

# Reversing Brain Drain

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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

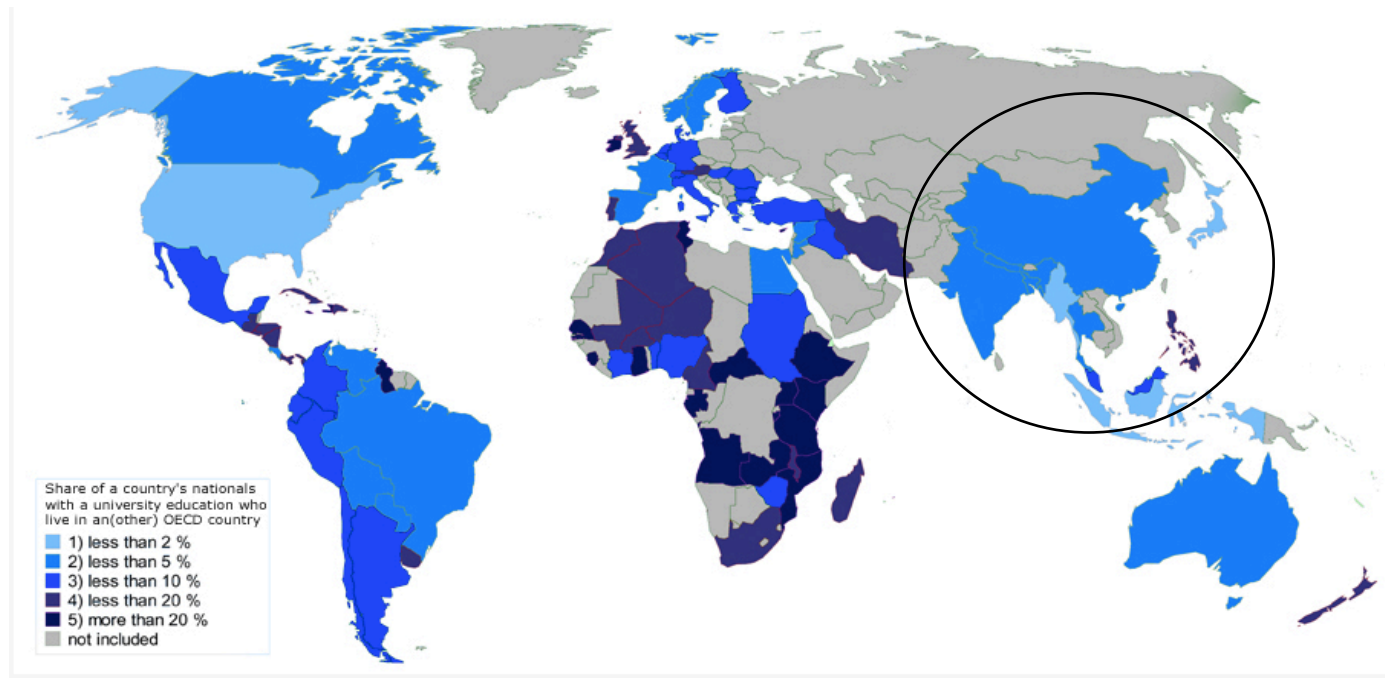
## Cons:

- ❖ 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

# Brain drain: The larger picture

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# High and low skill emigration to OECD

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## **High-skilled**

*India: 5.4*  
*Philippines: 4.9*  
*China: 3.9*  
*Vietnam: 1.9*  
*Hong Kong: 1.4*  
*Pakistan: 1.1*  
*Malaysia: 0.6*  
*Indonesia: 0.5*  
*Sri Lanka: 0.5*

## **Low-skilled**

*China: 2.0*  
*Vietnam: 2.0*  
*India: 1.6*  
*Philippines: 1.1*  
*Pakistan: 0.9*  
*Hong Kong: 0.5*  
*Bangladesh: 0.4*  
*Laos: 0.4*  
*Cambodia: 0.4*

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

# South Korea

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- 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 Hyundai led the investments in R&D
  - ❖ The economy's rate of growth and standard of living improved drastically

