 1980. Those yearbooks include social, economic, and geographical information. All the available yearbooks were purchased, along with some books on the geographical conditions, population, and the small towns of the province. A number of Chinese journals were also surveyed to understand the types of research which Chinese scholars have been doing on the litu bu lixiang and related topics. The county level data collection was done in Shijiazhuang, the capital city of Hebei Province. Several institutions located in this city, along with the Hebei Statistics Bureau, served as the major sources of my data. The Hebei Population Research Institute houses a large collection of books, journals, and unpublished papers on population growth, distribution, and movement. Researchers there
provided me with opinions on the litu bu lixiang program in terms of their demographic perspective. The Department of Geography of Hebei Normal University also served as a source of information and ideas since several of its faculty members have been working on rural development and regional planning for many years. To seek the economist's perspective, I worked with some colleagues at the Hebei Finance and Economics University.

In summary, Hebei Province is representative of the nation. Li County and Dingxiong County represent different stages in the adoption of the litu bu lixiang program. In order to fulfil the purpose of evaluating the litu bu lixiang program, multi-scalar data were collected in this field research.

The next chapter presents background information on their geographical conditions, economic development, the development of non-agricultural activities, and the influence of such activities on the absorption of rural surplus labor in the study areas.
CHAPTER FIVE: THE STUDY AREAS: GEOGRAPHICAL ISSUES

5.1. Location and Population

Hebei Province, which was selected as the research area, is located in Northern China. Most of Hebei is located within the North China Plain which is one of the most densely populated regions of China. A small portion of the province falls within the Inner Mongolian Plateau. The Bohai Sea, which is one of the four main seas in China, borders the province on the east side. Shandong Province is to the southeast of Hebei, with Henan Province to the south, Shanxi Province to the west, and Neimenggu (Inner mongolia) to the north. One of the most unusual aspects about its location is that Beijing—the capital of China—and Tianjin—another provincial-level municipality—are encircled within the domain of this province. Hebei incorporates an area of 187,693 square kilometers and accounts for about 2.0% of China's land area.

The name of the province, Hebei, is formed by two characters. He means river, bei means north. The name, Hebei, thus reflects the location of the province on the north side of the Yellow River.

At present, Hebei contains 10 prefecture-level cities, 13 county-level cities, 126 counties, 562 designated towns, and 2704 xiang (previously communes).
One of the most populous provinces of China's provinces, Hebei in 1990 contained 61.1 million persons, 5.4 percent of China's total population. As the fifth-most populous province in the nation behind Sichuan, Henan, Shandong, and Guangdong, Hebei's population density of 325 per square kilometer is almost three times great as China's average population density (118).

5.2. Physical Geography

Three-fifths of the land area of the province is occupied by plateau and mountain areas with altitudes ranging from 1000 to 1500 meters. These high elevation areas, generally referred to as the Northern Hebei Mountains are located in the northern and western parts of Hebei. They run mostly in an east-west or northeast-southwest direction. Within these mountain systems are some rift basins such as Xuanhua and Huailai basins. Hebei plain, which is a part of the great North China Plain, dominates the south and southeast portions of the province. Plains cover 57,223 square kilometers or 30.5% of the province. This portion of the province is one of China's major farming areas with high population density. The area is relatively flat in relief, and generally below 50 meters ASL. Still, the micro-geomorphological structure is rather complex. With the micro-geomorphological changes, the surface materials, chemical composition of groundwater,
soil, vegetation and agriculture change accordingly. The topography of the plain inclines mainly from west and southwest to east and northeast, and the natural landscape is correspondingly divided into three landscape sections: piedmont diluvial-alluvial fan plain, alluvial fan plain, and coastal plain. Piedmont diluvial-alluvial plains are located at the piedmont of the Taihang Mountains and other mountains. They are composed mainly of numerous alluvial fans, with a width of 10 to 55 km, and an elevation of 50 to 100 meters. Ground-water resources are rich in this belt. The soil is free from salinazation or alkalinization. Alluvial plains are located to the east of the above mentioned belt and are major components of the North China Plain, with an elevation below 50 meters and sometimes as low as 3 meters ASL. Coastal plains are low plains bordering the Bohai Sea, with an elevation generally lower than 4 meters. The surface component material is chiefly clay and the groundwater highly mineralized. Salt-enduring crops must be planted in this area.

The climate of Hebei is dominated by the East Asian monsoonal system. This features great seasonal contrast, as well as moderate but highly concentrated precipitation. During the summer, high temperatures coincide with high precipitation, which is helpful for field crop production. When winter comes, cold weather in conjunction with very limited precipitation makes it impossible for extensive
cultivation. As a part of North China Plain, Hebei is characterized by a dry, windy spring, a warm rainy summer, a fine calm autumn and a cold, dry winter. The hottest month (July) is quite subtropical, with a mean temperature of 24° to 29° C and an absolute maximum temperature above 40°C. The coldest month (January) is, however boreal, with a mean temperature of 0° to -14° C, and an absolute minimum temperature below -20°C. Accumulative temperature during the > 10° and = 10° period totals 3400° to 4500° C and the frost-free season lasts 170 to 220 days. Annual precipitation is between 500 to 800 mm. Rainfall is concentrated in summer. Winter rainfall accounts only 3 to 7 percent of the annual total precipitation, and Spring rainfall only 10 to 14 percent. In the rainiest year, the precipitation may be 10 times more than that of the driest year. Therefore, spring droughts and summer floods often plague agricultural production within the region.

5.3. Economic Conditions in Hebei

In 1986, the per capita income of Hebei was 673 yuan which was 75.6% of the national average. From 1986 to 1989, the per capita income of the nation increased from 890 yuan to 1352 yuan. Though the increase of per capita income in Hebei has grown quickly, from 673 yuan of 1986 to 1081 yuan of 1989, the per capita income in Hebei remains below the national average (80%). Though Hebei is a coastal province,
the province's economy and labor productivity is similar to interior provinces in terms of economic level. If the data of the three provincial municipal cities, Beijing, Tianjin, Shanghai, whose per capita income is substantially higher than any other provinces, are excluded, the average per capita income of the nation was 1,105 yuan in 1989 which is very close to the per capita income for Hebei (1,081 yuan). So, with respect to its economic development, Hebei can be classified as a province with a very representative economy. Its economy is not as developed as its coastal peer provinces, but is more advanced than those provinces in the poor western region of China.

Hebei's economy grew rapidly during the 31 years from 1952 to 1982. The total value of industrial and agricultural output increased from 4.2 billion yuan to 36.5 billion yuan, an annual increase of 7.8 percent. Total income for the same time period increased at an annual rate of 6.3 percent. In many respects, then, the province is a fairly typical one and for this reason, among others noted earlier, was selected for this study.

Agriculture has been the basis of Hebei's economy from dynastic times. The most common cropping system is the production of three crops in two years. But north of the cities of Zhangjiakou and Fengning, the cropping system changes to one crop in one year. Hebei is one of the major winter wheat, corn, soybean, and cotton producing areas in
China. In 1949 and the early 1950s, the value of agricultural output accounted for over 75% of the total output value of the province. Since then, the economy has increasingly shifted toward a more industry-oriented economy. Though agriculture has continuously grown, industry has increased at a much higher speed. In 1990, the total industrial output in Hebei was 112.3 billion yuan, or 76 percent of the province's total output. Agriculture, with an output value of 35.7 billion yuan, represents only 24 percent of total output value of agriculture and industry.

Coal, steel and iron, construction materials, petrochemicals, and a variety of textile industries are among the most important industries in Hebei. Hebei is well endowed with natural resources, although extra resources are sometimes required from other provinces due to local shortages.

The province's energy reserves are among the largest in the country, especially coal resources which rank among the top five. Further, almost all the coal exported to other countries (mainly Japan) from Shanxi and Inner Mongolia (number 1 and number 2 coal producers) is shipped via Hebei. This focus on coal explains Hebei's strong heavy industrial sector. The development of Hebei's coal industry can be dated to the Ming Dynasty (1368-1644) when the coal mining industry was first developed in Southern Hebei. Now
Hebei, with coal production of 62 million tons in 1990, is one of the major coal producers in the country following Shanxi, Henan, and Heilongjiang.

5.4. The Development of Rural Industry and its Effect on Rural Surplus Labor

In 1988, there were 30.7 million rural laborers in Hebei Province. Among them, nearly seven million were estimated to be surplus laborers. The annual per capita productivity of an industrial worker in Hebei is 14,728 yuan (3000 US dollars). If the existing 7 million surplus laborers could all be employed by industry and produce the average per capita output, 103,096 million yuan in additional output value would be produced. Full employment is clearly not possible, but if some of this surplus labor were used more effectively, it could result in a sizable contribution to the province's economic growth.

Since the litu bu lixiang program was adopted in 1984, rural people have realized that they will not be able to improve their economic conditions dramatically by simply depending on the improvement of within the agricultural sector. Many of these people are actively seeking employment opportunities in non-farming sectors for the first time. Initially, such people look for jobs in places near to their homes. If they are unsuccessful, then they will extend their search to other more distant locations.
The development of township enterprises is considered the key in absorbing surplus labor and improving the rural economy and living conditions. At the end of 1990, township industries employed 6.4 million workers which accounted for 27.2% of the total rural laborforce. The total output of all rural enterprises reached 6 billion yuan and accounted for 69.3 percent of the total social output of Hebei's rural areas. Among all types of rural enterprises, rural industry is the most important sector. The output value of rural industry in 1990 was 42.4 billion yuan which is 37.9 percent of the province's total industrial output.

In Hebei Province, there are large differences among counties with respect to non-farming employment opportunities. The first county surveyed in my research, Li County, is one of the most developed counties with respect to rural industry. The 1988 output of rural industry in this county was 550 million yuan, or 58.5% of the total output value of agriculture and industry. For Fuping county, adjacent to Li county, the total value of rural industrial output was only 10 million yuan, or only 10 percent of the total agricultural and industrial output.

Obviously, rural industry is not only very important to rural development, but also for the retention of rural surplus labor. Still, many questions remain: How does rural industry develop? What can the government do to nurture rural industry? Does the promotion of rural
industry have the potential to improve living conditions in rural areas?

Since 1949, rural industrial output has increased at a faster rate than total urban and rural industrial output in the province. Between 1949 and 1988, the average increase rate in output value for all industries operating in the province was 14.7%. Rural industrial output increased at an annual rate of 19.8%, however. For the period 1983 to 1988, when the *litu bu lixiang* policy was actively encouraged, rural industrial output increased at a remarkable annual rate of 46.9% (Table 5-1). And 1988, rural industrial output accounted for 27.5% of the total industrial output of Hebei.

The government's commitment to developing rural industry can be seen in policy changes concerning the development of new firms. Once the establishment of a new enterprise has been authorized, it becomes eligible for considerable assistance from the state (Griffin and Griffin, 1984). The provincial or county government may provide technicians in the early stages and even some subsidized raw materials. Special loans may also be made available from the rural development banks, the local government, or a state enterprise (e.g. if the new firm is producing a component for a state enterprise). Joint household enterprises are allowed to hire technicians—a radical departure from past practice when hiring labor was
Table 5-1. Rural Industry Statistics of Hebei, China

<table>
<thead>
<tr>
<th>year</th>
<th>rural industry output (100 million)</th>
<th>Increase over previous year(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1984</td>
<td>41.67</td>
<td>61.57</td>
</tr>
<tr>
<td>1985</td>
<td>77.24</td>
<td>85.36</td>
</tr>
<tr>
<td>1986</td>
<td>110.78</td>
<td>43.03</td>
</tr>
<tr>
<td>1987</td>
<td>160.39</td>
<td>45.18</td>
</tr>
<tr>
<td>1988</td>
<td>231.79</td>
<td>44.52</td>
</tr>
</tbody>
</table>

Source: Hebei Statistic Bureau, 1984 to 1991
regarded as exploitation. Enos (1984) reported that only a few years ago rural enterprises "operated at a small scale, utilizing a primitive technology, employing resources that were abundant locally, and producing goods either for local consumption or as components to state firms." Today, by contrast, many rural enterprises operate at an intermediate scale, utilize modern technology, employ resources that are even scarce and mobile, and serve markets throughout China and abroad.

The wage level in rural industry typically is much higher than in agriculture. In part, this explains why such employment is so attractive to rural workers. Realistically, however, the industrial workers in the communes cannot be expected to compare their remuneration with incomes derived from agricultural activities, but rather with incomes obtained by urban workers in state factories. This may have important implications for the long run profitability and competitiveness of rural enterprises, for their rate of growth, and for the contributions they can make to rural development.

Rural enterprises are expanding and modernizing, but they have not expanded and modernized to the point where they are as large and as technically advanced as the most advanced state enterprises. The question arises whether or not they will ever reach this point, i.e. whether or not they will close the size and technology gaps. Enos (1984),
suggested that the wealthier areas located in the proximity to provincial capitals and other large cities which are already experienced in industrial activities tend to adopt the latest available techniques. The poorer, more remote, inexperienced areas tend to lag behind. I assume that while this was the case for rural industries prior to 1984, things have changed considerably in recent years. The state-owned firms are no longer protected as they once were and now rural industries are granted more freedom regarding their access to the market and production materials. Relying on the power to hire and dismiss workers, the privately owned rural industries are able to maintain and promote productivity, which, to some degree, should be considered an advantage over the state-owned enterprise.

As mentioned earlier, rural industry has developed quickly in recent years. In many cases, capital intensity and production efficiency are increasing. Rural enterprises certainly play an important role in development because they can mobilize scattered and underutilized resources, including labor, capital and local raw materials. They can also produce badly needed producer and consumer goods for which there is a seemingly insatiable rural demand that would otherwise fuel regional and national inflation. In addition, local production could also cut transportation costs by eliminating the need for shipping goods long distance from producers to end users and consumers.
Programs promoting rural industry have an appeal beyond wages and new products. Profits from the sales of industrial products could be used to finance modernization of agricultural production. Rural industry could also help to close the gaps between urban and rural life.

Of course, there are problems regarding the development of rural industry. One of them is the growing competition between state-owned and rural collectively owned enterprises over scarce raw materials and energy sources. Another problem arises from the lack of control over decentralized management in scattered rural industries. Often the success of one collective in a certain line of production inspires others to try to get a corner of the same market, resulting in over-production. Environmental problems generated by the rural industry should also be of concern. Because of the generally underdeveloped character of rural industrial production, it is easy to point to numerous instances of waste and inefficient utilization of resources (Howard, 1988). In the process of pursuing higher income and industrialization, environmental problems are neither emphasized nor attended to.

5.5. Li County and Dingxing County

Li County is located between E 115° 20' - 115° 51', N 38° 21' - 38° 41'. The distance from east to west is 32
kilometers and from south to north is 35.5 kilometers. The total area of the county is 644 square kilometers. Ninety-six percent of the area is classified as plains. The county is composed of 21 townships (xiang) and 232 villages (cun). There are four designated small towns (jianzhizhen) in Li County, and all of them have a population over 20,000 persons. Rural enterprises are particularly important to the economy of these four townships. In these four townships there are more non-agricultural laborers than agricultural laborers. When local villages can not supply enough labor, some workers come from other provinces, especially Sichuan which is the most populous province in the nation. Those workers work, and, live in their factory and visit their families only once a year.

Li County is well known for its rural industry. It is among the first counties of Hebei province that adopt the litu bu lixiang program. In addition to collective rural enterprises, there are also many private businesses which have developed during the past several years. More people are engaged in non-agricultural sectors in Li County than in most other counties in Hebei.

Its total population in 1990 was 431,565 and the population density was 670 per square kilometer. Enormous pressure to diversify the economy results from a very unfavorable ratio of population to arable land (1:1.6 person/mu). Li County is one of the first counties in Hebei
to experiment developing non-agricultural sectors to absorb the surplus labor from agriculture. The development of rural industry and service has been actively encouraged by the local government. Also, quite significant to the county's success is the fact that some high ranking officials who lived in Li County during the civil war years before 1949 supported the local government to develop rural industry. Li county also has a long history of being a national production center of fur and leather products. In 1990, the rural industrial output value was 777 million yuan, accounting for 65.6% of the total output of this county. Among the 14,046 rural enterprises operating in 1990, 12,400 or 85% are privately owned businesses.

