The Inter-Regional Migration in China

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Questions

- **Who** are moving?
- **Why** moving?
- **Where** from and where going?
- **What** impacts?
- **What** driving factors?
- **What** is past, current and future trends?
- **What** data sources?
Background

Changes in spatial distribution of population:
- 1949-1982, primarily dominated by high natural population growth and controlled by the government
- 1982-2000, featured by the increasing migration with a declining natural population growth

Shock effect:
- Rapid regional development in coast area under marketing economy since 1980 => unbalance labor market
- Deregulated household registration since 1990 => greatly enhanced labor mobility

Rapid Urbanization:
- Remarkable growth in urban cities and rural towns in China from 1980’s-2000’s.
- There were about 41,636 townships (6,152 Jiedao, 19,522 Towns and 21,499 Xiangs) in 2005, with a urban town population of 562 million and a Xiang and rural township population of 745 million.
Who They Are?

- Rural labor released from agricultural work
- People looking for a job change or relocation
- Students
- People moving to new houses
- Family union
- Retired people for new permanent places
Who They Are: Educational Attainment

- The migration with middle school and under count more than 60%
- The majority of inter-province migration have a lower education than intra-province migration

The Education of Intra and Inter-Province Migration (1995-2000)

- The migration with middle school and under count more than 60%
- The majority of inter-province migration have a lower education than intra-province migration
Who They Are: Occupation

- The migration in production and agriculture count about 56%
- More than 60% of inter-province migration are in production industry
Why They Move?

- Looking for new jobs
- Job transfer of relocation
- Study or training
- New houses
- Move with family

Motivation of Migration (Male/Female)
Data Source: 2000 China Population Census
Where to Go?
Destination by City, Town and Rural

The cities and towns attracted more than 80% of migration.
Where to Go: Centers of Attractions

Robert Bachi’s Preference Index:  

\[
I_{ij} = \frac{M_{ij}}{(P_i / P_t)[P_i/(P_t - P_i)] \sum_{i,j} M_{ij}}
\]

Data Source: China 2000 Population Census

Net Migration to Population by Province(%)
Where To & From: Inter-Province Migration
Spatial Distributions of Intra-Provence Migration

Data Source: China 2000 Population Census
The Driving Factors for Migration: An Extended Model

**Dependent variable** = Inter-provincial migration rate  
(the migration from province i to province j divided by total migration from province i)

**Independent variables**
- Distance between province i and j
- Ratio of destination to origin income
- Stock of previous migrants in destination
- Education level in origin
- Education level in destination
- Ratio of urban population share
- Ratio of destination to origin mean temperature
- Ratio of destination to origin per capita real FDI
- Ratio of destination to origin per capita real fixed asset investment
- Ratio of destination to origin manufacturing share
- Ratio of destination to origin share of population that is minority
- The impact of East and West development
The Estimates from the Extended Models

<table>
<thead>
<tr>
<th>Variables</th>
<th>85-90</th>
<th>95-00</th>
<th>00-05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past migration flows</td>
<td></td>
<td>0.5033***</td>
<td>0.5843***</td>
</tr>
<tr>
<td>Distance</td>
<td>-1.2211***</td>
<td>-0.4049***</td>
<td>-0.3678***</td>
</tr>
<tr>
<td>Dest. Income/Origin Income</td>
<td>0.3731*</td>
<td>0.9899***</td>
<td>0.1033</td>
</tr>
<tr>
<td>Education level in origin</td>
<td>-0.7721***</td>
<td>-1.39***</td>
<td>0.0443</td>
</tr>
<tr>
<td>Education level in dest.</td>
<td>2.4462***</td>
<td>3.5194***</td>
<td>-0.0749</td>
</tr>
<tr>
<td>Unemployment rate in origin</td>
<td>0.0275</td>
<td>-0.0414</td>
<td>0.7976***</td>
</tr>
<tr>
<td>Unemployment rate in dest.</td>
<td>-0.472***</td>
<td>-0.2224***</td>
<td>-0.0421***</td>
</tr>
<tr>
<td>Dest. Urban Share/Origin Urban Share</td>
<td>-0.1582</td>
<td>0.0850</td>
<td>1.0202***</td>
</tr>
<tr>
<td>Dest. Temperature/Origin Temperature</td>
<td>-0.2177**</td>
<td>0.4473***</td>
<td>0.3154***</td>
</tr>
<tr>
<td>Dest. Manufacturing Share/Origin Manufacturing Share</td>
<td>-0.6057***</td>
<td>0.6053***</td>
<td>-0.136</td>
</tr>
<tr>
<td>Dest. Minority Share/Origin Minority Share</td>
<td>-0.0822***</td>
<td>-0.0110</td>
<td>0.0138</td>
</tr>
<tr>
<td>Destination Fixed Asset Investment/Origin Fixed Asset Investment</td>
<td>-0.2445***</td>
<td>-1.4566***</td>
<td>-0.7982***</td>
</tr>
<tr>
<td>Destination FDI/Origin FDI</td>
<td>0.0277*</td>
<td>0.0046</td>
<td>0.0916***</td>
</tr>
<tr>
<td>Eastern China Destination</td>
<td>0.0958***</td>
<td>0.7757***</td>
<td>0.9654***</td>
</tr>
<tr>
<td>Western China Destination</td>
<td>0.7684***</td>
<td>0.2096***</td>
<td>0.3547***</td>
</tr>
<tr>
<td>Constant</td>
<td>5.6684***</td>
<td>3.2485***</td>
<td>7.1211***</td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.4562</td>
<td>0.691</td>
<td>0.721</td>
</tr>
<tr>
<td>Sample Size</td>
<td>765</td>
<td>790</td>
<td>790</td>
</tr>
</tbody>
</table>
Some Findings on the Major Influences on Inter-regional Migration