# South Korea – Policies adopted

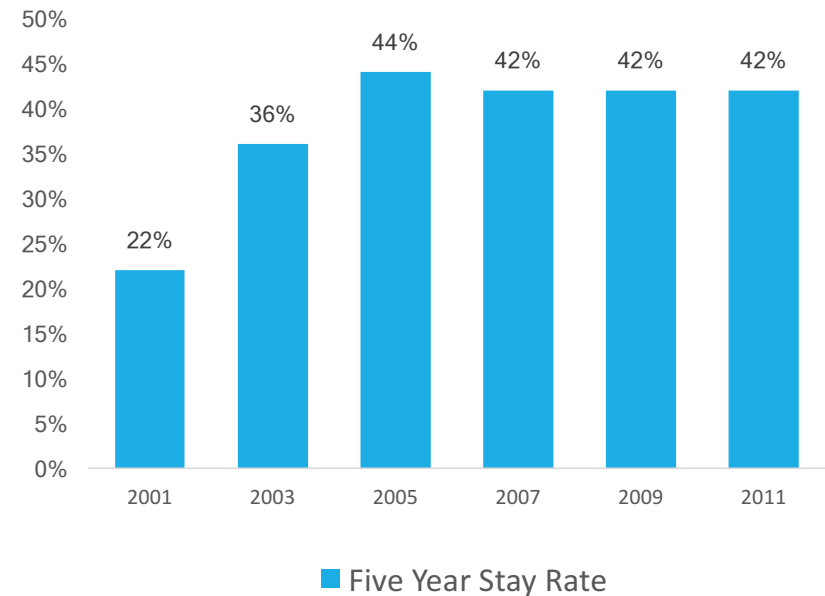
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- 1970s & 80s: Building domestic R&D capacity in public and private sector
  - ❖ Establishment of government-funded research centers (KIST, KAIST, Daeduk Science Town, Seoul Science Park)
  - ❖ Financial support to returnees: moving expenses, strings-attached 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

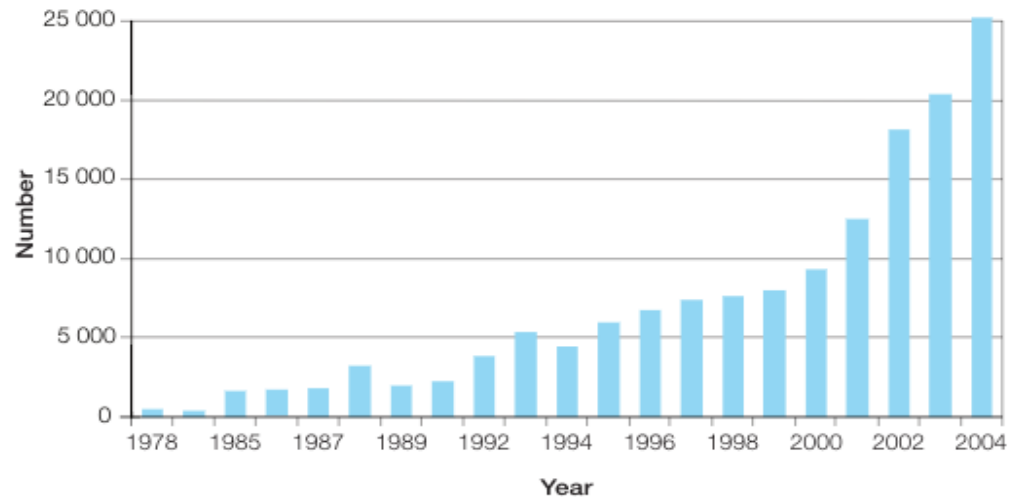
<i>PhD Year</i>	<i>Number of Respondents</i>	<i>Stay in the USA</i>	<i>Return to Korea just after PhD</i>	<i>Return to Korea after Work in the USA</i>
Before 1970	118	83.9%	3.4%	12.7%
1970–79	276	67.8%	10.1%	22.1%
1980–87	396	31.6%	39.4%	29.1%
Total	790	411	188	191



# 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

## Early 1990s

- ❖ Creating flexible work conditions for returnees by changing regulations
- ❖ Encouraging “serve from abroad”, short visits to China

## Late 1990s

- ❖ More investments in Chinese universities to attract foreign talent ~ 985 Plan

## 2000s

- ❖ Encouraging the diaspora or ‘brain circulation’ model
- ❖ Continued investments in universities

## 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

### Individual approaches

- ❖ Obliging or forcing individuals to return
- ❖ Inducing return
- ❖ Risk that programs cover people who would have returned anyway
- ❖ Risk of adverse selection

### Environment for research

- ❖ Strengthening the national innovation systems & graduate education
- ❖ Competitive funding systems for research and reward structures in institutions
- ❖ Larger multipurpose grants
- ❖ University-Industry collaborations

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