Tigers and Dragons and…
Shagamows?

Some thoughts on India and China’s ascent in the 21st century and their implications

Deepak Sirdeshmukh
College of Management
North Carolina State University

March 16, 2006
U.S. Census Bureau

Trade with India: 1990

*NOTE: All figures are in millions of U.S. dollars.*

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td>2,486.2</td>
<td>3,196.8</td>
<td>-710.6</td>
</tr>
</tbody>
</table>

Trade with India: 2006

*NOTE: All figures are in millions of U.S. dollars.*

<table>
<thead>
<tr>
<th>Month</th>
<th>Exports</th>
<th>Imports</th>
<th>Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2006</td>
<td>596.5</td>
<td>1,853.1</td>
<td>-1,256.6</td>
</tr>
<tr>
<td>TOTAL</td>
<td>596.5</td>
<td>1,853.1</td>
<td>-1,256.6</td>
</tr>
</tbody>
</table>

U.S. Census Bureau

Top Trading Partners - Total Trade, Exports, Imports

January 2006

Data are goods only, on a Census Basis, in billions of dollars.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Exports (Year-to-Date)</th>
<th>Imports (Year-to-Date)</th>
<th>Total, All Trade</th>
<th>Percent of Total Trade</th>
</tr>
</thead>
<tbody>
<tr>
<td>---</td>
<td>Total, All Countries</td>
<td>75.4</td>
<td>145.9</td>
<td>220.3</td>
<td>100.0%</td>
</tr>
<tr>
<td>---</td>
<td>Total, Top 15 Countries</td>
<td>54.6</td>
<td>108.4</td>
<td>162.9</td>
<td>73.9%</td>
</tr>
<tr>
<td>1</td>
<td>Canada</td>
<td>17.3</td>
<td>26.2</td>
<td>43.5</td>
<td>19.7%</td>
</tr>
<tr>
<td>2</td>
<td>Mexico</td>
<td>10.6</td>
<td>15.3</td>
<td>25.9</td>
<td>11.8%</td>
</tr>
<tr>
<td>3</td>
<td>China</td>
<td>3.5</td>
<td>21.4</td>
<td>24.9</td>
<td>11.3%</td>
</tr>
<tr>
<td>4</td>
<td>Japan</td>
<td>4.4</td>
<td>19.2</td>
<td>15.3</td>
<td>6.9%</td>
</tr>
<tr>
<td>5</td>
<td>Germany</td>
<td>2.7</td>
<td>6.6</td>
<td>9.3</td>
<td>4.2%</td>
</tr>
<tr>
<td>6</td>
<td>United Kingdom</td>
<td>3.1</td>
<td>3.8</td>
<td>7.0</td>
<td>3.2%</td>
</tr>
<tr>
<td>7</td>
<td>Korea, South</td>
<td>2.6</td>
<td>3.9</td>
<td>6.4</td>
<td>2.9%</td>
</tr>
<tr>
<td>8</td>
<td>France</td>
<td>2.1</td>
<td>2.9</td>
<td>5.0</td>
<td>2.3%</td>
</tr>
</tbody>
</table>
China was 6th and India was 12th in terms of national GDP in 2003