- Past migration flows
- Distance
- Unemployment rate in origin
- Spatial differences in urbanization
- Spatial differences in climate
- Spatial differences in construction spending and FDI
- Where destination is located (East and West)
What Impacts on Labor, Economy and Social System Structure

- Impact on population and labor force structure
  - The increasing dependency ratio in rural areas and the Western China regions
- Impact on urban-rural structure
  - The increasing urban population density
  - Redistribution of urban-rural population
  - Segregation
- Impact on social system structure and public policies
  - Household registration
  - Education
  - Medical care system
  - Retirement system
  - Employment/Unemployment system
The Trends of Migration in China (1980-2005)

• There are about 189 million people moved in recent years, the intra-province migration counts about 66% while the inter-province migration counts 34%.

• The inter-province migration keep increasing since 1980s
Changes in Urban-Rural Migration
the migration flow between cities, towns and rural region

- **Increasing**: % of migration out from cities from 17.9% in 82-87, 18.6% in 85-90, 30.9% in 90-95, and 31.4% in 95-00
- **Declining**: % of migration out from rural areas from 68% in 82-87 to 58.7% in 95-00
Changes in Inter-province Migration (85-90, 90-95, 95-00, 00-05)

- Increasing inter-province migration flows from 85 to 2005
- Stronger tendency of local concentration
- Big loser of migration: the central region
Challenges and Opportunities

- There are still a large pool of rural labor force to be relocated (By the year of 2005, the rural population is about 800 million, accounting about 57% of national population. It is estimated that about 200 million rural labor force will be looking for jobs within next several years)
- Restructuring in developed regions and relocated jobs
- The increasing dependency ratio in rural and western regions
- Discrimination toward the migration without local household registration (education, job opportunities, medical and retirement benefits)
- Preservation of culture diversity
- Pressure on environment and increasing demand for resources
Data Sources for Migration Studies

- Government Statistics
- Survey Data (rural, urban, enterprise, market)
- Census Data (population, basic units, agriculture)
- GIS Data (administrative boundaries, roads, rivers, land, elevation,....)
- Remote Sensing Data
China Census Data with GIS Maps

- The 2000 China Township Population Census Data with GIS Maps
- The 2000 China County Population Census Data with GIS maps
- The 2000 China Province Population Census Data with GIS Maps
- China 2000 Population Data with One sq km GIS Maps
- China 2004 Economic Census Data with ZIP Maps
What is Available in the Census Data

> 2,000 demographic variables in 2000 population Census data
> more than 5 millions units in 2004 economic Census data

Geographical Levels:

<table>
<thead>
<tr>
<th>Country</th>
<th>Province</th>
<th>Prefecture</th>
<th>County</th>
<th>Township</th>
<th>1 sq km Grid</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Information</td>
<td>Nationalities</td>
<td>Age Structure</td>
<td>Household Structure</td>
<td>Education</td>
<td>Fertility</td>
</tr>
</tbody>
</table>

2000 Population Census:

- General Information
- Nationalities
- Age Structure
- Household Structure
- Education
- Fertility
- Deaths
- Marriage
- Migration
- Housing Status
- Industries and Occupations

2004 Economic Census:

- Employment
- Revenue
- Industries
- Products
- Ownerships
2000 Population Census of China

- Date and Time: 0:00AM of November 1, 2000
- Residents: All permanent residents who have Chinese citizenships and have permanent living places in Mainland China.
- 2000 Census forms:
  1. Short Form
  2. Long Form
  3. Death Form (dead between 11/1/1999 and 10/31/2000)
  4. Temporary Resident Form (live in the place and left the original pace with household registration for less than 6 months)
Migration Data in 2000 Census