Dingxing is the other county incorporated in this research. Dingxing County is located in the central portion of Hebei, between 115° 30' -115° 58' E longitude and 39° 05' -39° 20' N latitude. Its total area is 710 square kilometers. The total population of Dingxing County is 505,000 persons and the population density is 712 persons per square kilometer. As was the case with Li County, the population to arable land ratio of 1:1.47 person/μu presents serious problems with respect to the redundancy of rural labor. In Dingxing County, rural industry is not as important, nor as developed, as in Li County, but more and more people are attempting to find non-agricultural jobs because of the shortage of arable
land. Clothing and construction material industries are the two most important types of industries in Dingxing County. There are also an unusually large number of people who work in the cities beyond the county as temporary workers. Unlike Li County where the non-agricultural sectors employ a large number of workers from other areas, most non-agricultural workers employed in Dingxing are from local villages.

In 1990, the total output of rural enterprises in Dingxing County was 396.7 million yuan. From 1985 to 1990 the total output value of rural enterprises increased 190.2% with a real annual growth rate of 23.7%. The county government promised to give first priority in the ten years following 1990 to the development of rural enterprises. The county commissioner predicted that during these ten years rural enterprises will increase at a speed of at least 15% per year.

Since 1984 when the litu bu lixiang program was first advocated, non-agricultural enterprises began to evolve. Some people started their own business, but almost all the businesses started as joint enterprises with the government at the very beginning since entrepreneurs were not quite sure about the stability of the policy. The peasant entrepreneurs promised to pay certain percent of their income to the government in exchange for the government's investment and support. After several years, these
entrepreneurs gained confidence regarding the policy and made enough money to buy out the enterprise from the local government. In time, these firms were transformed into completely private businesses totally owned by the entrepreneurs themselves. All of the peasant entrepreneurs I visited during my research trips have confidence now regarding the permanence of the new rural industrial policies. When I asked them if they fear the policy might change and they might lose everything, they all responded that this is the right direction for China's rural development and they believe it will continue.

During my field research, I talked with Wang Qifa, a well-known entrepreneur in Li County. His story offers a concrete example of the peasant investor. He started his workshop in 1983. At the beginning he hired only 20 people to produce wool yarn. The machinery he used was cast-off from an urban textile firm which purchased new and more advanced equipment. This is very typical in the first stages of the rural industrialization process since entrepreneurs have a very limited amounts of money to invest. As of 1992, Mr. Wang had two factories with 210 workers. He has replaced the old machines with brand new machines with the equal technological level of machines in the urban factories. At present, his net annual income is around 2 million yuan. The workers in his factories work harder than the workers in the state-owned companies.
because their income and bonuses are directly related to their output. When he hires new workers, he not only tests their knowledge of science and writing, but he also conducts an on-site test to see how quickly and skillfully they can do their work. In order to utilize the equipment most efficiently, his factories operate several shifts. Because most of the workers are in their 20s, he encourages them to study during their spare time to improve themselves. The people who achieved the most in their work, or study, are awarded money or prizes.

Mr. Wang has visited many Western countries. He was impressed by the management and efficiency of German production. In his office, I saw many books on factory and company management from Western countries.

Using his own money, Mr. Wang has built two schools for the local community. Not only does this provides incentives for local government to continue the policy, but as in the west, it is also good public relations.

Through the development of private businesses, an elite is forming in many areas of rural China. Almost all the peasant entrepreneurs have their own cars in a society where cars are still considered a luxury. Another businessman whom I interviewed, Mr. Ma Laifen, has two imported cars from Japan. He has already sent his two children to the best schools in China and he is planning to send them to the United States for college. Most of
these "new bourgeois" have large and beautifully decorated mansions located in close proximity to each other. The newly affluent want their sons and daughters to marry in other rich families in the area. The growth of rural industry clearly has many social and political implications.

The development of rural non-farm sectors may also provide opportunities for skilled urban workers to improve their own lives by giving rural industries technological assistance. Mr. Zhu Jun of Xijiang Village in Dingxing County has a factory to produce nutritious high-quality animal fodder. When he could not find a specialist to help him from the local area, he turned to the urban professionals for help. He bought technology from Professor Zhu Guiru of Beijing Nutrition Research Institute. In turn, Professor Zhu promised to help initiate and maintain his production line. She visits the factory a couple of times every month to provide technical assistance. For this freelancing, the owner of the business pays her 500 yuan every month which is twice the income from her job in the institute.

By way of collecting background information prior to my surveys, I talked with many workers in rural industry to determine how they feel about the litu bu lixiang program. Most people believe that the future potential for increased incomes from agriculture is limited and that the creation
of non-agricultural jobs in rural areas is the only way to eliminate poverty. Mr. Liu Yunshui of Yishang Village in Dingxing county works in a rural industry which produces construction materials in the his village where he lives. He makes 300 yuan monthly, even more than many urban workers. The cost of living is very low. His wife takes care of their contracted land and also raises several hogs each year to complement their income from field crops. He also helps his wife with agricultural work during busy seasons. He told me that he would not move to the cities even if he could make more money.

5.6. The Development of Small Towns

Over the past decade, Chinese planners have actively promoted the role of small towns in China's rural development as a strategy to forestall the migration of farmers into large cities by providing intervening opportunities for non-agricultural employment within their home areas. This strategy has been accompanied by a rapid increase in the number of designated towns from 2,664 in 1980 to some 9,130 in 1985 in China. The number of small towns in Hebei also increased very quickly during the past years. From 1983 to 1988, small towns in Hebei increased from 58 to 562. The rapid growth of designated towns was partially due to the relaxation of criteria for a designated town (jianzhizhen) by provincial government in
1984. Officially designating as a town depends on meeting one of the following criteria: a seat of county government; a seat of township government (xiang) in which the total population of the township is below 20,000, but with 2000 non-agricultural persons resident in the township seat; or a seat of township government where the total population of the township exceeded 20,000, with the number of non-agricultural persons living in the township seat in excess of 10 percent of total population. Formal designation places the settlement at the lowest level of the urban hierarchy. As a result of town designation, county governments assume financial responsibility for much of the welfare and investment in the town, although the actual amount is limited.

There are 562 designated towns in Hebei with a total population of over 12.74 million. These small towns are evenly distributed in all areas of the province. They serve as the links between urban and rural economies and between rural people and urban people. They are the centers of rural enterprises and the "adjustment reservoir" of rural labor. The location of these designated towns are also important. They are within commuting distance of the villages, and they play important roles in limiting rural to urban migration. Often, then, the location, workforce, investment capital, and infrastructure of small towns can stimulate the development of the rural enterprises, while
at the same time the development of rural enterprises
results in more formally designated small towns and
improves the economic conditions as well.

In summary, the study areas contains a large number of
surplus laborers. Local governments, realizing the pressure
resulting from rural surplus labor, are trying to release
the pressure by creating non-agricultural employment
opportunities. The people in those areas also realized the
importance of seeking non-agricultural opportunities. At
the same time, the development of small towns is emphasized
because small towns are considered to be favorable
locations for rural non-agricultural activities.

To evaluate the influence of the current policy, a
variety of statistical methods will be employed. Chapter
six defines the variables and the statistical techniques
that are used.
CHAPTER SIX: STATISTICAL METHODS OF ANALYSIS

Since this research incorporates data collected at multiple scales: household, individual, xiang, and county, a variety of statistical techniques are required for analysis. To identify the associations between the variables and the different types of households and townships, a factor analysis will be developed for the household and township data. To compare the benefits, or lack of benefits, associated with mobility, Student's t-tests will be used for my analysis of the individual and household data. A logistic regression model will also be developed for the individual worker data to determine the factors that affect mobility.

Prior to my discussion of these statistical techniques, I introduce the sources and types of data used in the analysis.

6.1. Household Data: Variables and Their Definitions

As mentioned in Chapter Four, household data were collected using a questionnaire. Although many more variables were collected (see Appendix), nine survey variables will be used in the statistical analysis: the county identification code, family size, the total amount of land contracted by the household, total number of workers belonging to the household, the number of non-farm
workers, total income of the household, the household's agricultural income, total income from rural industry, and total income from other activities. Since the household survey was carried out in two counties, a dummy variable (count#) is used to identify the county affiliation of each household. To test the homogeneity of the sample, a t-test was conducted for the two counties (Table 6-1). The result shows that among the eight variables, three (family size, total labor, and income from other activities) are not significantly different between the two counties, and the other variables are significantly different. These variables are:

(1) The family size (Famsize). During the past decade, the average family size has changed. The number of residential extended families, which used to be the dominant type of family in China, has decreased in rural areas. A more aggressive birth control policy and changes in family values jointly played an important role in the recent reduction of the mean family size. Now, nuclear families are more common than other types. The family size was defined as the number of the people in a economically independent household. By definition, the household has its own income and property. These emerging nuclear families are officially separated from the households of their parents or children (fenjia).
Table 6-1. Sample T-test between Two Counties

Dingxing and Li

<table>
<thead>
<tr>
<th>variable</th>
<th>mean1*</th>
<th>mean2**</th>
<th>t-value</th>
<th>2-tail Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>Famsize</td>
<td>3.83</td>
<td>3.90</td>
<td>-.32</td>
<td>.752</td>
</tr>
<tr>
<td>Conland</td>
<td>5.02</td>
<td>5.70</td>
<td>-2.03</td>
<td>.043</td>
</tr>
<tr>
<td>Totla3</td>
<td>1.88</td>
<td>2.00</td>
<td>-1.38</td>
<td>.168</td>
</tr>
<tr>
<td>Nonfla3</td>
<td>.66</td>
<td>1.11</td>
<td>-5.27</td>
<td>.000</td>
</tr>
<tr>
<td>Totinc3</td>
<td>3080.99</td>
<td>4167.57</td>
<td>-2.39</td>
<td>.018</td>
</tr>
<tr>
<td>Agrinc3</td>
<td>1489.06</td>
<td>1155.00</td>
<td>3.70</td>
<td>.000</td>
</tr>
<tr>
<td>Ruinin3</td>
<td>517.93</td>
<td>1770.40</td>
<td>-2.66</td>
<td>.009</td>
</tr>
<tr>
<td>Othin3</td>
<td>1070.50</td>
<td>1183.48</td>
<td>-.55</td>
<td>.581</td>
</tr>
</tbody>
</table>

* Means for Dingxing County

** Means for Li County
The contracted land of the household (Conland). The implementation of the Household Responsibility System in early 1980s divided arable land among farm households. For the first time since 1952, the farmers have the right to determine how they want to use the land for agriculture, though symbolically the governments still own the land. A contract is negotiated between the peasants and the local government so the land is called contracted land or "responsibility land". The contract requires that the farmers pay a certain amount of their grain to the state or an equivalent value in cash. In addition, land must be used "appropriately". They should not transfer their land to others for profit, and must agree to only use the land for agriculture. During the early years of the responsibility system, the local government would reallocate the land every five years. Later, national leaders realized that they must permit the farmers to contract the land for longer periods, as it became clear that the farmers would not make long term investments on the land if they had to return it to the state for redistribution in every five years. The land was allocated and contracted according to the number of people living in the household, excluding the people who work for the state-owned companies and institutions (chengshi hukou). The area of the contracted land in this variable is measured in mu (1 mu= 1/15 hectare).
(3) Total labor in the household in 1991 (Totla3). The household labor is defined as the number of persons who are between ages 16 to 65 and able to work. Normally each family has at least two laborers—husband and wife. Some households have three or four laborers with adult children or elderly parents living with the family, without a family of their own.

(4) The number of non-farm laborers in the household in year 1991 (Nonfla3). Non-farm labor is defined as any worker whose major portion (over 50%) of annual income comes from non-agricultural activities. Though many of these workers still participate in agriculture, their income from agriculture, previously the major source of their income, is no longer that important in most cases. Generally, income from non-farm workers comes from rural industry, the service sector, or sideline activities.

(5) Total income of the household in 1991 (Totinc3). The total income for each household was derived from the summation of incomes from the following sources: income from agriculture, income from sideline activities, income from contracted construction labor, income from service sector, income from rural industry, income from state-owned industrial jobs, and income from government work. Total income is measured by yuan. At the time of this survey, 1 dollar was officially equal to 5.4 yuan.
(6) Agricultural income of the household in 1991 (Aginc3). The calculation of total agricultural income is complicated since, in most cases, farm household heads do not calculate their total agricultural income. To derive this value, I collected the data of grain output in jin (1 jin = 0.5 kilogram), the value of all cash crop output in yuan, income derived from raising animals, and, in a few cases, when applicable, the income from any fishery and forestry activities. The output of all grains was converted to cash value according to the estimated market price at the time of my investigation. Total agricultural income, a summation of all of these activities, is measured in yuan for my analysis.

(7) The total income from the family members working in rural industry in 1991 (Ruinin3). Rural industrial income is calculated by multiplying the worker's monthly salary by 13 instead of 12 because virtually all rural factory workers earn a bonus which is generally estimated to be approximately one additional month of wages. This variable is also measured in yuan.

(8) Income other than agricultural and rural industrial income in 1991 (othin3). This is the sum of additional incomes from contracted construction employment, service sector jobs, sideline activities, and employment in state-owned companies and institutions. This variable is also measured in yuan.
6.2. Individual Data: Variables and Their Definitions

In addition to the information collected from each household interview, all individual workers affiliated with each household interviewed were also interviewed using an individual questionnaire. In total, 361 workers were interviewed. All of these workers "belonged" to the randomly selected 200 households.

For my analysis, the individual sample will be divided into two groups - "mobile workers" and "non-mobile workers" according to their movement, or non-movement, as the case may be. Student's t-tests will be used to compare the two groups with respect to total income, agricultural income, and non-agricultural income. The people classified as "mobile workers" will be further divided into two groups: "litu ye lixiang people" and "litu bu lixiang people". Student's t-tests will again be used to determine if there is a difference in income between the people who not only leave the land, but also the countryside ("litu ye lixiang people") and the people who leave agriculture but remain in the rural areas ("litu bu lixiang people").

Next, to determine the typical characteristics of people who move from agriculture, a logistic model will be introduced. Mobility (mobile/no-mobile) will be used as the dependent variable and family size, the amount of contracted land, the total number of workers, age, sex, and education will be entered as independent variables.
The following section introduces the definitions and rationale of the variables used in the analysis.

(1) Mobility behavior (migra). The people who earn the greater part (more than 50%) of their income from non-agricultural activities are defined as mobile people. They are not necessarily migrants because only some of them moved out from the rural areas. They are mobile in the sense that they no longer work exclusively in the agricultural sector. It is important to realize that the occupational change is not necessarily accompanied by spatial movement. Some, in fact most, of these workers still remain in their rural areas. For my purpose, the occupational transformation is considered to be more important than spatial transformation since I want to evaluate the litu bu lixiang program. These workers are distinctly different from the other group that I define as non-mobile people, that is, those who still rely on agricultural work for the bulk of their income. This non-mobile group should be seen as the traditional type of rural workers who have yet to respond to the litu bu lixiang program. For both the Student's t-test and the logistic regression model, mobility or the lack of mobility was used as the grouping variable and as the dependent variable.
(2) Migration behavior (cicun). As mentioned earlier, mobile workers are further divided into two groups: Litu bu
lixiang people and litu ye lixiang people. The litu bu
lixiang people are defined as those who left agriculture
but did not move to medium and large cities. It must be
remembered that people who moved to small towns and county
seats are still considered litu bu lixiang. The litu ye
lixiang people are those who not only changed employment
from the agricultural sector, but also moved to medium and
large cities. My classification of migration behavior is
not differentiated by absolute distance, although the data
about the distance from each person's home to work place
was collected for 1979, 1984, and 1991. After preliminary
analysis, I concluded that the size of city and township to
which people move is more important in evaluating the litu
bu lixiang program. As long as rural surplus labor does not
move to the medium and large cities, such people would not
put pressure on urban areas. For most of the litu bu
lixiang people, some time is still spent working in
agriculture, but for this analysis, more than 50% of income
must come from off-farm employment to be classified in this
group.

In the questionnaire, three sections incorporate
questions related to occupational and spatial movements.
One section investigates each person's occupational changes
from 1979 to 1991. The workers were then asked to provide
locational information about where they worked during this period as well (home village, home township, home county, home province, and other province). The third form investigates the kind of settlements where each worker lives and works. Is it a large city, a medium city, a county seat, a rural township, or a village?

For the statistical portion of this research, the litu bu lixiang people are coded 0 and the litu ye lixiang people are coded 1. Again, this migration behavior variable will serve as the grouping variable for the t-tests which will be used to decide if there is a significant difference between those two groups regarding their various sources and levels of income.

