

# Quantifying the Impact of Highly-Skilled Emigration on Developing Countries

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Discussion

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# Plan

- Hydraulic approach
  - Channels
  - Policy Implications
- Problems with the hydraulic approach
- Other approaches
- Crisis and brain drain

# Hydraulic approach

- Highly skilled workers as factor of production
- Capital Flows => capital
- Brain Drain => human capital

# Human capital formation

- First effect of highly skilled migration is depletion of human capital but ...
- As human capital flows out, more human capital is `produced' domestically
- This effect is stronger for countries with
  - Low initial level of human capital
  - Low skilled migration rate
- *Widow of Sarepta*

# Screen selection

- *Not all the water is the same*
- Better skilled emigrants leave the country
- We do not know much at the aggregate level

# Productivity Channel

- *Beneficial rains for irrigation*
- The more distant from the frontier, the larger benefit from transfers of ideas (Schumpeterian interaction term)
- The sectors which are lagging behind benefit more

# Institutional Channel

- *Enriched rain*
- Skilled emigration lowers the cost of capital

# Drain and Flows

- Migration and Remittances
- Skilled workers remit less

# Contribution of the paper

- Excellent summary of what we know and do not know
- Calibration
- Discussion of Policy Implication

# Policy issues

- Adjusting public supply of public education
- Free riding in destination countries' foreign education programs
- Increasing the quality of domestic education
- Taxation (Bhagwati Tax)

# Limits of the Hydraulic Approach

- Ideas embodied in people
- Brain circulation
- Life cycle
- Technological progress

# Highly Skilled Emigration and Development

- Development and migration of skilled people
- Several policy measures based on this. For instance:
  - Venetian glass masters
  - Soviet nuclear scientists

# Stay Rates of Foreign Doctorate Recipients in US

Country of origin	Foreign Doctorate Recipients in 1994/95 (1)	Estimated stay rates in 1999 (2)	% of non-US Doctorate recipients intending to stay in US (avg. 1999-2001) (3)
Taiwan	2,268	42.4	57.3
India	1,995	<b>87.5</b>	88.2
South Korea	1,943	15.1	59.0
China	1,649	<b>91.1</b>	90.8
Brazil	255	21.1	36.0
Mexico	223	30.8	39.8
Chile	57	26.1	54.5
Turkey	252	43.7	55.3
Indonesia	119	16.4	...
Italy	106	37.1	62.0
Greece	276	49.1	70.0
Spain	87	34.0	62.0
Canada	430	<b>55.1</b>	64.2
Argentina	67	44.7	62.5
Colombia	66	28.5	57.5
<b>Total, all countries</b>	<b>14,189</b>	<b>53.5</b>	<b>69.1</b>

Source: Finn (2001), Table 32 from the Doctorate recipients from US universities (2005), and author's elaboration.