- Those who have a different counties or districts of birth (within or outside of the current province) than the current counties or districts
- Those who have moved from other townships to the current place within last 5 years (95, 96, 97, 98, 99, 00)
- Those who have moved from other places to current place for more than five years
- Those who don’t have the local household registration but have been living in this townships for more than 6 months
- Those who have local household registration but have left for other places for more than 6 months
- Those who have resided in this township for less than 6 months but have been away from the place of their permanent household registration for more than 6 months.
- Those who live in this township during the population census while the places of their household registration have not yet settled.
- Those who used to live in this township but are working or studying abroad during the Census and have no permanent household registration for the time being.
- Where the residents were from: Jiedao, town or townships of the same or other provinces
- Migration by age sex, and reasons for moving from other places to the current place
- The Intra or Inter-province Migration by education (No Schooling, Eliminate Illiteracy, Primary School, Junior Middle School, Senior Middle School, Specialized secondary school, Junior College, University, Graduate Student)
- The Intra or Inter-province Migration by occupation
- The intra or inter-province female migration with birth orders of 1st, 2nd and 3+ between November 1st of 1999 and October 31 of 2000.
The 2000 Census data table consists of two parts: The first part (A tables) contains data from all households that reflects the basic situation of population. The second part (L tables) contains data from the long forms which present various detailed compositions of the population.

- **Short Form**: basic information
  - General Information
  - Nationalities
  - Age
  - Education
  - Households
  - Deaths
  - Migration
  - Housing

- **Long Form** (9.5%, households selected by a random sampling program): extended information, including all short form items plus other items
  - General Information
  - Nationalities
  - Education
  - Industries and Occupations
  - Marriage
  - Fertility
  - Migration
  - Housing
Some Notes on 2000 Census

- Data in the publication do not include population not enumerated in the Census.

- Data in the publication do not include the 2.5 million servicemen of the People's Liberation Army.

- Total population as shown in this publication is 1,242.61 million, or 23.22 million less than the population figure of 1,265.83 million (including 2.5 million servicemen) released by the National Bureau of Statistics.

- The post-Census sample survey indicates an undercount of 1.81% in the 2000 Census.

- The sampling ratio for various compositions of the population may not be the same as household is used as the ultimate sampling unit.
## Urban/Rural Residence

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>Urban 城镇</td>
</tr>
<tr>
<td>110</td>
<td>City 城市</td>
</tr>
<tr>
<td>111</td>
<td>Urban with Districts (&gt;1500 persons/sq km) 设区市的市区</td>
</tr>
<tr>
<td>112</td>
<td>Urban without Districts 不设区市的市区</td>
</tr>
<tr>
<td>120</td>
<td>Town 镇</td>
</tr>
<tr>
<td>121</td>
<td>The capital town of county 县及县以上人民政府所在建制镇的镇区</td>
</tr>
<tr>
<td>122</td>
<td>Other towns 其他建制镇的镇区</td>
</tr>
<tr>
<td>200</td>
<td>Rural 乡村</td>
</tr>
<tr>
<td>210</td>
<td>Rural Townships 集镇</td>
</tr>
<tr>
<td>220</td>
<td>Villages 农村</td>
</tr>
<tr>
<td></td>
<td>Others (mines, tourist areas, development zones, etc.)</td>
</tr>
<tr>
<td></td>
<td>Urban if more than 3000 population</td>
</tr>
<tr>
<td></td>
<td>Rural if less than 3000 population</td>
</tr>
</tbody>
</table>
Historical Population Census Data with Maps

Census 1953

Census 1962

Census 1982

Census 1990

Census 2000
China Population Grid Maps (one km²)

- Elevation
- Population Density
- Migration (%)
- Aged Population (64+)
- Labor Force (16-64)
- Sex Ratio (M/F)
The 2000 Population Census Data with Township Maps
Economic Census 2004

The Number of Establishments by ZIP Codes of Zhejiang Province in 2004

The Number of Overseas Invested Enterprises of Zhenjiang in 2004

The Number of Private Owned Enterprises of Zhenjiang in 2004

The Distribution of Enterprises of Chemistry of Zhenjiang in 2004
Population, Employment and Elevation

