Reversing Brain Drain

CHINESE AND SOUTH KOREAN EXPERIENCE

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Brain drain: What and why

Brain or human capital flight is the emigration of skilled and professional personnel from developing countries to advanced industrial nations (Miyagiwa, 1991)

Pros:
- Remittances
- Return migration with additional skills acquired abroad
- Creation of scientific and business networks

Cons:
- Loss of skills for the source country (In 2000, 53% of scientists in Silicon Valley were foreign born)
- Wasted investment in education
- Loss of tax revenues
- Loss of critical services in the health and education sectors

Returnees model vs Diaspora model
High and low skill emigration to OECD

<table>
<thead>
<tr>
<th>High-skilled</th>
<th>Low-skilled</th>
</tr>
</thead>
<tbody>
<tr>
<td>India: 5.4</td>
<td>China: 2.0</td>
</tr>
<tr>
<td>Philippines: 4.9</td>
<td>Vietnam: 2.0</td>
</tr>
<tr>
<td>China: 3.9</td>
<td>India: 1.6</td>
</tr>
<tr>
<td>Vietnam: 1.9</td>
<td>Philippines: 1.1</td>
</tr>
<tr>
<td>Hong Kong: 1.4</td>
<td>Pakistan: 0.9</td>
</tr>
<tr>
<td>Pakistan: 1.1</td>
<td>Hong Kong: 0.5</td>
</tr>
<tr>
<td>Malaysia: 0.6</td>
<td>Bangladesh: 0.4</td>
</tr>
<tr>
<td>Indonesia: 0.5</td>
<td>Laos: 0.4</td>
</tr>
<tr>
<td>Sri Lanka: 0.5</td>
<td>Cambodia: 0.4</td>
</tr>
</tbody>
</table>

Share of High- and Low-skilled Foreign-born Living in the OECD, by non-OECD Country of Birth
South Korea

- **1950 and 60s**
  - The country was poor, the economy was dependent on labour intensive industries
  - Severe brain drain problem
  - High non-return rates for engineers (87%), natural scientists (97%), and social scientists (91%)
  - More Korean scientists and engineers with masters/doctorates in US (869) than in Korea (79)
  - Why Koreans stayed abroad: Difference in economic conditions between US and Korea, more professional opportunities abroad

- **1970s and 1980s**
  - In late 1960s the industrial policy changed; focus shifted to heavy and chemical industries
  - Korean Institute of Science Technology established in 1966
  - Large business conglomerates like Daewoo and Hyundae led the investments in R&D
  - The economy’s rate of growth and standard of living improved drastically
South Korea – Policies adopted

- **1970s & 80s: Building domestic R&D capacity in public and private sector**
  - Establishment of government-funded research centers (KIST, KAIST, Daeduk Science Town, Seoul Science Park)
  - Financial support to returnees: moving expenses, strings-attached financial aid
  - As rate of returnees increased but the best talent continued to stay abroad, policies were adjusted in 1980s

- **1990s onwards: Shift in policy to attracting best talent**
  - ‘Brain Pool’ program: Financial support for short-term hires by local universities
  - Research Centers to provide positions for returnees instead of corporate research opportunities
  - Post-doctoral positions for returnees
  - Organizations and networking within Korean diaspora abroad
South Korea – Evaluating the success

<table>
<thead>
<tr>
<th>PhD Year</th>
<th>Number of Respondents</th>
<th>Stay in the USA</th>
<th>Return to Korea just after PhD</th>
<th>Return to Korea after Work in the USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before 1970</td>
<td>118</td>
<td>83.9%</td>
<td>3.4%</td>
<td>12.7%</td>
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<tr>
<td>1970–79</td>
<td>276</td>
<td>67.8%</td>
<td>10.1%</td>
<td>22.1%</td>
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<tr>
<td>1980–87</td>
<td>396</td>
<td>31.6%</td>
<td>39.4%</td>
<td>29.1%</td>
</tr>
<tr>
<td>Total</td>
<td>790</td>
<td>411</td>
<td>188</td>
<td>191</td>
</tr>
</tbody>
</table>

Five Year Stay Rate

- 2001: 22%
- 2003: 36%
- 2005: 44%
- 2007: 42%
- 2009: 42%
- 2011: 42%
China

- After demonstrations and political protests in late 1980s, China cracked down on student movement abroad
- When the students returning remained very low (average 13% in 1990s), government was forced to reconsider its policy
- China’s entry into WTO increased the demand for foreign returnees
- Political system and economic development levels still make it difficult to attract returnees

![Number of returned students, 1978-2004](source: China Statistical Yearbook, 2004 (Beijing), p. 781.)
### China – Orientation and policies

<table>
<thead>
<tr>
<th>Early 1990s</th>
<th>Late 1990s</th>
<th>2000s</th>
</tr>
</thead>
<tbody>
<tr>
<td>✤ Creating flexible work conditions for returnees by changing regulations</td>
<td>✤ More investments in Chinese universities to attract foreign talent ~ 985 Plan</td>
<td>✤ Encouraging the diaspora or ‘brain circulation’ model</td>
</tr>
<tr>
<td>✤ Encouraging “serve from abroad”, short visits to China</td>
<td></td>
<td>✤ Continued investments in universities</td>
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</tbody>
</table>

**Specific policies**
- ✤ Mobilizing official resources overseas and in China ~ for networking and recruitment
- ✤ Financial policies ~ greater support for students and scholars if they return
- ✤ Making the return easy ~ organizations to find jobs, residency and visa requirements simplified
- ✤ “Serve the Country” visits
- ✤ Local government policies ~ SEZs, rent discounts, active networking
China – Evaluating the success

- The number of returnees has increased
- The returnees are of better “quality” – skills, knowledge and academic abilities, have more global knowledge and wider personal networks
- Technology transfer – particularly in the private sector
- Are returnees more talented than those who stayed abroad ~ brain drain still present at the high end
- Tensions between local talent and returnees

Interviews with scientists reveal the main reasons for return:

- China’s rapid economic development 58%
- Good government policy 47%
- Good opportunity to develop new technology in China 42%
- Hard to find good opportunities overseas 32%
- Glass ceiling overseas for Chinese 31%
- Political stability in China 19%
# Policy lessons for other Asian countries

Can other Asian countries stem brain drain?
- Importance of wage differentials between developed and developing countries
- Transnationalism: Strong ties to home country
- Social network theory: Contextual and institutional factors for research in the home country

<table>
<thead>
<tr>
<th>Individual approaches</th>
<th>Environment for research</th>
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</thead>
<tbody>
<tr>
<td>☐ Obliging or forcing individuals to return</td>
<td></td>
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<tr>
<td>☐ Inducing return</td>
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<tr>
<td>☐ Risk that programs cover people who would have returned anyway</td>
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<tr>
<td>☐ Risk of adverse selection</td>
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<tr>
<td>☐ Strengthening the national innovation systems &amp; graduate education</td>
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<td>☐ Competitive funding systems for research and reward structures in institutions</td>
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<td>☐ Larger multipurpose grants</td>
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<tr>
<td>☐ University-Industry collaborations</td>
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</table>
Sources


**China:**


**South Korea:**