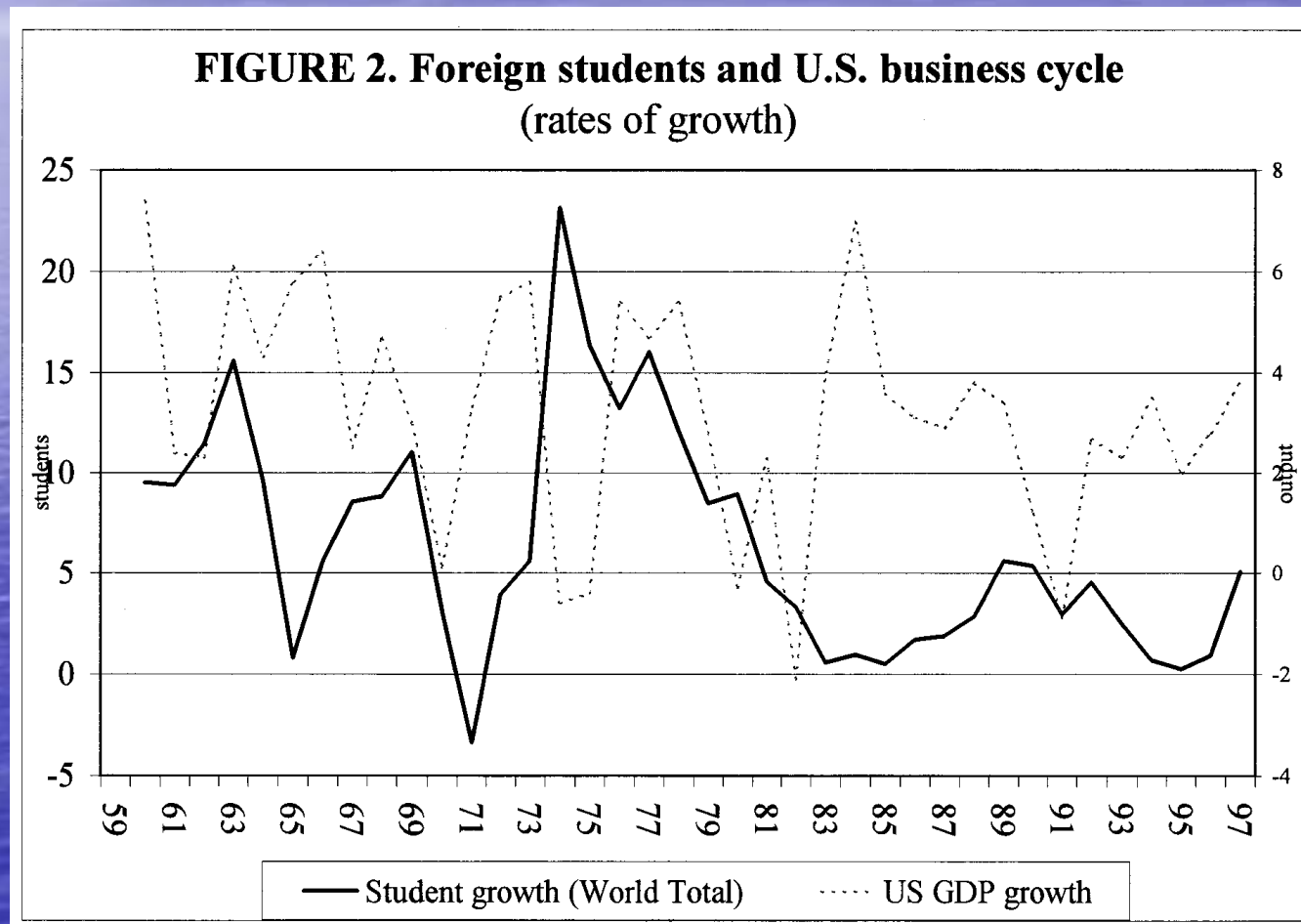
# Life Cycle

- Usually people go abroad at some critical moments
  - To get tertiary education
  - To get a job
  - When they retire

# Crisis and Brain Drain

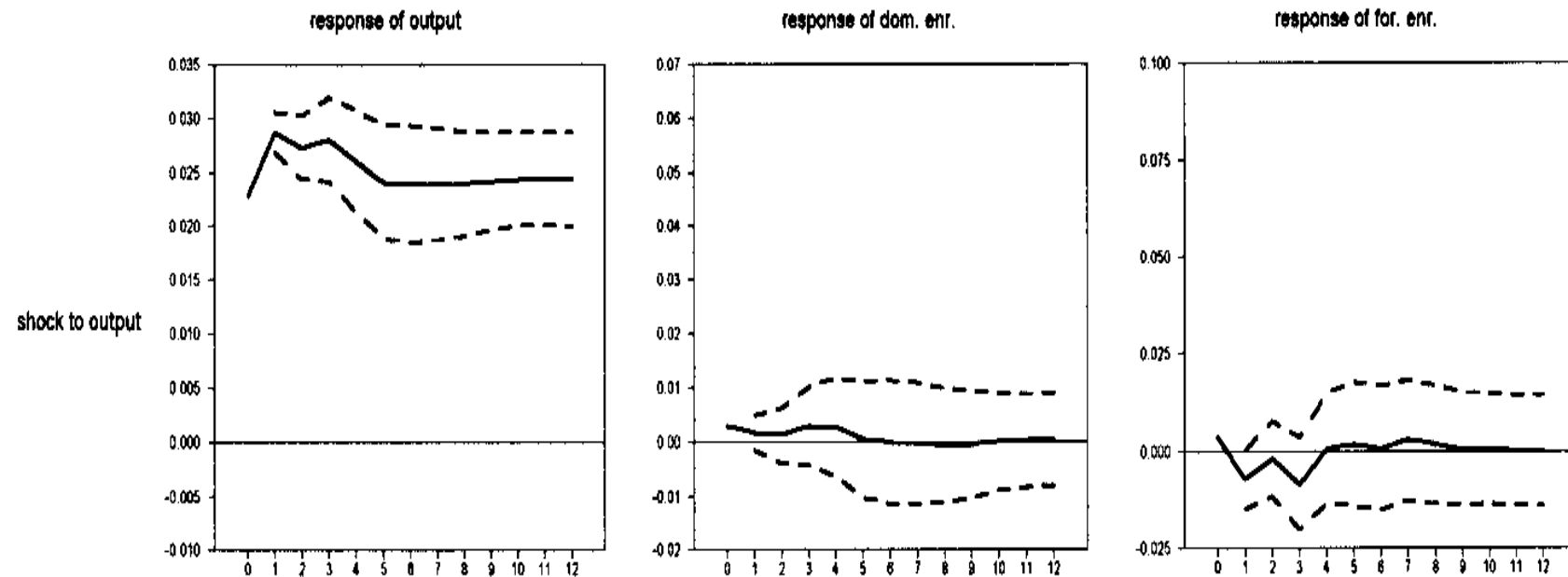
- Using students are an early warning indicator
- Two factors at play
  - Ability to pay and credit constraints
  - Opportunity cost when there is high unemployment

# Brain Drain and the crisis



# In OECD Countries

## Figure 5. Impulse Responses for OECD countries



# In nonOECD Countries

**Figure 6. Impulse Responses for non-OECD countries**