(3) Family size (famsize). Family size was used as an independent variable in the logistic model to determine the influence of household size on the mobility behavior. Large families are inclined to have more laborers. This variable is considered to influence decisions regarding moving from agriculture.

(4) Land contracted by the household of the worker (land). It is commonly considered that access to land is one of the most important factors in the decision-making process related to migration. Though it seems that all the rural households have very limited access to arable land, differences regarding the access to land still exist. It is
assumed that this variable will affect the transformation of rural labor.

(5) Total labor in the household (totla3). Conservative Chinese peasants consider their land and crops to be the most important assets in their life. They would not easily give up agriculture because they believe land and agriculture are the only things that are always dependable. Total household labor is chosen as an independent variable for the logistic regression model because, in most cases, only when a household has enough labor to take care of their land that a household would allow family members to engage in activities beyond agriculture.

(6) Individual's age at the time of survey (age). The universal rule pertaining to migration is that young people are more likely to move. In this research, age is considered one important variable in determining what kind of people move and, derivatively, what kind of people would more likely remain in agriculture.

(7) Individual's sex (sex). Researchers are not certain about how sex affect migration and mobility. It largely depend on the job opportunities. If the destination place has more women-oriented employment opportunities, the migrants should comprise more women that men. My hypothesis assumes that in this case male workers are more likely to leave agriculture than female workers because that I conjecture that at the present time there are more non-
agricultural employment opportunities in the research areas for men than for women.

(8) The individual education level (edu). The education level is also considered to have an effect on mobility. It is assumed that non-agricultural activities require more skills than agriculture. At present in China, agriculture is still generally labor-intensive and highly dependent on human inputs. The more educated people are more likely to find non-agricultural jobs. The education variable is coded into 5 classes:

1-no education at all. Persons who can neither read or write.

2-elementary level. People have a formal education from one to six years. In most cases these people can read but their writing ability is poor.

3-middle school. The Chinese education system provide two or three years of education after elementary school. For those people who finished middle school, they can both read and write. They also have some capability to solve mathematics, physics and chemistry problems.

4-high school. Two or three years education beyond middle school. The percentage of the total population who attend high school is normally low. There are many fewer high schools than elementary schools and middle schools and only a limited number of middle school graduates can be admitted to high school. Many young people will enter the
workforce when they finish middle school if they feel they have no chance to advance to college, even if they could finish high school.

5-college graduates. People who graduate from colleges. Only 5 to 10 percent of the high school graduates can pass the very competitive comprehensive test and be admitted to college. They will be given jobs when they graduate from college. Particularly, this means that the few college graduates in my sample are all mobile people.

6.3. Xiang Level Data: Variables and Their Definitions
Again, the xiang is the administration level immediately beneath the county (xian) and above the village level (cun). Since the early 1980s, the village-level administration does not function effectively because once the land was sub-contracted to the households, this level became redundant to the township (xiang). The county-level government can not reach all households. The xiang government, then, becomes the most important administrative level to carry out the litu bu lixiang program. The xiang seats are small towns with populations of 5,000 to 10,000 persons. Most of them are market towns and act as local centers of rural industry, the service sector, and market exchange. Typical counties in northern China govern from 15 to 30 xiang with an average xiang population lying within a range of 20,000 to 50,000
persons. There are 5 to 15 villages under each xiang. There are 26 xiang in Dingxing County and 21 in Li County.

The xiang level data were collected to test if the litu bu lixiang program works at the local community level. The inclusion of the xiang data in my analysis is an attempt to determine the efficacy of the litu bu lixiang program at a variety of scales. Individuals, and households represent the lower levels of participation, but analysis at the xiang level will reflect how the program works for entire communities. As was the case with the household data, a factor analysis procedure will also be conducted on these township data to determine if the patterns identified at the individual and household levels are consistent at greater scale. It will also identify if there is any difference regionally in terms of adopting the program and the resulting economic development levels at this important level of rural organization. Eleven variables will be incorporated in the factor analysis.

(1) County ID of the townships (county). This variable is coded 0 for Dingxing and 1 for Li County. Since the sample was taken from two counties, this dummy variable was used to determine if differences exist among the townships of each county. The dummy variable will be entered as independent variable in the factor analysis.

(2) Total arable land for the xiang (culland). Again, as with the household data, this variable is measured in mu
This variable is used in the factor analysis to determine if the access to arable land has an influence in the adoption of litu bu lixiang program.

(3) Total rural population (rupop). This is the total population in the rural areas excluding the people who work for the state-owned companies and institutions. I assume that the total population will be closely related to total labor and access to arable land.

(4) Total labor (totla). The labor is defined as all the people who are capable of work and are between the age of 16 and 65.

(5) Total income (totinc). This is considered to be one of the most important variables in this research. As an independent variable, it is assumed that this variable will vary in some systematic way with other variables. Total income is measured in 1,000 yuan/township.

(6) Agricultural income (aginc). This variable will reflect how important the agricultural sector is in affecting the current overall economy and how much agricultural income contributes to total income. The agricultural income is also measured in 1,000 yuan/township.

(7) Sideline income (fuyin). Cottage industries have a long tradition in rural areas in China. Rural people often make extra money by working at different activities in their spare time. Since early 1980s, along with the lifting
of restrictions on spare time production activities and the opening of local markets, various part-time economic activities have been adopted by many households. Peasants realized that if they make starch noodles out of sweet potatoes, for example, they could make five of six times as much money as they could by selling sweet potatoes. The inclusion of this variable will help to understand the actual influence of sideline activities on total income. The value of sideline income is also measured by 1,000 yuan/township.

(8) Rural industrial income (indinc). Rural industry is considered to be the most important sector to develop for the absorption of rural surplus labor. My analysis will test if rural industry plays the most important role as is expected. Rural industrial income is measured by 1,000 yuan/township.

(9) Service income (service). Various kinds of services can be found in China, as is the case everywhere, from shoe polishing on the street to electric appliance repair to restaurants, to house remodelling. Again, this income variable is measured in 1000 yuan/township.

(10) Construction income (construction). Some people organize themselves into a construction team to undertake the task of constructing buildings and houses for individuals and also for companies. They sign contracts with their customers and divide the money among
participating workers. It is one of the major sources for peasants earning non-agricultural income in some of the places included in the research area.

(11) **Per capita net income (pni).** Net income, different from gross income, is the income after deductions are made for taxes and and production related expenses. It is obtained by dividing the total net income of each xiang by its total population. The unit of this variable is yuan/person.

### 6.4. Statistical Techniques

Three statistical techniques will be used to analyze the data: (1) Student's t-test; (2) Factor analysis for household and xiang level data; (3) Logistic regression. This logistic regression model will be developed to interpret the individual survey data collected for individual workers. Together, these three techniques will help evaluate the impact of the litu bu lixiang program within rural areas of China. Each technique will now be discussed separately.

(1) **Student's t-test:**

The Student's t-test is used to compare sample means by calculating the Student's t-test statistic. It will be used to evaluate the differences between means for different samples. It tests either independent samples (different groups of cases) or paired samples (different
variables). Tests of independent samples are used in this research. An "independent-samples" test divides the cases into two groups and compares the group means for selected socio-economic variables. This test requires a grouping variable and a set of independent variables to be tested by this grouping variable. Before the t-test can be applied, two assumptions must be made:

(i) The background population of the samples are approximately normally distributed. This is particularly important when the sample size is very small.

(ii) The standard deviations of the populations from which the samples are drawn are equal.

The following procedures are needed for Student's t-test analysis: 1). Setting up hypothesis testing: a: Null hypothesis (H₀): Our null hypothesis will always be that there is no difference between the means of the populations of which x and y are samples. b: Alternative hypothesis (H₁): There is a difference between the means of the populations of which x and y are samples. In advance, I decided if the test requires a one-tailed or two-tailed test. A one-tailed test is a hypothesis test in which the alternative is stated in such a way that the probability of making a type I error is entirely in one tail of a probability distribution. A two-tailed hypothesis test is a hypothesis test in which the region of rejection falls equally within both tails of the sampling distribution.
2) Rejection level (): The conventional rejection level for most social science research (0.05) is used in this research.

3) Compute the test statistic:
   
   \[ t = \frac{\text{the difference between the means}}{\text{the standard error of the difference}} \]

4) A comparison of the test statistic with the critical value. If it is as large or larger, reject the null hypothesis.

Student's t test is one of the most commonly used techniques in comparing the differences between sample means. In this research, t-tests are used several times to determine: 1) the homogeneity of the sample data from the two counties; 2) to compare the differences between the means of different groups and different regions. Specifically, it will be used to determine if there is a significant difference between the incomes of the people who leave the agricultural sector (mobile workers) and those who do not (non-mobile workers); and if workers who move to the urban areas (litu ye lixiang people) and workers who are engaged in non-agricultural sectors in local rural areas (litu bu lixiang people) have different incomes or demographic characteristics. 3) T-tests are also used to investigate the income differences between the two kinds of families: families with people who work in
non-agricultural sectors and those without people working in non-agricultural sectors.

(2) **Logistic Regression (logit) Models:**

In recent years, logit models have been widely used in migration research (Liaw, 1990; Brown and Goetz, 1988; Brown and Kodras, 1987; Gabriel, Justman, and Levy, 1987). To test the theory of selectivity and to determine what kind of people leave agriculture, a logistic regression model will be developed for use with the data for individual workers. Logistic models are similar to multiple regression models but can be used when the dependent variable is dichotomous (Norusis, 1990). The dependent or outcome variable, then, can have only two values: One value indicates that the event of interest has occurred; and the other indicates that the event has not occurred. The dependent variable is coded 1 when the event does occur and 0 when it does not. In this case, the people who leave agriculture under the *litu bu lixiang* program are considered to be "mobile labor" and are coded 1, which implies the mobility does occur. The people who still remain in the agricultural sector are considered to "non-mobile labor" and are coded 0, which implies that mobility does not occur. In logistic regression, the model directly estimates the probability of an event occurring. In contrast, in linear regression, we estimate the parameters of the model using the method of ordinary least squares.
That is, we select regression coefficients that result in the smallest sums of squared distance between the observed and the predicted values of the dependent variable. In logistic regression, the parameters of the model are estimated using the maximum-likelihood method. That is, the coefficients which are estimated are those that make our observed results more likely be selected. Since the logistic regression model is non-linear, an iterative algorithm is necessary for parameter estimation. In multiple linear regression, the interpretation of the regression coefficient is generally straightforward. It tells you the amount of change in the dependent variable for a one-unit change in the independent variable. To understand the interpretation of the logistic coefficients, we interpret the logistic coefficient as the change in the log odds associated with one-unit change in the independent variable (Norusis, 1990).

As in the case with multiple regression, the contribution of individual variables in logistic regression may be difficult to determine. The contribution of each variable depends on its interaction with other variables in the model. This is a problem particularly when independent variables are highly correlated. A statistic that is used to look at the partial correlation between the dependent variable and each of the independent variables is the R statistic. R can range in value from -1.0 to +1.0. A
positive value indicates that as the variable increases in value, so does the likelihood of the event occurring. If \( R \) is negative, the opposite is true. Small values for \( R \) indicate that the variable has a small partial contribution to the model. The \( R \) statistic is sometimes confused with the goodness of fit \( R^2 \) of OLS, but they should be interpreted differently.

The most commonly used test statistic for significance test of the coefficients is the Wald statistic, which has a distribution identical to the chi-square distribution. In this research, I will also use this method. The significance level of the Wald statistic will be used as a cut-off value for my interpretation of the results.

In logistic regression, as in other multivariate statistical techniques, the user needs to identify sets of independent variables that are hypothesized to be good predictors of the dependent variable. There are several methods available for model selection. Forward stepwise variable selection is used in this research. This method for logit models proceeds the same way as stepwise OLS multiple regression. You begin with a model which contains only the constant, unless the option to omit the constant term from the model is selected. In each iteration, the variable with the smallest significance level for the score statistic, provided it is less than the cutoff value (0.05), is entered into the model. All variables in the
model are then examined to see if they meet "removal" criteria. The variable with the largest significance level for the Wald statistic, provided it exceeds the chosen cutoff value, is removed from the model. If no variables meet removal criteria, the next eligible variable is, then, entered in the model.

There are various ways to assess whether or not the model fits the data. This research compares my predictions to the observed outcome to assess how well my model fits by using a classification table.

In my logistic regression analysis of the individual workers which comprise my sample, those non-mobile laborers are coded as 0, while the mobile workers are coded as 1. Mobile/non-mobile status (mobility) is assumed to be related to age, sex, education, family size, land owned by the farm household, and total workers in the household. These factors are the independent variables in the model.

(3) Factor Analysis:

Factor analysis is a common statistical technique used to identify a relatively small number of factors that can be used to represent complex relationships among sets of many interrelated variables. Factor analysis helps identify these underlying, but not directly observable, constructs. Factor analysis can also function to eliminate or reduce multicollinearity in a data set—through the transformation of variables into several factors according to their
covariance. The basic assumption of factor analysis is that the underlying dimensions, or factors, can be used to explain complex phenomena. Observed correlations between variables result from their sharing membership on these factors. The factor-generated "new variables" are not single variables, but rather they represent the groups of variables that characterize each factor. Usually the factors useful for characterizing a set of variables are not known in advance, but rather are determined by the factor analysis procedure. One goal of factor analysis is to represent relationships among sets of variables parsimoniously. That is, I would like to explain the observed correlations using as few factors as possible. I would also require that the factors be meaningful. A good factor solution is both simple and interpretable.

Factor analysis usually proceeds in four steps:

1). The correlation matrix for all variables is computed. Variables that do not appear to be related to other variables can be identified from the matrix and associated analysis of related test statistics.

2). Factor extraction step. The number of factors necessary to represent the data and the method of calculating them must be determined. The first factor extracted is the combination that accounts for the largest amount of variance in the sample. The second factor
accounts for the next largest amount of variance that is uncorrelated with the first one, and so on. Successively factors explain progressively smaller portions of the total sample variance, and all factors are uncorrelated (orthogonal) with each other. To help decide how many factors are needed to represent the data, it is helpful to examine the percentage of total variance explained by each. Several procedures have been proposed for determining the number of factors to use in a model. One criteria suggested, which is used in this research, is that only factors that accounts for variances greater than 1 (the eigenvalue is greater than 1) should be included. Factors with a variance less than 1 are no better than 1 single variable, since each variable has a variance of 1.

3). Rotation. A rotation method is used in this research to transform the factors to make them more interpretable. Although I could identify some relationships between the factors and the individual relationships from the factor matrix obtained in the extraction phase, it is usually difficult to identify meaningful factors based on this matrix. Often the variables and factors do not appear correlated in any interpretable pattern. Most factors are correlated with many variables. The rotation of factor analysis is necessary to transform the initial factor matrix into one that is easier to interpret. The purpose of rotation is to achieve a simple, more interpretable
structure. This means that I would like each factor to have nonzero loadings for only some of the variables. I would also like each variable to have nonzero loadings for only a few factors, preferably one. The most commonly used rotation method is the varimax method, which attempts to minimize the number of variables that have high loadings on a factor. The varimax method will be used in this research.

4). Factor scores. Since one of the goals of factor analysis is to reduce a large number of variables to a smaller number of factors, it is often desirable to estimate factor scores for each case. The factor scores can be used in subsequent analyses to represent the values of cases on each factor. There are several methods for estimating factor score coefficients. In this research, the regression factor score method is used. The regression factor scores have a variance equal to the squared multiple correlation between the estimated factor scores and the true factor score values.

To investigate the impact of the litu bu lixiang program at the household and xiang (township) level, factor analysis is used. On the household level, the variables to be used in the factor analysis are family size, the amount of land contracted by the family from the state, the total number of laborers in the household, the number of non-farm laborers in the household, the household's total income, the household's agricultural income, the income from rural
industry, and the income from other economic activities. First the correlation matrix for all variables will be computed. The factor analysis model will differentiate families into several types regarding their income composition, labor mobility, family size etc. A similar factor analysis will be conducted on the xiang (township) level data which was also collected during the field work to investigate the influence of this program at this meso-scale of organization. The input variables for this analysis include county identification, cultivated land, rural population, total labor, total income, agricultural income, sideline income, rural industrial income, construction income, service income, and per capita net income. These two sets of variables are as similar as possible.