ArcView GIS 3.2

Population Distribution

Establishment Distribution

Elevation

Attributes of /_zip_census04.shp
### Housing Facilities

<table>
<thead>
<tr>
<th>Facility</th>
<th>2 Kilometers:</th>
<th>5 Kilometers:</th>
<th>10 Kilometers:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Count</td>
<td>Percent</td>
<td>Count</td>
</tr>
<tr>
<td>Kitchen Facilities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Independent Kitchen</td>
<td>1,153</td>
<td>79.7%</td>
<td>10,533</td>
</tr>
<tr>
<td>Share Kitchen with Other Households</td>
<td>48</td>
<td>3.3%</td>
<td>404</td>
</tr>
<tr>
<td>No Kitchen</td>
<td>246</td>
<td>17.0%</td>
<td>3,082</td>
</tr>
<tr>
<td>Cooking Fuel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cook with Gas</td>
<td>188</td>
<td>13.0%</td>
<td>6,427</td>
</tr>
<tr>
<td>Cook with Electricity</td>
<td>1</td>
<td>0.1%</td>
<td>42</td>
</tr>
<tr>
<td>Cook with Coal</td>
<td>35</td>
<td>2.4%</td>
<td>691</td>
</tr>
<tr>
<td>Cook with Firewood</td>
<td>1,221</td>
<td>84.5%</td>
<td>6,804</td>
</tr>
<tr>
<td>Cook with Other Fuel</td>
<td>1</td>
<td>0.1%</td>
<td>53</td>
</tr>
<tr>
<td>Plumbing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use Tap Water</td>
<td>195</td>
<td>13.5%</td>
<td>6,818</td>
</tr>
<tr>
<td>No Tap Water</td>
<td>1,251</td>
<td>86.5%</td>
<td>7,200</td>
</tr>
<tr>
<td>Centralized Support of Hot Water</td>
<td>2</td>
<td>0.2%</td>
<td>103</td>
</tr>
<tr>
<td>Installed Own Water Heater</td>
<td>109</td>
<td>7.5%</td>
<td>4,356</td>
</tr>
<tr>
<td>Use Other Facility for Bathing</td>
<td>79</td>
<td>5.5%</td>
<td>964</td>
</tr>
<tr>
<td>No Facility for Bathing</td>
<td>1,256</td>
<td>86.8%</td>
<td>8,596</td>
</tr>
<tr>
<td>Have Own Flush Toilet</td>
<td>132</td>
<td>9.2%</td>
<td>4,753</td>
</tr>
<tr>
<td>Share Flush Toilet with Others</td>
<td>1</td>
<td>0.1%</td>
<td>59</td>
</tr>
<tr>
<td>Have Own Other Type of Toilet</td>
<td>425</td>
<td>29.4%</td>
<td>2,021</td>
</tr>
<tr>
<td>Share Other Type of Toilet with Others</td>
<td>23</td>
<td>1.6%</td>
<td>208</td>
</tr>
</tbody>
</table>
China Data Online

CHINA STATISTICS
- Monthly Statistics
- National Statistics
- Provincial Statistics
- City Statistics
- County Statistics
- Industrial Data
- Statistics on Map
- Statistical Yearbooks

CENSUS DATA
- Economic Census Data
- Industrial Census Data
- Population Census (82,90,00,05)
DONGCHENG 2000 POPULATION CENSUS DATA ASSEMBLY

1. General Information
   1-1 DongCheng Qu Family households, population and sex ratio by township
   1-2 DongCheng Qu Population by sex, household registration status and by township
   1-3 DongCheng Qu Status of registered population by sex and township
   1-4 DongCheng Qu In-Coming population from different household registration places by sex and township
   1-5 DongCheng Qu Agricultural and non-agricultural population by sex and township
   1-6 DongCheng Qu Population by sex, nationality and by township
   1-7 DongCheng Qu Population by sex, age and by township

L-7 Migration
   L-7-1 DongCheng Qu Population by current residence and place of birth (City)
   L-7-2 DongCheng Qu Population by current residence and by time of migrating to current township, town and street committee
   L-7-3 DongCheng Qu Population by current residence and type of emigration place
   L-7-4 DongCheng Qu Population by current residence and usual residence 5 years ago
   L-7-5 DongCheng Qu Population by age sex and emigration reasons
   L-7-6-1 DongCheng Qu Population by current residence, type of emigration place and education attainment (intra-township)
   L-7-6-2 DongCheng Qu Population by current residence, type of emigration place and education attainment (inter-township)
   L-7-7-1 DongCheng Qu Population by current residence, migration place and occupation (intra-township)
   L-7-7-2 DongCheng Qu Population by current residence, migration place and occupation (inter-township)
   L-7-8 DongCheng Qu Women having births during 1999 11-2000 10.31 by current residence, place of household registration and birth order
References

- Bao, Shuming, Shuanglin Lin, Changwen Zhao (Eds), 2006. China’s Economy After WTO Accession, Ashgate.