I believe that if my hypotheses regarding the litu bu lixiang policy can be accepted, they must be accepted at multiple scales of analyses. Not only will the relationships between factors and individual variable loadings be examined, but also the factor scores for each of the 47 xiang, which are under the jurisdiction of my two sample counties. This evaluation can demonstrate regional differences among xiang regarding the time of adoption and the amount of exposure to the litu bu lixiang program.
6.5. Summary

To evaluate the litu bu lixiang program, household level and local community level analyses are both important. At the same time, I wish to place the program into broader context to clearly see the situations under which the program was enacted.

My field research was conducted in Hebei, China from January 14 to April 7 in 1992. Family-level, individual-level, township (xiang)-level, and county level data were collected through a variety of surveys for use in this research.

The household level and individual level data were collected by interview with questionnaires developed for this purpose. The interviews were conducted in the selected counties, Dingxing and Li, in Hebei Province. 200 households and 361 workers who were members of these households were interviewed. Student's t-tests will be used in several ways: 1) to compare the differences between the mobile laborers and non-mobile laborers; 2) to compare the litu bu lixiang laborers and the litu ve lixiang laborers; and 3). to compare the households that have mobile laborers as members and those that do not have mobile workers as members (Figure 6-1).

Factor analysis will be employed to differentiate different types of households and their economic conditions. The analysis of this level will test the
Figure 6-1. Flow-Chart of Methodology
hypothesis that the economic returns for the people who leave agriculture are higher than that of the people who remain in agriculture. The analysis will also be used to test the hypothesis that although people can benefit by leaving agriculture (litu), they cannot further improve their living conditions by leaving the countryside (lixiang) when the litu bu lixiang program is working.

Further, to determine what kind of workers leave agriculture first, a logistic model will be developed. The individual data will be used in the logistic regression model.

The township (xiang) data, also collected during my field research, will also be tested with factor analysis. There are 26 townships in Dingxing County and 21 townships in Li County. To evaluate how the litu bu lixiang program works on the local community level (township level), to see if the pattern identified on the household level can be extrapolated to a broader context, and to identify the locational differences in adopting this program, a factor analysis model will be developed by using the xiang level data. The factor scores on each of the extracted factors will also be evaluated to identify the spatial differences between the two counties and among the townships.

The next chapter will present the results of the analysis by using the variables and statistical techniques defined in this chapter.
CHAPTER SEVEN: RESULTS AND DISCUSSION

7.1. The Contribution of Non-agricultural Income to Total Income

The first formal hypothesis holds that families with workers who work in non-agricultural sectors are economically "better off" than families without non-agricultural workers.

Data from the surveys of the 200 household and 361 rural workers are used to test this hypothesis. To evaluate the impact of the litu bu lixiang program on the economic status of entire households and individual workers, the workers and households were classified as either agricultural or non-agricultural cases. People classified as non-agricultural laborers are those people whose major segment of income is from non-agricultural activities (>50%). Many of these workers are still involved in agricultural activities, but the primary sources of their income must be from non-agricultural sources. Among the 361 workers surveyed, 193 were classified as agricultural workers and 168 fall into the non-agricultural labor category. The two subgroup means were calculated and a Student's t-test was conducted to see if there is a statistically significant difference between the two means with respect to total income. The means are 1302 yuan/year for group one (agricultural labor) and 2603 yuan/year for group two (non-agricultural labor). The t value (6.43) is
well above the critical value (1.645) at the 95% confidence level. I conclude, then, that the average total income of non-agricultural laborers is considerably greater than that of non-agricultural laborers. The economic returns for the people who are engaged in non-agricultural sectors is higher than the economic returns for the people who remain working in agriculture.

Will families with non-agricultural laborers be better off? The answer should be obvious since non-agricultural labor have higher net incomes. Instead of using household total income, a more unbiased indicator, the average income per family members (AIPM) is used to test the hypothesis that families with non-agricultural laborers are better off than those without non-agricultural laborers. The households were again classified into two groups based on the presence or absence of non-agricultural laborers in the household. Among the 200 households surveyed, only 53, or 26.5% of the households did not have non-agricultural labor and 147 (73.5%) households had at least one member working in non-agricultural sectors. This concentration in a randomly selected sample suggests that people are fully aware of the advantage of working in non-agricultural sectors. The AIPM for agricultural households is 695 yuan/year and for non-agricultural households is 1115 yuan. A Student's t-test is once again used to test the two means. The t value (5.25) is, again, larger than critical
value (1.645) (confidence level=95%, one tailed test). There is, then, a significant difference between the two family types with respect to average income per family member.

7.2. The Source of Off-farm Income

The zero-order correlation table (Table 7-1) of the nine variables shows that total family income is highly correlated with rural industry income ($r=0.92$). This indicates that families with high income generally obtain their higher incomes from non-agricultural sectors, but especially from rural industry. The correlation between income from agriculture (the perennial major contributor of household income) and total income is slight ($r=-0.002$). This suggests that the families with relatively high levels of total income are most unlikely to be households which rely on agriculture. This, however, does not mean that agricultural production is declining. In fact, the output of the agricultural sector in these two counties continues to grow, but its relative importance to family income and to rural economy is decreasing in proportional terms.

The zero-order correlation table also indicates that the county affiliation of each household is positively correlated with total income, rural industry income, and number of non-farm labor. It is negatively correlated with
Table 7-1. Correlation Matrix for Household Survey Data:

<table>
<thead>
<tr>
<th></th>
<th>COUNT#</th>
<th>FAMSIZE</th>
<th>CONLAND</th>
<th>TOTLA3</th>
<th>NONFLA3</th>
<th>TOTINC3</th>
<th>RUININ3</th>
<th>OTHIN3</th>
<th>AGINC3</th>
</tr>
</thead>
<tbody>
<tr>
<td>COUNT#</td>
<td>1.0000</td>
<td>.02247</td>
<td>.14313</td>
<td>.09780</td>
<td>.35063</td>
<td>.16777</td>
<td>.23921</td>
<td>-.11685</td>
<td>-.25458</td>
</tr>
<tr>
<td>FAMSIZE</td>
<td></td>
<td>1.0000</td>
<td>.91820</td>
<td>.66639</td>
<td>.26457</td>
<td>.31538</td>
<td>.11041</td>
<td>.16626</td>
<td>.65229</td>
</tr>
<tr>
<td>CONLAND</td>
<td>.14313</td>
<td>.91820</td>
<td>1.0000</td>
<td>.62134</td>
<td>.91820</td>
<td>.91820</td>
<td>.91820</td>
<td>.91820</td>
<td>.91820</td>
</tr>
<tr>
<td>TOTLA3</td>
<td>.09780</td>
<td>.66639</td>
<td>.62134</td>
<td>1.0000</td>
<td>.62134</td>
<td>.62134</td>
<td>.62134</td>
<td>.62134</td>
<td>.62134</td>
</tr>
<tr>
<td>NONFLA3</td>
<td>.35063</td>
<td>.26457</td>
<td>.91820</td>
<td>.66639</td>
<td>1.0000</td>
<td>.66639</td>
<td>.66639</td>
<td>.66639</td>
<td>.66639</td>
</tr>
<tr>
<td>TOTINC3</td>
<td>.16777</td>
<td>.31538</td>
<td>.91820</td>
<td>.66639</td>
<td>.66639</td>
<td>1.0000</td>
<td>.66639</td>
<td>.66639</td>
<td>.66639</td>
</tr>
<tr>
<td>RUININ3</td>
<td>.23921</td>
<td>.11041</td>
<td>.91820</td>
<td>.66639</td>
<td>.66639</td>
<td>.66639</td>
<td>1.0000</td>
<td>.66639</td>
<td>.66639</td>
</tr>
<tr>
<td>OTHIN3</td>
<td>-.11685</td>
<td>.16626</td>
<td>.11887</td>
<td>.22676</td>
<td>.18957</td>
<td>.04681</td>
<td>-.27841</td>
<td>1.0000</td>
<td>.66639</td>
</tr>
<tr>
<td>AGINC3</td>
<td>-.25458</td>
<td>.65229</td>
<td>.70408</td>
<td>.36068</td>
<td>-.17989</td>
<td>-.00218</td>
<td>-.21736</td>
<td>.07600</td>
<td>1.0000</td>
</tr>
</tbody>
</table>

COUNT#--County association. If the household belongs to Dingxing County, it is coded 0, if it belongs to Li County, it is coded as 1.
FAMSIZE--Family size. That is the number of people in the household.
CONLAND--The contracted land of the household.
TOTLA3--Total workers in the household in 1991.
NONFLA3--The number of non-farm workers in the household in 1991.
TOTINC3--Total income of the household in 1991.
RUININ3--Total income from the family members working in rural industry in 1991.
OTHIN3--Income other than agricultural and rural industrial income in 1991.
AGINC3--Agricultural income of the household in 1991.

Source: Calculated by author from survey data.
agricultural income. This is quite interesting. The result indicates that there is an important difference between the two counties. Li County is more industrialized, hence more people have access to work in non-agricultural sectors; in Dingxing County, by contrast, the majority of people still rely on agriculture.

7.3. Factor Analysis of Household Data

Factor analysis is used because that variables are correlated with each other. The correlation table indicates that all variables, with the exception of other income (OTHIN3), have large correlations (e.g., correlation coefficients greater than 0.3) with at least one of the other variables in the data set (Table 7-1).

Table 7-2 contains the initial statistics employed for the factor analysis. The total variance explained by each factor is listed in the column labeled Eigenvalue. The next column contains the percentage of the total variance attributable to each resultant factor. Since only the factors with Eigenvalues greater than 1 are meaningful, only three major factors are extracted. The linear combination formed by factor 1 has a variance of 3.3357, which is 37.1% of the total variance of 9.0. Factors 2 and 3, explain 25.1% and 13.7% of the total variance respectively. These three factors explain 75.8 percent of the total variance of the household data. The remaining 6
Table 7-2. Initial Statistics for Factor Analysis of Household Data

<table>
<thead>
<tr>
<th>Variable</th>
<th>Communality</th>
<th>Factor</th>
<th>Eigenvalue</th>
<th>Pct of Var</th>
<th>Cum Pct</th>
</tr>
</thead>
<tbody>
<tr>
<td>COUNT#</td>
<td>1.00000</td>
<td>*1</td>
<td>3.33573</td>
<td>37.1</td>
<td>37.1</td>
</tr>
<tr>
<td>FAMSIZE</td>
<td>1.00000</td>
<td>*2</td>
<td>2.25671</td>
<td>25.1</td>
<td>62.1</td>
</tr>
<tr>
<td>CONLAND</td>
<td>1.00000</td>
<td>*3</td>
<td>1.23109</td>
<td>13.7</td>
<td>75.8</td>
</tr>
<tr>
<td>TOTLA3</td>
<td>1.00000</td>
<td>*4</td>
<td>.98257</td>
<td>10.9</td>
<td>86.7</td>
</tr>
<tr>
<td>NONFLA3</td>
<td>1.00000</td>
<td>*5</td>
<td>.56373</td>
<td>6.3</td>
<td>93.0</td>
</tr>
<tr>
<td>TOTINC3</td>
<td>1.00000</td>
<td>*6</td>
<td>.35630</td>
<td>4.0</td>
<td>97.0</td>
</tr>
<tr>
<td>RUININ3</td>
<td>1.00000</td>
<td>*7</td>
<td>.21207</td>
<td>2.4</td>
<td>99.3</td>
</tr>
<tr>
<td>OTHIN3</td>
<td>1.00000</td>
<td>*8</td>
<td>.05931</td>
<td>.7</td>
<td>100.0</td>
</tr>
<tr>
<td>AGINC3</td>
<td>1.00000</td>
<td>*9</td>
<td>.00249</td>
<td>.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

COUNT#—County association. If the household belongs to Dingxing County, it is coded 0, if it belongs to Li County, it is coded as 1.
FAMSIZE—Family size. That is the number of people in the household.
CONLAND—The contracted land of the household.
TOTLA3—Total workers in the household in 1991.
NONFLA3—The number of non-farm workers in the household in 1991.
TOTINC3—Total income of the household in 1991.
RUININ3—Total income from the family members working in rural industry in 1991.
OTHIN3—Income other than agricultural and rural industrial income in 1991.
AGINC3—Agricultural income of the household in 1991.

Source: Calculated by author from survey data.
factors together account for only 24.2% of the variance. My model, incorporating the three most significant factors, is adequate to represent the data.

Figure 7-1 plots the proportion of total variance associated with each factor. The graph reflects the importance of the first three factors. After these three factors, the plot becomes essentially flat.

Table 7-3 contains the coefficients used to express each standardized variable in terms of the factors. These coefficients or factor loadings indicate the contribution of each variable to the explanatory power of each factor. Large factor loadings for a variable indicates that this factor is closely related to the variable.

Varimax rotation was used to make the factor loadings more interpretable. After the factors have been extracted, it is not necessary to retain the initial restrictions. Although the magnitude of each factor score may shift, the set of new factors will retain the same ability to reproduce the original data matrix as was represented by the original set of factors. Hence, both the rotated and the unrotated factors will reproduce the same correlations with the same degree of accuracy (Gorsuch, 1983). The purpose of the rotation is to achieve a "simple structure". This means that we would like each factor to have nonzero loadings for only some of the variables. We would also like each variables to have non-zero loadings for only a few
Figure 7-1. Factors and Their Eigenvalues
Table 7-3. Rotated Factor Matrix for Household Data

<table>
<thead>
<tr>
<th>Factor</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAMSIZE</td>
<td>.94020</td>
<td>.07171</td>
<td>.10817</td>
</tr>
<tr>
<td>CONLAND</td>
<td>.93723</td>
<td>.11796</td>
<td>.07989</td>
</tr>
<tr>
<td>AGINC3</td>
<td>.82174</td>
<td>-.10411</td>
<td>-.41806</td>
</tr>
<tr>
<td>TOTLA3</td>
<td>.72073</td>
<td>-.05359</td>
<td>.40679</td>
</tr>
<tr>
<td>RUININ3</td>
<td>.02753</td>
<td>.91513</td>
<td>.33643</td>
</tr>
<tr>
<td>TOTINC3</td>
<td>.27156</td>
<td>.75314</td>
<td>.42172</td>
</tr>
<tr>
<td>OTHIN3</td>
<td>.20786</td>
<td>-.60476</td>
<td>.44840</td>
</tr>
<tr>
<td>NONFLA3</td>
<td>.16953</td>
<td>.11259</td>
<td>.84184</td>
</tr>
<tr>
<td>COUNT#</td>
<td>-.08044</td>
<td>.21085</td>
<td>.54228</td>
</tr>
</tbody>
</table>

COUNT#—County association. If the household belongs to Dingxing County, it is coded 0, if it belongs to Li County, it is coded as 1.
FAMSIZE—Family size. That is the number of people in the household.
CONLAND—The contracted land of the household.
TOTLA3—Total workers in the household in 1991.
NONFLA3—The number of non-farm workers in the household in 1991.
TOTINC3—Total income of the household in 1991.
RUININ3—Total income from the family members working in rural industry in 1991.
OTHIN3—Income other than agricultural and rural industrial income in 1991.
AGINC3—Agricultural income of the household in 1991.

Source: Calculated by author from survey data.
factors, preferably one. This transformation merely simplifies the discussion of the impact of each variable on each factor.

The rotated and sorted factor matrices (Table 7-3 and Table 7-4) indicate that factor 1 is highly correlated with family size, contracted land, agricultural income, and the total labor in the household. To make my discussion and interpretation as clear as possible, we might think of households which have high eigen values on factor 1 as "traditional agricultural households". Factor exhibits positive correlations of rural industry income and total income and negative correlations with other income. Households with high values on factor 2 can be considered as "rural industrial households". Factor 3 is highly correlated with non-farm labor, county number, and other income. Finally the households with high factor scores on factor 3 can be considered to be "non-agricultural labor households". Each factor will be discussed independently in the following section.

1. The "traditional agricultural" factor. Factor 1 is closely related with family size (0.940), contracted land (0.937), agricultural income (0.822), and the total labor in the household (0.720). Households which have high scores on this factor tend to have more members than average families and a relatively large amount of contracted land. The major part of their income is still derived from
Table 7-4. Rotated Factor Matrix for Household Data.

<table>
<thead>
<tr>
<th>Factor</th>
<th>FACTOR 1</th>
<th>FACTOR 2</th>
<th>FACTOR 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAMSIZE</td>
<td>.94020</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONLAND</td>
<td>.93723</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGINC3</td>
<td>.82174</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTLA3</td>
<td>.72073</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RUININ3</td>
<td></td>
<td>.91513</td>
<td></td>
</tr>
<tr>
<td>TOTINC3</td>
<td></td>
<td>.75314</td>
<td></td>
</tr>
<tr>
<td>OTHIN3</td>
<td></td>
<td>-.60476</td>
<td></td>
</tr>
<tr>
<td>NONFIA3</td>
<td></td>
<td></td>
<td>.84184</td>
</tr>
<tr>
<td>COUNT#</td>
<td></td>
<td></td>
<td>.54228</td>
</tr>
</tbody>
</table>

COUNT#—County association. If the household belongs to Dingxing County, it is coded 0, if it belongs to Li County, it is coded as 1.
FAMSIZE—Family size. That is the number of people in the household.
CONLAND—The contracted land of the household.
TOTLA3—Total workers in the household in 1991.
NONFIA3—The number of non-farm workers in the household in 1991.
TOTINC3—Total income of the household in 1991.
RUININ3—Total income from the family members working in rural industry in 1991.
OThIN3—Income other than agricultural and rural industrial income in 1991.
AGINC3—Agricultural income of the household in 1991.

Source: Calculated by author from survey data.
agriculture and most laborers continue to work in the field. From the above mentioned zero-order correlation table (Table 7-1) we know that the total income of the household is not significantly correlated with agricultural income. The households that have high scores on this factor tend to have lower total income than those that have low factor scores on this factor. Regarding the differences between the two counties, although the households of the Dingxing county tend to have more large and positive scores (greater than 0.5) and those of the Li county tend to have more high negative scores (less than -0.5), the agricultural-based factor does not indicate much difference between the two counties (Figure 7-2). This suggests that although there is a significant difference with respect to the total income between the households of the two counties as mentioned before, the differences of agricultural income are not important in explaining these differences found in the total income of the two counties.

2. The "rural industrial" factor. The second resultant factor is highly and positively related to income from rural industry (0.915) and total income (0.753), but negatively related with other non-agricultural income which was defined as incomes from sources other than from the agricultural and industrial sectors (-0.605). The loadings indicate that the households that have high scores on this factor tend to be the ones that have high total incomes,
Figure 7-2. F-Score Distribution of Factor 1, Dingxing County Vs. Li County, Hebei, China. Household Data
much of which is derived from rural industrial income, but also report a low percentage of income from other sources. The income from rural industry is the most important source of income for this type of households.

These households have the highest reported incomes of all types of households identified through the factor analysis procedure. This finding indicates that with regard to increased total income, access to rural industrial employment is most important. Rural industry income is more important than other non-agricultural activities probably because it is stable, does not face seasonal changes, and is not dependent on local market price fluctuation. Rural industry is also comparatively more organized and more effectively managed so that wages can be higher. For those households with high factor scores, agriculture is no longer important in economic terms, although my interviews suggest such households still do not want to give up farming. The reasons for this, based on my interviews, will be discussed later. Figure 7-3 shows that there are many more households in Li County with high positive scores (greater than 0.5) than those of Dingxing County. This indicates that the households in Li county are more likely to be "rural industrial households". The high scores also reflect the fact that the households in Li County seldom rely on other non-agricultural incomes. This finding is really quite important as it suggests how significant are
Figure 7-3. F-Score Distribution of Factor 2, Dingxing County Vs. Li County, Hebei, China. Household Data
local economic conditions with respect to creating an atmosphere conducive to industrial expansion. In these two counties, other non-agricultural incomes include income from construction, service sector income, sideline income (cottage industries), and income from state-owned companies and institutions. This kind of income is more important in the composition of total income in Dinxing County.

3. "Non-agricultural labor" factor. The third factor is highly correlated with non-farm labor (0.842) and county identification (0.542). This factor can be interpreted as the "non-agricultural labor" factor. In addition to high correlations with these two variables, this factor is also fairly highly correlated with several other variables. It is positively correlated with total labor in the household (0.407), total income (0.422), other income (0.448) and negatively correlated with agricultural income (-0.418). The households that have high scores on this factor are more likely to have more non-agricultural labor and also to belong to Li county. This type of household is both different from the traditional type of households which have high scores on factor one, and also from the industrial type of households which have high factor scores on factor 2. The households with high scores on factor three generally have a more diversified income base. People in this kind of household realize it is important to engage in non-agricultural activities and they do not limit
themselves to finding rural industrial jobs that may be unavailable. They have found a second way to improve their living and to complement their agricultural income. Figure 7-4 indicates that a lot more households in the Li County have positive factor scores for this factor, while more households in Dingxing County have negative scores. It indicates once again that people in Li County have worked to find ways of diversifying their income.

7.4. Self Sufficiency Versus a True Market Economy

It is sometimes argued that a problem related to massive off-farm movements of labor is that the most capable and qualified workers would leave agriculture to seek better incomes. The reality is that not everyone who seeks work in non-agricultural sectors will have access to these opportunities. Even more important is that China currently is not yet a market-oriented economy. Chinese rural families obtain their necessities such as grain and vegetables from their own agricultural production. Only surplus portions of their agricultural output are sold in the marketplace. If all the workers in any given household were to seek higher economic returns by shifting from agricultural to non-agricultural employment, it is hard to determine if that the household would benefit due to the cost of purchasing all agricultural products from the market. In addition, farm households must continue to pay
the grain quota for their contracted land which is still required by the government. In most cases, conservative Chinese peasants will guarantee first that there are enough workers left to take care of their land and only then make the decision that one or more members of their family can leave agriculture for other employment.

Changes in employment status are more a decision of the family than an individual choice. This seems to be a fundamental cultural difference between Chinese farmers and those of Western countries. The decision-making process is one of the factors that ensures that agriculture will not suffer from too many people leaving the land completely. This "risk aversion" also encourages people to find non-agricultural employment opportunities in their near surroundings so that crop land can remain under the contract (control) of the household.

7.5. Logistic Regression: the Social Characteristics of Mobile Workers

The second formal hypothesis to be tested is that mobility is selective with respect to the sex, age, and educational level of the workforce. The litu bu lixiang program has been successful in the retention of high quality labor in rural areas, which seen to be favorable to continuing economic growth and rural development.

Studies on Third World migration have shown that the process of out-migration is highly selective (Justman,
Levy, and Gabriel, 1988. Brown and Goetz, 1988. Gabriel, Justman, and Levy, 1987. Brown and Kodras, 1987). Out-migration appears to be selective with respect to sex, age, education. The only definitive generalization that might be made about migration from this body of research is that migrants tend to include an excessive number of adolescents and young adults, particularly when such migrants come from rural areas or small cities (Thomas, 1938, cited by Alberts, 1977). This is still thought to be the case in both developed and developing countries.

Migrants also tend to be more educated because only people with some qualifications can find employment in cities.

Regarding to the selectivity of rural-urban migration in terms of sex, most of the studies on the subject agree in that, rather than searching for laws, the following aspects of the migration process should be considered: available economic opportunities, cultural patterns concerning human settlements, the role of women in rural areas, and the distances involved. Some studies have reported different empirical patterns for different countries. Women predominate in the migration flows of Latin America, while male migrants predominant in Asia and Africa (Browning, 1970). I assume that Chinese who leave agriculture for "better" non-agricultural employment are also selective with respect to age, sex, and education. In
this sense, young, educated people are considered to be relatively "high quality".

To determine the characteristics that are the most important ones for predicting which people make a decision to move, a logistic regression model was developed. A binary variable—mobility—serves as the dependent variable and is coded as 1 when mobility takes place and 0 when it does not. Educational level, sex, age, family size, land, and total labor are entered as independent variables. The Wald statistic is used for testing the significance of each of the independent variables. The variables with a significance level exceeding the chosen cutoff value (0.05) are removed from the model. Table 7-5 indicates that family size, land, and total labor should be removed from the equation because they are not significantly associated with mobility. Age, sex, and education remain in the equation and are significantly related to mobility (Table 7-6).

The following theoretical equation

\[ \ln \left( \frac{P_{mob_i}}{1-P_{mob_i}} \right) = a + (b_1 \cdot age_i) + (b_2 \cdot sex_i) + (b_3 \cdot education_i) \]

can be estimated as:

\[ \ln \left( \frac{P_{mob_i}}{1-P_{mob_i}} \right) = 0.3633 + (-0.0868 \cdot age_i) + (1.4449 \cdot sex_i) + (0.6488 \cdot education_i) \]

The classification table (Table 7-7) shows that 149 or 77.20% of non-mobile laborers were correctly predicted by
Table 7-5. Variables not in the Equation

<table>
<thead>
<tr>
<th>Variables</th>
<th>Score</th>
<th>d</th>
<th>Sig</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAMSIZE</td>
<td>.0001</td>
<td>1</td>
<td>.9937</td>
<td>.0000</td>
</tr>
<tr>
<td>CONLAND</td>
<td>.0664</td>
<td>1</td>
<td>.7967</td>
<td>.0000</td>
</tr>
<tr>
<td>TOTLA3</td>
<td>1.9568</td>
<td>1</td>
<td>.1619</td>
<td>.0000</td>
</tr>
</tbody>
</table>

FAMSIZE—Family size. That is the number of people in the household.
CONLAND—The contracted land of the household.
TOTLA3—Total workers in the household in 1991.

Source: Calculated by author from survey data.
Table 7-6. Variables in the Equation

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>S.E</th>
<th>Wald</th>
<th>df</th>
<th>sig</th>
<th>R</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGE</td>
<td>-.0868</td>
<td>.0152</td>
<td>32.6330</td>
<td>1</td>
<td>.0000</td>
<td>-.2478</td>
<td>.9169</td>
</tr>
<tr>
<td>SEX</td>
<td>1.4449</td>
<td>.2671</td>
<td>29.2617</td>
<td>1</td>
<td>.0000</td>
<td>.2338</td>
<td>4.2413</td>
</tr>
<tr>
<td>EDU</td>
<td>.6488</td>
<td>.1832</td>
<td>12.5435</td>
<td>1</td>
<td>.0004</td>
<td>.1454</td>
<td>1.9132</td>
</tr>
<tr>
<td>constant</td>
<td>.3633</td>
<td>.7687</td>
<td>.2233</td>
<td>1</td>
<td>.6365</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

AGE—The individual worker's age at the time of survey.
SEX—The Gender of each individual worker.
EDU—Individual education level.

Source: Calculated by author from survey data.
Table 7-7. Classification for Mobility

<table>
<thead>
<tr>
<th>observed</th>
<th>predicted</th>
<th>percent correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>149</td>
<td>44</td>
</tr>
<tr>
<td>1</td>
<td>56</td>
<td>112</td>
</tr>
<tr>
<td>overall</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Calculated by author from survey data
the final model. Similarly, 112, or 66.67% of the people who left agriculture have been correctly predicted by the model. Overall, 72.30% of the 361 workers were correctly classified.

Among the 361 laborers surveyed in the two counties, 193 or 53% are agricultural laborers and 168 or 47% of the total laborers are non-agricultural laborers (Table 7-8). The model indicates that age is negatively correlated with mobility (R=-0.2478). Young people, then, are clearly more likely to leave agriculture because, at the least, they believe they have more opportunities to find non-agricultural employment than older people. Older people are more likely to remain in agriculture. The trend also shows that the proportion of aged people will increase in the agricultural labor force as greater numbers of workers leave agriculture.

The association between sex and mobility is also significant. The correlation is slight, but positive (R=0.2338). The partial contribution of sex as a variable predicting mobility is similar to age. It implies that men are more likely to move from the agricultural sector than women. The sample of 193 agricultural laborers is about evenly split with respect to gender of participants (Table 7-9), 97 male workers and 96 female workers. But men are predominant among the laborers engaged in non-agricultural activities, men are predominant. Men account for 72.6 per
## Table 7-8. Mobility by Classified Age

<table>
<thead>
<tr>
<th>Classified Age</th>
<th>Mobility</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>80</td>
<td>88</td>
<td>25</td>
<td>187</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>107</td>
<td>51</td>
<td>10</td>
<td>139</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>187</td>
<td>139</td>
<td>35</td>
<td>361</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Chi-Square</th>
<th>D.F.</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>18.533</td>
<td>2</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

Classified age: 1—workers under 35 years old.  
2—workers between 36 to 50 years old.  
3—workers over 51 years old.  

Mobility:  
0—non-mobile workers.  
1—mobile workers.  

Source: Calculated by author from survey data.
Table 7-9. Mobility and Sex

<table>
<thead>
<tr>
<th>Mobility</th>
<th>0</th>
<th>1</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>96</td>
<td>97</td>
<td>193</td>
</tr>
<tr>
<td>1</td>
<td>46</td>
<td>122</td>
<td>168</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chi-square</th>
<th>D.F.</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.893</td>
<td>1</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Sex: 0—female  
1—male  
Mobility: 0—non-mobile workers.  
1—mobile workers.

Source: Calculated by author from survey data.
cent of all workers with non-agricultural employment. The most common pattern is that for men to leave agriculture to find higher paid non-agricultural job and to help with agriculture in their spare time. Women remain in agriculture and constitute the major labor force for crop cultivation and crop management.

Educational level is also positively related to mobility (R=0.1454). Statistically, people who leave agriculture are more educated than the people staying (Table 7-10). Very few people who work solely in agriculture have any education beyond junior high school; in my survey, many of these people did not even finish an elementary education. In contrast, most people working in non-agricultural sectors report having more than a junior high school education.

Further analysis suggests, however, the results related to education should be interpreted with caution. Education may not be that significantly correlated with mobility as it seems. Table 7-11 shows that age and education are highly correlated. Young people who are more mobile are also more likely to have received more education. The R values in the logistic model indicates that age (R=-0.2478) is more important than education (R=0.1454) in determining mobility.

Since the late 1970s, access to education in China has been improving. In 1978, the Chinese government promulgated
Table 7-10. Mobility by Education

<table>
<thead>
<tr>
<th>Education Level</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobility 0</td>
<td>10</td>
<td>109</td>
<td>72</td>
<td>2</td>
<td></td>
<td>193</td>
</tr>
<tr>
<td>Mobility 1</td>
<td>4</td>
<td>54</td>
<td>74</td>
<td>30</td>
<td>6</td>
<td>168</td>
</tr>
<tr>
<td>Column</td>
<td>14</td>
<td>163</td>
<td>146</td>
<td>32</td>
<td>6</td>
<td>361</td>
</tr>
<tr>
<td>Total</td>
<td>3.9</td>
<td>45.2</td>
<td>40.4</td>
<td>8.9</td>
<td>1.7</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Chi-square: 50.166
D.F.: 4
Significance: 0.0000

Education: 0—no education
1—elementary
2—junior high
3—middle school
4—college

Mobility: 0—Non-mobile workers
1—mobile workers

Source: Calculated by author from survey data
Table 7-11. Education by Classified Age

<table>
<thead>
<tr>
<th>Classified Age</th>
<th>1.0</th>
<th>2.0</th>
<th>3.0</th>
<th>Row Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>.0</td>
<td>2</td>
<td>3</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>1.0</td>
<td>70</td>
<td>69</td>
<td>24</td>
<td>163</td>
</tr>
<tr>
<td>2.0</td>
<td>86</td>
<td>58</td>
<td>2</td>
<td>146</td>
</tr>
<tr>
<td>3.0</td>
<td>25</td>
<td>7</td>
<td></td>
<td>32</td>
</tr>
<tr>
<td>4.0</td>
<td>4</td>
<td>2</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education</th>
<th>Column</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>187</td>
<td>139</td>
</tr>
<tr>
<td></td>
<td>51.8</td>
<td>38.5</td>
</tr>
</tbody>
</table>

Chi-square: 77.713  D.F: 8  Significance: 0.0000

Classified Age: 1—0 to 35;  
2—36 to 50;  
3—51 and over

Education: 0—no education  
1—elementary

Source: Calculated by author from survey data
the regulation that children are required to finish nine years of compulsory no-cost education. Since this time, children have been encouraged to stay in school until they finished their junior high school education. Educational differences between different age groups can be easily identified in the sample (Table 7-11). The proportion (61.5%) of people under 35 who finished junior high school or beyond this level is considerably and significantly higher than that of people between 36 to 50 (39.7). No persons over 50 received any formal education beyond the junior high level. Most people who left agriculture for better opportunities are young people, and so mobile laborers tend to be more educated.

Currently the requirement for higher education levels for non-agricultural laborers is not, in reality, seen as an urgent issue. Almost all of the rural industries are labor-intensive. Intermediate technology and second-hand equipment from state-owned companies are widely used. Job training programs are developed for each individual business. I was told by several owners of rural industries that the procedure designed for the hiring of workers are based on skill and experience, not on knowledge. The peasant entrepreneurs believe that the workers' skills and familiarity with the type of work they will do are, at present, more important than their level of education.
Almost every business hires one or more engineers to prepare and supervise the workers. Renovation is one of the priorities for some businessmen eying the future. Instead of installing advanced equipment, most managers of collectively-run firm or entrepreneurs are more likely try and improve their productivity and product quality based on presently available equipment. In some other cases, technological assistance is imported from large cities. Some professionals experienced in applied technology research who are living and working in large cities are now allowed to help rural industries in their spare time, and by doing so make significant amount of extra income.

It is generally agreed that agriculture needs more laborers during busy seasons due to the bottle-neck characteristics of crop production. Young and educated men are considered to be the best agricultural workers. Litu bu lixiang allows these people to leave their land and find better employment in non-agricultural sectors, while at the same time it encourages them to remain living in their local villages and towns. In this case, they are still available to provide help at the busiest times: planting and harvest. Some rural businesses even give their workers a vacation during the harvest and plowing seasons when the most labor is needed for crop production.

Three variables are not significant in the model: the land contracted by the household, the absolute family size,
and the total number of workers in the household. The reason for the insignificance of those variables probably is that the land was allocated to the household based on the number of people in the household. The family size and the amount of contracted land are proportional. It is certainly true that larger households tend to have more laborers. The laborers, no matter what size of households they come from, have the same access to land. Because of this, these three variables are irrelevant to mobility. This is probably one of the reasons that the family planning program in China faces more difficulties in the rural areas than in the urban areas.

The *litu bu lixiang* policy should ensure the continuing development of agriculture by retaining high quality rural labors in rural areas. The results of my survey suggest that most families in the survey increased their agricultural income from 1984 to 1990. The implementation of the household responsibility system changed the production characteristics of China's agricultural system. Since 1978, every household is permitted to contract some parcels of land in proportion to their family size. The concentration of arable land accumulation did not, and will probably not, take place in China's rural areas as has happened over time in Western countries. Results of my interviews suggest that the traditional conservatism of the peasants has constrained
them from giving up their contracted farm land, which many consider to be, essentially, their "private property". With small and scattered parcels of land which are contracted and shared equally among different households, the mechanization, specialization, and commercialization of farm production has yet to be achieved.

Labor productivity can not be improved in this situation of continuing labor-intensive production, but unit land productivity can be maintained or increased. Given that there is such a large population to be fed by such a limited amount of land in China, the latter is more important. Although some people may not make a living from agriculture at present time, their temporary work in agriculture and the investment of their off-farm wages can still contribute to the further development of agricultural production and modernization.

7.6. Economic Returns of Litu Bu Lixiang People and Litu Ye Lixiang People

My third formal hypothesis is that while certainly there are other factors which influence the decision to migrate, the potential for economic gain is the major reason for mobility. If economic returns for the people participating in the litu bu lixiang program who are engaged in non-agricultural activities in rural areas are not different from the incomes of the workers who moved to
urban areas, people will be less inclined to migrate to cities and will remain in local areas.

To evaluate the third hypothesis, the people in the sample who actually did leave agriculture and find off-farm employment were divided into two groups. One group consists of the people who left the land but not the countryside (litu bu lixiang people), the other group are the people who not only left the land, but also left the countryside and have moved to medium and large cities (litu ve lixiang people). The number of people in the first group (117 or 69.6%) is much greater in number than those people in the second group (51, or 30.4 percent). The means of the total income are 2596 yuan/year and 2618 yuan/year respectively for the rural off-farm group of workers and the urban group of workers who migrated from their villages. Though the absolute total income mean for the urban group is slightly higher, the t value (0.05) is not larger than the critical value of 1.96 (confidence level=95%, df=166, two tailed test). In short, this suggests that there is no statistically significant difference between the two groups regarding to their income.

The people of litu bu lixiang can earn almost the same income as the people of litu ve lixiang. This indicates that the program is meeting one of its stated goals— to raise the income of rural non-agricultural labor to a level approaching that of urban industrial workers. It is also
clear that if rural workers wish to increase their incomes, they must have opportunities to leave agriculture (litu) and have access to rural off-farm employment. It is not necessary to migrate from rural areas (lixiang) if such opportunities are provided.

These results are at once interesting and important. It seems certain, at least for the farm families in my sample, that the litu bu lixiang program can be effective in limiting migration while simultaneously improving incomes. The more detailed evaluation of the program made possible by my field interviews also suggests reasons why the program should be encouraged. While it seems clear that the gross incomes of those who migrate to urban areas and those who find off-farm employment through the litu bu lixiang program are similar, those who migrate to urban areas certainly have higher living costs. Off-farm workers remaining in rural areas need not buy their own food, they need not pay rent, and they have lower transportation costs (if those in rural areas can be considered to have any at all). In addition, there are other non-pecuniary costs which must be considered.

The hardships for rural migrants living in cities are enormous in a urban-biased society like China. The urban residents are guaranteed by the government many privileges including a supply of a commodity grain and other subsidized urban rations, housing, education for their
children, and free health care. Rural migrants, though living in the cities, still maintain a rural residence document (hukou) and while working in an urban area, they are still classified as rural people (nongcun renkou). As such, these migrants are excluded from these subsidization programs. Finding a job is the most difficult task for them due to a large pool of unemployed urban people who have priority over rural people when jobs are assigned by state industries or services. Most of the workers who do migrate to cities are engaged in construction, clothing production, or other small services which are often private, unregulated, and non-government businesses. The competitive environment for them to start their own business is also normally less conducive because they sometimes have to pay higher taxes, are not familiar with the processes of licensing, and lack important contacts in the production and marketing process.

Psychic costs should also be taken into account. The temporary workers who migrate for work in the cities commonly leave their spouse and children at home. They also have to adjust to urban life which is very different from rural life. Cities admittedly offer more and better facilities than rural areas regarding cultural and entertainment establishments, but the migrants in my sample who moved to urban areas told me that they have neither the means nor inclination to spend much time or money in bars,
restaurants, museums, or movie theaters. They generally report that they want to save as much money as they can to send back to their families. The pressure to save money for the future means that daily life for these migrants is often hard and dreary. This simple, but harsh, fact is often overlooked in quantitative evaluations of migration.

7.7. Locational Differences in the Implementation of Litu bu Lixiang Program

The fourth formal hypothesis is that the adoption and accomplishments of the litu bu lixiang program vary by location due to: local differences in government responses to this program, in rural industrialization levels, and in off-farm employment opportunities.

To prove his hypothesis, township (xiang) level data are used. A factor analysis is again used to identify the spatial differences among the townships and between the two counties in the sample. In total, 11 variables are used in this factor analysis. They are: county affiliation (county), arable land (culland), total rural population (rupop), total workers (totla), total income (totinc), total agricultural income (aginc), sideline income (fuyein), rural industrial income (indinc), income from construction sector (constin), income from service sector (servinc), and per capita net income (pni). County affiliation is coded 0 and 1. It is used to identify the
differences in policy implementation between the two counties.

The zero-order correlation table (Table 7-12) shows that the dummy variable, county, is positively correlated with total income (.4858), rural industry income (.5278), and negatively correlated with construction income (-0.5945). The townships (xiang) in Li county are more likely to have higher total income and higher incomes from rural industry, but lower income from construction. In contrast, townships in Dingxing county tend to have lower total incomes, lower income rural industry, and higher construction income. Figure 7-5 and Figure 7-6 show the differences of the two counties regarding their total income. In Dingxing County, 14 of the 26 townships report gross township incomes below 20 million yuan and no townships have income greater than 40 million yuan. In contrast, in Li County, only 5 townships of 21 have incomes under 20 million yuan and 8 townships (more than one third) have incomes over 40 million yuan. More strikingly, in four townships, incomes exceed 80 million yuan. Those four neighboring townships of Baichi, Liushi, Xinxing, and Zhengcun are considered as pioneers in developing non-agricultural activities with the strong support of officials in the local and central government.

The maps of per capita incomes of the townships (Figures 7-7 and 7-8) show the the same kind of distinction
### Table 7-12. Zero Order Correlation, Xiang Data

<table>
<thead>
<tr>
<th>Correlations:</th>
<th>COUNTY</th>
<th>CULLAND</th>
<th>RUPOP</th>
<th>TOTLA</th>
<th>TOTINC</th>
<th>AGINC</th>
<th>FUYEIN</th>
<th>INDINC</th>
<th>CONSTIN</th>
<th>SERVINC</th>
<th>PNI</th>
</tr>
</thead>
<tbody>
<tr>
<td>COUNTY</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CULLAND</td>
<td>.2942</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RUPOP</td>
<td>.1417</td>
<td>.8219**</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTLA</td>
<td>.1388</td>
<td>.7132**</td>
<td>.8894**</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTINC</td>
<td>.4858**</td>
<td>.5206**</td>
<td>.5503**</td>
<td>.5154**</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGINC</td>
<td>-0.0924</td>
<td>.5966**</td>
<td>.7299**</td>
<td>.6404**</td>
<td>.3913*</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FUYEIN</td>
<td>-0.0144</td>
<td>.0159</td>
<td>.2155</td>
<td>.1014</td>
<td>.2121</td>
<td>.6059**</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INDINC</td>
<td>.5278**</td>
<td>.4254*</td>
<td>.3688*</td>
<td>.3713*</td>
<td>.9383**</td>
<td>.0955</td>
<td>-.0656</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONSTIN</td>
<td>-.5945**</td>
<td>-.0223</td>
<td>-.2122</td>
<td>-.2290</td>
<td>-.1351</td>
<td>.2521</td>
<td>-.0134</td>
<td>-.2461</td>
<td>1.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SERVINC</td>
<td>-.2077</td>
<td>.0973</td>
<td>.2545</td>
<td>.2044</td>
<td>.0856</td>
<td>.2217</td>
<td>-.0080</td>
<td>-.0222</td>
<td>.4092*</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td>PNI</td>
<td>.1673</td>
<td>.2744</td>
<td>.3411**</td>
<td>.3325</td>
<td>.8260**</td>
<td>.3500*</td>
<td>.1876</td>
<td>.7807**</td>
<td>.1129</td>
<td>.1035</td>
<td>1.0000</td>
</tr>
</tbody>
</table>

**COUNTY**—County association of the townships. The townships in Dingxing County are coded as 0, and the townships of Li County are coded as 1.

**CULLAND**—Total arable land for the townships.

**RUPOP**—Total rural population for the townships.

**TOTLA**—Total labor of the townships.

**TOTINC**—Total income for the townships.

**AGINC**—Total agricultural income for the townships.

**FUYEIN**—Sideline income for the townships.

**INDINC**—Total rural industrial income for the townships.

**CONSTIN**—Income from construction for the townships.

**SERVINC**—Income from service sector for the townships.

**PNI**—Per capita net income.

*Source: Calculated by author from survey data.*
Figure 7-5. Total Income of Townships in 1991, Dingxing County

Source: Dinxing Statistical Bureau, 1992
Figure 7-6. Total Income of Townships in 1991, Li County

Source: Li County Statistical Bureau, 1992
Figure 7-7. Per Capita Income in 1991, Dingxing County

Source: Dingxing County Statistical Bureau, 1992
Source: Li County Statistical Bureau, 1992

Legend
- 0 to 1500 yuan
- 1500 to 2500 yuan
- 2500 to 3500 yuan
- over 3500 yuan

Figure 7-8. Per Capita Income in 1991, Li County
between the two counties. While only two townships in
Dingxing County have per capita income over 1500 yuan, 11
(over 50%) townships in Li County have per capita income
over 1500 yuan. Five townships, including the four
townships with the highest total incomes, have per capita
income over 3500 yuan.

Other differences between the two counties can be
identified in terms of their incomes from rural industry
and from construction. Those differences reflect the
differing response of the local governments of these two
counties and the individual workers. The rural industrial
incomes for all the townships in Dingxing is under 10
million yuan (Figure 7-9) while the rural industry incomes
for most of the townships of Li county exceeds 10 million
yuan (Figure 7-10). Five townships, including the four
discussed earlier, recorded the highest total income in Li
county, and have rural industrial income over 40 million.
While the emphasis in Li county has been to absorb surplus
rural laborers and develop rural areas through rural
industry, many rural workers in Dingxing county seek off-
farm opportunities by joining local construction firms
which usually find construction work for them in cities.
This suggests that the transformation of the surplus
laborers in Dingxing County is a more spontaneous process.
Compared to Li county which has only three townships with
reported income from construction of over 800,000 yuan, 21
Figure 7-9. Rural Industrial Income of Townships in 1991, Dingxing County
Source: Li County Statistical Bureau, 1992

Figure 7-10. Rural Industrial Income of Townships in 1991, Li County
of 26 townships in Dingxing have income from construction greater than 800,000 yuan (Figure 7-11 and 7-12).

The maps of agricultural income (Figure 7-13 and Figure 7-14) clearly indicate that there is virtually no difference regarding township agricultural income, hence income differences among the townships between the two counties are the result of productivity differences in the non-agricultural sectors.

As was the case with the household data, the township data were evaluated by means of factor analysis. The initial statistics for the factor analysis (Table 7-13) show that four factors have eigen values greater than 1 and these are extracted for analysis. These four factors explain 86 percent of the total variation among the townships. The rotated factor matrices (Table 7-14 and Table 7-15) display the loadings and correlations of those four factors with the variables. Again, the factor analysis results in similar types of, in this case, townships rather than households.

1. The "traditional agricultural" factor. Factor 1 is highly correlated with rural population (0.918), cultivated land (0.905), total labor (0.878), and agricultural income (0.661). As in the household analysis, this first factor can be defined as the "traditional agricultural" factor. Agricultural income remains as a very important economic source for those townships that have high factor scores on
Figure 7-11. Income from Construction for the Townships in 1991, Dingxing County

Source: Dingxing County Statistical Bureau, 1992
Figure 7-12. Income from Construction for the Townships in 1991, Li County
Figure 7-13. Agricultural Income of Townships in 1991, Dingxing County

Source: Dingxing County Statistical Bureau, 1992
Figure 7-14. Agricultural Income of Townships in 1991, Li County

Source: Li County Statistical Bureau, 1992
Table 7-13. Initial Statistics for Factor Analysis of Xiang-Level Data

<table>
<thead>
<tr>
<th>Variable</th>
<th>Communality</th>
<th>Factor</th>
<th>Eigenvalue</th>
<th>Pct of Var</th>
<th>Cum Pct</th>
</tr>
</thead>
<tbody>
<tr>
<td>COUNTY</td>
<td>1.00000</td>
<td>*1</td>
<td>4.52262</td>
<td>41.1</td>
<td>41.1</td>
</tr>
<tr>
<td>CULLAND</td>
<td>1.00000</td>
<td>*2</td>
<td>2.39660</td>
<td>21.8</td>
<td>62.9</td>
</tr>
<tr>
<td>RUPOP</td>
<td>1.00000</td>
<td>*3</td>
<td>1.29776</td>
<td>11.8</td>
<td>74.7</td>
</tr>
<tr>
<td>TOTLA</td>
<td>1.00000</td>
<td>*4</td>
<td>1.24039</td>
<td>11.3</td>
<td>86.0</td>
</tr>
<tr>
<td>TOTINC</td>
<td>1.00000</td>
<td>*5</td>
<td>.69868</td>
<td>6.4</td>
<td>92.3</td>
</tr>
<tr>
<td>AGINC</td>
<td>1.00000</td>
<td>*6</td>
<td>.33357</td>
<td>3.0</td>
<td>95.4</td>
</tr>
<tr>
<td>FUYEIN</td>
<td>1.00000</td>
<td>*7</td>
<td>.24201</td>
<td>2.2</td>
<td>97.6</td>
</tr>
<tr>
<td>INDINC</td>
<td>1.00000</td>
<td>*8</td>
<td>.14040</td>
<td>1.3</td>
<td>98.8</td>
</tr>
<tr>
<td>CONSTIN</td>
<td>1.00000</td>
<td>*9</td>
<td>.07196</td>
<td>.7</td>
<td>99.5</td>
</tr>
<tr>
<td>SERVINC</td>
<td>1.00000</td>
<td>*10</td>
<td>.05189</td>
<td>.5</td>
<td>100.0</td>
</tr>
<tr>
<td>PNI</td>
<td>1.00000</td>
<td>*11</td>
<td>.00412</td>
<td>.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

COUNTY--County association of the townships. The townships in Dingxing County are coded as 0, and the townships of Li County are coded as 1.
CULLAND--Total arable land for the townships.
RUPOP--Total rural population for the townships.
TOTLA--Total labor of the townships.
TOTINC--Total income for the townships.
AGINC--Total agricultural income for the townships.
FUYEIN--Sideline income for the townships.
INDINC--Total rural industrial income for the townships.
CONSTIN--Income from construction for the townships.
SERVINC--Income from service sector for the townships.
PNI--Per capita net income.

Source: Calculated by author from survey data.
Table 7-14. Rotated Factor Matrix of Xiang Level Data.

<table>
<thead>
<tr>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUPOP</td>
<td>.91822</td>
<td>.22037</td>
<td>.12807</td>
</tr>
<tr>
<td>CULLAND</td>
<td>.90450</td>
<td>.19062</td>
<td>-.11826</td>
</tr>
<tr>
<td>TOTLA</td>
<td>.87751</td>
<td>.23155</td>
<td>.17331</td>
</tr>
<tr>
<td>AGINC</td>
<td>.66117</td>
<td>.10842</td>
<td>.21187</td>
</tr>
<tr>
<td>PNI</td>
<td>.09883</td>
<td>.92232</td>
<td>.15308</td>
</tr>
<tr>
<td>INDINC</td>
<td>.23358</td>
<td>.91597</td>
<td>-.23647</td>
</tr>
<tr>
<td>TOTINC</td>
<td>.37958</td>
<td>.89251</td>
<td>-.14566</td>
</tr>
<tr>
<td>CONSTIN</td>
<td>.09558</td>
<td>-.05285</td>
<td>.88752</td>
</tr>
<tr>
<td>COUNTY</td>
<td>.21876</td>
<td>.35931</td>
<td>-.74094</td>
</tr>
<tr>
<td>SERVINC</td>
<td>.22183</td>
<td>.10700</td>
<td>.66217</td>
</tr>
<tr>
<td>FUYEIN</td>
<td>.03984</td>
<td>.06466</td>
<td>-.05088</td>
</tr>
</tbody>
</table>

COUNTY—County association of the townships. The townships in Dingxing County are coded as 0, and the townships of Li County are coded as 1.
CULLAND—Total arable land for the townships.
RUPOP—Total rural population for the townships.
TOTLA—Total labor of the townships.
TOTINC—Total income for the townships.
AGINC—Total agricultural income for the townships.
FUYEIN—Sideline income for the townships.
INDINC—Total rural industrial income for the townships.
CONSTIN—Income from construction for the townships.
SERVINC—Income from service sector for the townships.
PNI—Per capita net income.

Source: Calculated by author from survey data.
Table 7-15. Rotated and Sorted Factor Matrix of Xiang Data:

<table>
<thead>
<tr>
<th>Factor</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUPOP</td>
<td>.91822</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CULLAND</td>
<td>.90450</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTLA</td>
<td>.87751</td>
<td></td>
<td></td>
<td>.65649</td>
</tr>
<tr>
<td>AGINC</td>
<td>.66117</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PNI</td>
<td></td>
<td>.92232</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INDINC</td>
<td></td>
<td>.91597</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTINC</td>
<td></td>
<td></td>
<td>.89251</td>
<td></td>
</tr>
<tr>
<td>CONSTIN</td>
<td></td>
<td></td>
<td></td>
<td>.88752</td>
</tr>
<tr>
<td>COUNTY</td>
<td></td>
<td></td>
<td></td>
<td>-.74094</td>
</tr>
<tr>
<td>SERVINC</td>
<td></td>
<td></td>
<td></td>
<td>.66217</td>
</tr>
<tr>
<td>FUYEIN</td>
<td></td>
<td></td>
<td></td>
<td>.96340</td>
</tr>
</tbody>
</table>

COUNTY—County association of the townships. The townships in Dingxing County are coded as 0, and the townships of Li County are coded as 1.
CULLAND—Total arable land for the townships.
RUPOP—Total rural population for the townships.
TOTLA—Total labor of the townships.
TOTINC—Total income for the townships.
AGINC—Total agricultural income for the townships.
FUYEIN—Sideline income for the townships.
INDINC—Total rural industrial income for the townships.
CONSTIN—Income from construction for the townships.
SERVINC—Income from service sector for the townships.
PNI—Per capita net income.

Source: Calculated by author from survey data.
this factor. Land and labor are very important factor in these townships since in most rural areas of Northern China agricultural production is still labor-intensive. The output of agriculture is directly related to the labor allocation of the township. Figure 7-15 shows that in both counties, most townships have factor scores on this factor between -1 and +1. There are no identifiable patterns regarding factor scores. Though while townships exhibit a significant difference with respect to the absolute total income, almost no difference exhibits with respect to the contribution of agriculture to income. Three townships, including one of the most industrialized townships, have high positive scores (greater than +1) for Li county on this factor (Figure 7-16) and four townships for Dingxing County (Figure 7-17). For these townships agriculture plays an important role in the overall economic activity. There are two townships in Li county and 6 townships in Dingxing county with high negative scores on this factor. This result suggests that in these townships, agriculture is no longer the major factor in the process of economic development. Surprisingly none of these townships are the most industrialized ones. This finding also suggests that the development of rural industry and other non-agricultural activities in the more developed townships need not come at the expense of agriculture.
Figure 7.15. F-Score Distribution for Factor 1, Township Data
Figure 7-16. F-Score Distribution for Factor 1, Li County

Source: Calculated by Author from Li County Statistical Bureau, 1992

Legend
- Smaller Than -1.0
- -1.0 to -0.5
- -0.5 to 0.5
- 0.5 to 1.0
- Greater Than 1.0
Figure 7-17. F-Score Distribution for Factor 1, Dingxing County

Source: Calculated by Author from Dingxing County Statistical Bureau
2. The "rural industrial factor". Factor 2 has high loadings on personal average net income (PNI)(0.922), rural industrial income (INDINC)(0.916), and total income (TOTINC)(0.893). This factor could be called the "rural industrial" factor. The townships that have high scores on this factor report high total income, high rural industrial income, and high average net income. Such townships probably represent the future of rural development. Such high loadings suggest that the development of rural industry seems to be the key factor in raising total income as well as average income. The factor score graph (Figure 7-18) indicates that the townships in Li County normally have high positive scores on this factor. In contrast, only one township in Dingxing county has positive value over the mean. This reflects that Li county is more industrialized than Dingxing county. Although many townships have very high factor scores in Li County (Figure 7-19), some negative scores of townships in Li county indicate that even within the same county, the adoption of certain policies and the development level are not at the same pace. The uneven development obviously cannot be explained by the geographical conditions. The differing response of township level governments and the individual to the litu bu lixiang policy might well be the reason for these results. The factor score distribution map of Li county is very similar to the rural industry map of Li County (Figure
Figure 7-18. F-Score Distribution for Factor 2, Township Data
Figure 7-19. F-Score Distribution for Factor 2, Li County

Source: Calculated by Author from Li County Statistical Bureau, 1992

Legend
- Smaller Than -1.0
- -1.0 to -0.5
- -0.5 to 0.5
- 0.5 to 1.0
- Greater Than 1.0
7-10). Compared with Li County, factor scores for the townships in Dingxing County are small (Figure 7-20).

3. The "other non-agricultural based" factor. Factor 3 is highly and positively correlated with construction income (0.888) and service income (0.662) and negatively correlated with county identification (-0.741). This factor should be seen as the "other non-agricultural based" factor. It reflects, strongly, the difference between the two counties and indicates that the construction and service sectors are much more developed in Dingxing County than in Li County (Figure 7-21). The graph shows all but one of the townships in Dingxing County have high positive factor scores on factor 3, while all but one of the townships in Li County have negative scores. It would seem that the construction and service sectors are the most contrasted sectors between the two counties. Unlike people in the Li County who have opportunities to find employment in the local rural industries, rural workers in Dingxing County have to find their own way to work in construction and service sectors, both in the cities and in the rural areas. No townships in Dingxing County have negative factor scores smaller than -0.5 while only four townships in Li county have factor scores larger than 0.5 on this factor (Figure 7-22 and Figure 7-23).

From the perspective of policy implementation, the development of rural industry is probably affected by the
Figure 7-20. F-Score Distribution for Factor 2, Dingxing County
Figure 7-21. F-Score Distribution for Factor 3, Township Data
Figure 7-22. F-Score Distribution for Factor 3, Dingxing County

Source: Calculated by Author from Dingxing County Statistical Bureau, 1992

Legend
- Smaller Than -1.0
-1.0 to -0.5
-0.5 to 0.5
0.5 to 1.0
Greater Than 1.0
Source: Calculated by Author from Li County Statistical Bureau, 1992

Legend
- Smaller Than -1.0
- -1.0 to -0.5
- -0.5 to 0.5
- 0.5 to 1.0
- Greater Than 1.0

Figure 7-23. F-Score Distribution for Factor 3, Li County
adoption of *litu bu lixiang* policy by the local government. The development of construction and services which are more individually oriented activities is probably initialized by the individuals themselves who are "pushed out" due to the shortage of land and further stimulated by those who want to seek better opportunities with receiving less local government support. This, again, may indicate that policy is a key factor in the process of surplus labor transformation.

4. The "economically diversified" factor. Factor 4 has high loadings with agricultural income (AGINC) (0.656) and sideline income (FUYEIN) (0.963). It could be interpreted as the "economically diversified" factor. For those townships that have high factor scores on this factor, although the rural households still rely on agriculture for a large part of their income, individual households develop their own cottage industrial activities at home. Naturally sideline industries vary from place to place. The sideline activities in the survey areas include: (1) making starch noodles. The peasants make starch noodles from sweet potatoes. If people sell sweet potatoes the price is very low. If they sell starch noodles they can make as five times the money. (2) Leather tanning and cleaning. Although there are some leather-processing rural industries, many leathers, especially some precious, high value, leathers, are still processed within the households. (3) Carpet
weaving. Different materials are used to make high quality carpets. Although it is time-consuming, many rural female workers focus on carpet-weaving at home. The individuals get the materials and the designs from mobile contractors. The contractors are responsible for supervising the quality. (4) Many other activities such as: butchers, carpenters, and tofu-makers are also included in this category.

Most factor scores for the townships in Dingxing County are positive while most factor scores on this factor for Li County are negative (Figure 7-24, Figure 7-25, and Figure 7-26). It, again, suggests that in less advanced counties like Dingxing, individual efforts in improving living standards are more important than that of the more advanced counties like Li county where the local government adopted the litu bu lixiang policy at a earlier time and a greater intensity.

In summary, the analysis suggests a significant difference in the incomes of non-agricultural and agricultural workers. The results also suggest that rural workers can improve their income by shifting from agriculture to non-agricultural sectors, the income difference between litu bu lixiang people and the litu ye lixiang people is not significant. That means the movement from rural areas to urban areas does not entail any further improvement of their income.
Figure 7-24. F-Score Distribution for Factor 4, Township Data
Figure 7-25. F-Score Distribution for Factor 4, Dingxing County

Legend
- Smaller Than -1.0
-1.0 to -0.5
-0.5 to 0.5
0.5 to 1.0
Greater Than 1.0

Source: Calculated by Author from Dingxing County Statistical Bureau, 1992
Figure 7-26. F-Score Distribution for Factor 4, Li County

Source: Calculated by Author from Li County Statistical Bureau, 1992
These findings indicate similar patterns at household- and township-levels. Traditional agriculture-based households and townships have the lowest income and are largely dependent on agriculture. The households with highest income are those that have family members working in rural industry. As well, townships with the highest incomes have well developed rural industries. This result also suggests, at both the household- and township-levels, that agriculture is no longer important in explaining income differences in most of the rural areas of Hebei Province.

My results also suggest that mobility is selective with respect to education, age, and gender. The findings show that young, male, and more educated people are more likely to leave agriculture and to seek non-agricultural employment.

Not only were differences, at household- and township levels, found between the two counties, differences also existed among households and townships in the same county. This may indicate different responses by the local government officials and individual households to the litu bu lixiang program.
CHAPTER EIGHT: CONCLUSIONS

The wide-ranging reforms adopted in China over the past fifteen years have dramatically altered the traditional agricultural-dominated rural areas in profound ways. The issue of how China should utilize the ever-growing supply of rural surplus labor dictates future rural development. The Chinese government has promoted the litu bu lixiang program (to leave the land, but not the countryside) to alleviate the pressure coming from this enormous supply of surplus labor.

The litu bu lixiang program can be seen as a retentionist approach. As advocated by Ugalde and many Chinese scholars (Ugalde, 1988; Cai, 1989; Gu, 1988; He, 1988), Chinese government believe that the absorption of rural surplus labor should focus on labor retention through the introduction of more productive programs, e.g. through expanding rural industry and other non-agricultural sectors in rural areas. This will improve economic conditions in the rural areas and limit rural to urban migration.

So far, this program appears to be successful. Since its implementation, many people have shifted from agriculture to non-agricultural activities. My analysis indicates that the people who leave agriculture (mobile people) have higher income than the people who still remain in agriculture. The families with people who shift from
agriculture, but remain in rural areas are better off since higher returns from non-agricultural sectors have increased family income, while not incurring the high psychic costs of separation and isolation.

My analysis also indicates that the total income of rural households is closely related to finding employment opportunities in rural industry. This means that among all non-agricultural activities, rural industry is the most important for improving economic conditions for households in rural areas at least at the present time. The analysis also suggests that while significant income differences exist among the sample households, the economic returns from agriculture are no longer important in explaining this difference. Families which completed the transition from "agricultural-based" households to "non-agricultural-based" households have the greatest chance of improving their material lives. With respect to the discrepancies among the households sampled in the two counties, the households in Li County are more likely to be industry-based households with most mobile workers employed in rural industry, while the households in Dingxing county are more likely to obtain their non-agricultural income from the construction and service sectors. This certainly reflects the reaction of local government officials and agencies to the litu bu lixiang policy. While Li county embraced this policy at an
earlier time, and in a more positive and organized way, the local government in Dingxing County did not act as quickly nor as effectively regarding the adoption of this policy. The result shows that people in Li County have a better chance to work in local rural industry while the people in Dingxing County have to be more enterprising in creating their own opportunities when seeking off-farm employment. The result of this difference is not only reflected in different commonly held occupations, but also with respect to discrepancies in the total family income and the different patterns of spatial movement. Those persons classified as mobile people in Dingxing County are more likely to leave their home (Lixiang) to find work than their peers in Li County.

Another finding of my analysis is that young, male, and more educated people are more likely to leave agriculture to pursue better opportunities. By creating non-agricultural opportunities in local areas, the litu bu lixiang program has successfully retained "high-quality" labor in rural areas where such workers can continue to contribute in agricultural production. This not only prevents the decline of agricultural production, but also ensures future economic improvements in rural areas.

For the households in my survey, seeking better economic returns was reported as the major reason for rural-urban migration. My results suggest that better
opportunities are not necessarily in the cities; people would prefer to find non-agricultural job in the local areas. The litu bu lixiang program provides the opportunity for people to obtain higher incomes in local areas without migration. Perhaps the attractiveness of cities will decrease as the program expands because moving to urban areas entails much higher costs, economically and psychologically, while not necessary resulting higher returns.

This has been the case in my study areas. Though the restrictions on rural-urban movement have been gradually lifted by the governments in recent years, most people still prefer to find non-agricultural employment in the local areas provided that such opportunities are available. As far as equal opportunities can be created in the rural areas, people will stay in the rural areas rather than move to the cities. So the litu bu lixiang approach is a sustainable approach.

The analysis of xiang level data not only shows the differences between the two counties, it also indicates that even within the same county, differences regarding the adoption of litu bu lixiang program, which is manifested by the differences of xiang incomes, can be identified. This tells us that the xiang-level government must be seen as very important in implementing this program. The findings associated with the analysis of the xiang-level data
supported the results obtained from the household survey. This implies that the adoption and success of the litu bu lixiang program depend not only on the participation of individuals, but more importantly on the tone and environment created by the local governments. The response to this program by local government generated spatial differences in income and employment characteristics among the xiang. The response of individuals to this program certainly resulted in differences in income among the households, but the adoption of the litu bu lixiang program by the local government certainly seems to be a vital precondition for the improvement of living conditions and the eventual transformation and absorption of surplus laborers. The differences between the two counties and among the 47 townships clearly show that the influence of policy implementation is more important than individual decisions.

My results clearly indicate the important role of local governments in taking the initiative in promoting a good economic environment for the growth of non-agricultural sectors, especially rural industries. For a conducive environment, creative financial opportunities, current product information, and minimal restrictions for product export and manufacture should be encouraged. Access to transportation networks is also important.
It should also be emphasized that the timing of the adoption of the litu bu lixiang program is very important. When the development of non-agricultural sectors in Li County took off, they had a more favorable environment with respect to market, loan, labor, and investment. By the time when other counties realized the problem of surplus labor and tried the same kind of programs, Li County is already in a more advanced level.

The success of litu bu lixiang program did not work by itself and the success of this program should be attributed to many related policies. Government loans, government investment, freedom to develop private businesses, and permission to move to small towns are several of the most important measures taken by the government which have helped implement the litu bu lixiang program.

As the income of the individuals and households increase, other aspects of people's lives are also changing. For example, in the past, rural people simply depended on public health clinics (gongfei viliao), which were very inadequate given the large demand. In response to the large demand, but also became of higher incomes, many well-trained doctors have now started their own private clinics in rural areas. Normally their facilities and services are much better than public clinics and the doctors are more accessible and responsible. People can afford now to visit private doctors for better treatment.
This is might be one of the reasons that the life-expectancy and overall health of rural Chinese are steadily improving.

Given that most developing countries are seeking solutions to their surplus labor problems and at least many researchers believe that rural-urban migration might not be the answer to this problem, the results of this research should be of considerable interest and importance. I perceive the litu bu lixiang program as successful not only because it limits rural-urban migration in a productive way. The strength of this program lies in proper use of rural surplus labor, which many people consider as burden of rural development. The experience with the litu bu lixiang program is especially important to Third World countries that face similar situations and who have strong central governments for enforcing the policy. Strongly involved local governments with close ties to the individuals will also be required to carry out a policy like this. Governments will need some kind of regulations to limit mass migration and, at the same time, to create non-agricultural employment in rural areas by stimulating the development of rural industries, the service sector, and other non-agricultural activities through direct investment, loans, the reduction of taxes, provision of production materials and other measures.
With respect to the process of China's further rural development and the absorption of rural surplus labor in the non-agricultural sectors in the future, several negative factors related to the litu bu lixiang program should be considered.

1. Insufficient opportunities in non-agricultural sectors.

   In many cases, non-agricultural opportunities are unavailable. This is one of the reasons why people still move to the cities or still stay in agriculture. The creation of non-agricultural employment opportunities have not fully kept in pace with the growing number of rural surplus labor.

   For the continued implementation and success of the litu bu lixiang program, the steady creation of non-agricultural employment opportunities is very important. The basic assumption of this program is founded on the assumption that the rural areas have the potential to create enough non-farm jobs for the current and ever-growing surplus of labor. It is evident that the creation of non-agricultural job needs the support of the central governments as well as of local governments by providing more rural oriented programs and more material assistance. Among all agents of change, the local officials are the most important because they are the direct policy carriers and organizers. Individual and private efforts need to be encouraged also.
2. Favorism and inequality

The adoption of litu bu lixiang program in Li County can partly attributed to the connections between the local communities and some high-rank officials in the central government. Individuals who have connections with officials in the governments of different levels and be favorably treated, as well as the governments who have connections with higher level governments can also be an advantage. "Right" connections can favor them in obtaining loans, investment, materials, and market share. They also might be allowed to pay less taxes. This favorism already had, and will continue to have negative effects on the continued success of litu bu lixiang approach. It aggravates the problems such as inequality and corruption.

My analysis indicates the variation with respect to the adoption of litu bu lixiang program has created inequality among the households, townships, and counties. Per capita income in the advanced townships in Li County is three times more than per capita income in poor townships. More assistance to the relatively poor regions from the governments of different levels might be needed to keep those regions in pace with the other regions.

3. Environmental problems in the rural areas.

China's economy is in a "mega-boom". But the environmental costs of the mega-boom could be huge. Pollution-control laws are in place, but experts say...
enforcement is lax. "I am worried with the economy developing so fast. I do not know if environmental protection can keep up", admitted Qu Geping, former head of China's environmental protection agency. Western-style environmental groups do not exist in China. But the observers say the environmental lobby within the ruling Communist Party may be much bigger than it appears. Prominent members, like paramount leader Deng Xiaoping's daughter, have shown an interest in ecological issues.

Environmental problems are more severe in the rural industries. In most cases, the technology used is not advanced. Environmental pollution can be seen everywhere. It seems that at present China's government is overwhelmingly concerned with economic problems in the rural areas. This may be short-sighted. Environmental problems are neglected. Sooner or later, government agencies at all levels will have to deal with this problem in the rural areas as rural industries thrive and increase in size and number.

4. Poor working conditions and productive efficiency.

The working conditions in many rural industries which I visited are very bad. Workers work long hours in very bad conditions. Most of the equipment used is "cast-off" from state-owned factories. Such equipment is not efficient and certainly less than optimally productive. The replacement of such equipment is not only expensive, but also threatens
current employment trends. This is something which will haunt the expansion of rural industries for a long time. In order to accommodate more workers, rural industries, to some extent, may have to sacrifice of productive efficiency. But in the long run, the absorption of rural surplus labor should not always be at the cost of underemployment.

In summary, the litu bu lixiang program certainly appears to work. Many problems will develop if new initiatives are not taken, however. The benefits of greater employment opportunities must be balanced with long term population planning and environmental safeguards in place.
REFERENCES


Liu, pin'an. 1991. Nongcun shengyu laodongli zhuyi de lilun moshi he xianshi xuanze. [Theoretical models and...


Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
## 家庭调查表

县名：________  乡名：________  村名：________

户主名：________  家庭人口数：________  承包地面积：________亩

劳动力人数（16～65岁）：________

### 表1 家庭收入调查

<table>
<thead>
<tr>
<th></th>
<th>年家庭总收入（元）</th>
<th>来自农业收入（元）</th>
<th>来自副业收入（元）</th>
<th>外包工收入（元）</th>
<th>来自服务业收入（元）</th>
<th>来自乡镇企业收入（元）</th>
<th>来自国营企业收入（元）</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979年</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984年</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991年</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
<table>
<thead>
<tr>
<th></th>
<th>拥有房间数（间）</th>
<th>电视机</th>
<th>农业机械数（台）</th>
<th>育猪羊及其他性畜数（头）</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979年</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984年</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991年</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

表 3 家庭劳动力调查

<table>
<thead>
<tr>
<th></th>
<th>从事农业劳动力数</th>
<th>从事非农业劳动力（人）</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>总数量</td>
<td>做买卖的</td>
</tr>
<tr>
<td>1979年</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984年</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991年</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
表 4 家庭支出调查

<table>
<thead>
<tr>
<th></th>
<th>建房支出（元）</th>
<th>耐用消费品（元）</th>
<th>医疗卫生（元）</th>
<th>购买农业机械（元）</th>
<th>化肥（元）</th>
<th>农药（元）</th>
<th>扇工（元）</th>
<th>农业税（元）</th>
<th>公路费（元）</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979年</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984年</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991年</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

续表 4

<table>
<thead>
<tr>
<th></th>
<th>教育支出（元）</th>
<th>计划生育费（元）</th>
<th>其他</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979年</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984年</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991年</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 表 5 家庭种植业调查

<table>
<thead>
<tr>
<th>年份</th>
<th>粮食作物面积（亩）</th>
<th>经济作物面积（亩）</th>
<th>粮食单产（斤）</th>
<th>经济作物产值（元）</th>
<th>其他</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979年</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984年</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1990年</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 续表 5

<table>
<thead>
<tr>
<th>年份</th>
<th>粮食总产量（斤）</th>
<th>粮食出售量（斤）</th>
<th>经济作物总产值（元）</th>
<th>经济作物出售量（元）</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979年</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984年</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991年</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
劳动力个人调查表

姓名：__________ 年龄：______ 性别：__________ 文化程度：__________
从事主要职业：__________ 年内从事主要职业时间（月）：__________ 种地外的技能专长：__________

从业性质（选一个打√）：1. 捕鱼 2. 个体服务 3. 长期工 4. 合同工 5. 临时工 6. 承包队 7. 带工（含保姆） 8. 其他

从业地点距离家距离__________里。

从业地点属于（选一个打√）：1. 本村 2. 本乡 3. 本县 4. 本省 5. 外省

表1 劳动力近3年内从事主要职业（打√）

<table>
<thead>
<tr>
<th></th>
<th>学历</th>
<th>建筑业</th>
<th>种植业</th>
<th>畜业</th>
<th>工业</th>
<th>服务业</th>
<th>其它</th>
</tr>
</thead>
<tbody>
<tr>
<td>79年</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>84年</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>91年</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 表 2 劳动力工作地变化表

<table>
<thead>
<tr>
<th>年份</th>
<th>本村</th>
<th>本乡</th>
<th>本县</th>
<th>本省</th>
<th>外省</th>
<th>工作地距家距离 (里)</th>
<th>每年在家居住时间 (天)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 表 3 劳动力工作地性质 (打✓)

<table>
<thead>
<tr>
<th>年份</th>
<th>大中城市</th>
<th>小城市</th>
<th>县城</th>
<th>乡镇</th>
<th>村</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 表 4 劳动力个人收入变化情况

<table>
<thead>
<tr>
<th>年份</th>
<th>农业收入 (元)</th>
<th>非农业收入 (元)</th>
<th>其它收入</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>正式职工</td>
<td>长期合同工</td>
<td>临时工</td>
</tr>
<tr>
<td>-------</td>
<td>----------</td>
<td>-----------</td>
<td>--------</td>
</tr>
<tr>
<td>1979</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
其他相关的问题 调查

如在外地做工，农忙时是否回家干农活?
在下列条件下，你是否愿意去石家庄工作（选一个打√）

1、收入不会有明显增加； 2、收入会明显增加； 3、收入基本不变，但5年后可转户口：
4、不去。

你认为看电视广告能给你自己带来好处吗?
你常看报纸、杂志吗？爱看哪些？
你爱看哪类电视节目？
如果你目前还没有完全脱离种地，是由于什么原因（打√）？

1、于其他无资金； 2、没有农业以外的技能； 3、没有关系； 4、政策不允许；
5、怕干活了； 6、舍不得离开土地。
如有机会，你是否愿意做如下事情（选择并打√）？

1、到城市去做临时工； 2、自己搞长途运输； 3、自己摆摊卖东西；
4、到乡镇企业去工作； 5、搞包工； 6、搞服务业。
English Translation of Survey Questionnaire

Household Survey Forms

County_______________ Township ____________

Village_______________

Name of Household Head _____________

No. People in Household ___________

Contracted Land_______ mu Total No. Workers (16-65)__________

Form 1. Household Income Survey

<table>
<thead>
<tr>
<th>Year</th>
<th>Total income</th>
<th>Agricul. income</th>
<th>Sideline income</th>
<th>Constru. income</th>
<th>Service income</th>
<th>Ru-indus. income</th>
<th>State-own income</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Form 2. Household Property Survey

<table>
<thead>
<tr>
<th>Year</th>
<th>No. rooms</th>
<th>No.TV, refri.</th>
<th>Sewing machi.</th>
<th>Agri. Machines</th>
<th>No.animals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Form 3. Household labor survey

<table>
<thead>
<tr>
<th>Year</th>
<th>Agricult. workers</th>
<th>Non-agricultural workers</th>
<th>Total</th>
<th>Traffic-ker</th>
<th>Rural Industry</th>
<th>Service</th>
<th>Construction</th>
<th>State-owned</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Form 4. Household expenditure survey (yuan)

<table>
<thead>
<tr>
<th>Year</th>
<th>House</th>
<th>Durable goods</th>
<th>Medical health</th>
<th>Agri. Machine</th>
<th>Fertiliser</th>
<th>Chemicals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Form 4. (Con'd) Household expenditure survey (yuan)

<table>
<thead>
<tr>
<th>Year</th>
<th>Labor helper</th>
<th>Agri. Tax</th>
<th>Road fee</th>
<th>Educa. fee</th>
<th>Popu. control</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Form 5. Household agriculture survey

<table>
<thead>
<tr>
<th>Year</th>
<th>Grain area (mu)</th>
<th>Cash crop area (mu)</th>
<th>Grain unit output (jin/mu)</th>
<th>Cash crop output (yuan)</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Form 5. (Con'd) Household agriculture survey

<table>
<thead>
<tr>
<th>Year</th>
<th>Total grain output (jin)</th>
<th>Grain sold (jin)</th>
<th>Total cash crop value (yuan)</th>
<th>Cash crop sold (yuan)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Individual Worker Survey Forms

Name________________ Age_____ Sex__________

Education (Years in School)___________

Main Occupation__________

How Long Worked in Main Occupation above During the Past Year_______

Specialties beside Agriculture______________


Distance between work and home__________

Work location (Choose one from the following): 1. Local village. 2. Local township. 3. Local county. 4. Local province. 5. Other province.
Form 1. Main occupation and occupational change in recent years

<table>
<thead>
<tr>
<th>Year</th>
<th>Trafficker</th>
<th>Construct</th>
<th>Agricul</th>
<th>Sideline</th>
<th>Industry</th>
<th>Service</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>1984</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Form 2. Work-place location of the worker

<table>
<thead>
<tr>
<th>Year</th>
<th>Local village</th>
<th>local township</th>
<th>Local county</th>
<th>Local province</th>
<th>Other province</th>
<th>Distance from home</th>
<th>Days at home</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Form 3. Characteristics of Workplace

<table>
<thead>
<tr>
<th>Year</th>
<th>Large or medium city</th>
<th>Small city</th>
<th>County seat</th>
<th>Township</th>
<th>Village</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Form 4. Individual worker income survey

<table>
<thead>
<tr>
<th>Year</th>
<th>Income from agricul.</th>
<th>Income from non-agr.</th>
<th>Other income</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Form 5. Occupational survey of non-agricultural workers

<table>
<thead>
<tr>
<th>Year</th>
<th>Worker in State-owned</th>
<th>Contracted worker</th>
<th>Temporary worker</th>
<th>Seasonal worker</th>
<th>Construct worker</th>
<th>Individual worker</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Surveys on other related issues

1. If works in other place, do you come home to help during the busy seasons?

2. Under what conditions in the following, would you move to Shijiazhuang?
   a. Income will not increase.
   b. Income will increase.
   c. Income will not change, but you have chance to become an urban resident in five years.
   d. I will not go no matter what.

3. Do you watch TV, read newspaper and magazine often, if so, do you those media are helpful?

4. If you are still rely on agriculture for your income, what are the keep you on the land?
   a. No money to invest for other activities.
   b. No other skills other than agricultural skills.
   c. No helpful personal contact.
   d. Not sure about the policy.
   e. Afraid of failure.
   f. Do not want to leave land.

5. If you have chance, do you like to do the following:
   a. Work in the cities as temporary worker.
   b. Do long-distance shipment and transportation.
   c. Set up a stand to sell things.
   d. Work in rural industry.
   e. Become a contracted construction worker.
   f. Work in services.
Chunxiao Li was born in 1960 in Beijing, China. He was raised by his grandmother in a small village called Yishang in Northern China. His parents, both teachers, taught him how to read at very young age before he went to school.

Chunxiao Li went to Hebei Normal University for his college education in 1978. He got his B.S Degree in 1982 with geography major. Then, he began his graduate study in Fall, 1982 in the Department of Geography, Hebei Normal University. His major research interests including economic development in the Third World, urban geography, and regional planning. He got his M.A Degree in 1985. In the same year, he became an instructor in the Department of Geography, Hebei Normal University. In 1988, he got funding from the Chinese government to support his research in the Department of Geography, University of Kansas for one year as a research fellow. He entered Ph.D program in January, 1990 in the Department of Geography and Anthropology, Louisiana State University. While his major research interest remained in economic geography, he devoted to rural development research in the Third World countries. He also developed his interest in incorporating GIS and quantitative methods in his research. He is expecting to get his Ph.D Degree in May, 1994.
DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: Chunxiao Li

Major Field: Geography

Title of Dissertation: Surplus Labor and Mobility in Hebei, China: An Evaluation of the Litu Bu Lixiang Approach

Approved:

[Signature]
Major Professor and Chairman

[Signature]
Dean of the Graduate School

EXAMINING COMMITTEE:

[Signatures]

Date of Examination: March 18, 1994