<table>
<thead>
<tr>
<th>No.</th>
<th>Country</th>
<th>GDP $US billions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>USA</td>
<td>10,208</td>
</tr>
<tr>
<td>2</td>
<td>Japan</td>
<td>4,149</td>
</tr>
<tr>
<td>3</td>
<td>Germany</td>
<td>1,947</td>
</tr>
<tr>
<td>4</td>
<td>United Kingdom</td>
<td>1,424</td>
</tr>
<tr>
<td>5</td>
<td>France</td>
<td>1,307</td>
</tr>
<tr>
<td>6</td>
<td>China (exc.HK)</td>
<td>1,357</td>
</tr>
<tr>
<td>7</td>
<td>Italy</td>
<td>1,089</td>
</tr>
<tr>
<td>8</td>
<td>Canada</td>
<td>700</td>
</tr>
<tr>
<td>9</td>
<td>Mexico</td>
<td>618</td>
</tr>
<tr>
<td>10</td>
<td>Spain</td>
<td>582</td>
</tr>
<tr>
<td>11</td>
<td>Brazil</td>
<td>504</td>
</tr>
<tr>
<td>12</td>
<td>India</td>
<td>481</td>
</tr>
<tr>
<td>13</td>
<td>Korea</td>
<td>422</td>
</tr>
<tr>
<td>14</td>
<td>Netherlands</td>
<td>385</td>
</tr>
<tr>
<td>15</td>
<td>Australia</td>
<td>287</td>
</tr>
<tr>
<td>16</td>
<td>Russian Federation</td>
<td>310</td>
</tr>
<tr>
<td>17</td>
<td>Taiwan</td>
<td>282</td>
</tr>
<tr>
<td>18</td>
<td>Argentina</td>
<td>269</td>
</tr>
<tr>
<td>19</td>
<td>Switzerland</td>
<td>247</td>
</tr>
<tr>
<td>20</td>
<td>Belgium</td>
<td>227</td>
</tr>
</tbody>
</table>

Key differences between China and India:

Manufacturing versus service dominance

Source: Financial Times
Innovation – a weakness of these economies?

Maybe the case at present

But, consider - as we speak...

National Innovation Summit
16 March 2006, Kamal Mahal, Maurya Sheraton, New Delhi

Draft Agenda

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00 - 10:00 hrs</td>
<td>Registration</td>
</tr>
<tr>
<td>10:00 - 11:30 hrs</td>
<td>Inaugural Session</td>
</tr>
<tr>
<td>10:00 - 10:10 hrs</td>
<td>Welcome Address&lt;br&gt;Havinder Singh, President, Ranbaxy and Chairman, CII&lt;br&gt;National Committee on IPR</td>
</tr>
<tr>
<td>10:10 - 10:40 hrs</td>
<td>Key Note Address&lt;br&gt;National Competitiveness &amp; Innovation&lt;br&gt;Nicholas Doneffro&lt;br&gt;Executive Vice President, IBM Corporation</td>
</tr>
<tr>
<td>10:40 - 11:10 hrs</td>
<td>Address by Chief Guest&lt;br&gt;Shri Kapil Sibal,&lt;br&gt;Minister of Science &amp; Technology and Ocean Development, India</td>
</tr>
</tbody>
</table>
Apple!

Macworld Daily News

Apple CEO Steve Jobs plans Bangalore visit

By Macworld staff

Apple CEO Steve Jobs is expected to visit India next month.

A local press report states the Apple co-founder will fly across to Bangalore to open Apple's new research and development centre there.

As Macworld UK reported in February, Apple is launching an R&D and tech support centre in Bangalore. Apple plans to hire 3,000 people there by 2007.

The report observes that a visit to India is a rare one: the only Asian country Jobs has officially visited is Japan.

However, while he was still "joining the dots" the younger Jobs developed a "special affinity to India", the report says, observing: "He had spent four years in the 70s as a 'hippie spiritual tourist' visiting holy places in the country."

Industry example: The pharmaceutical/biotech industry in India is increasing its focus on innovation and new drug development in India

Next step
- Research and development
- New drug development
- Formulations

Currently
- Contract manufacturing: generics
- Clinical trials

Initial step
- Process support – accounting, IT
- Bulk drug manufacturing

Higher returns
Break out of efficiency-based value propositions
But significant challenges - needs stronger IP laws, labor cost differentials will be lower.
China's innovation campaign
China Economic Net
2006-03-15

"The Chinese government has made it a top priority to enhance the country's innovation capability.

"The 11th Five Year plan makes an important step forward. It's a major change, that is, it seeks to establish a basis of what it calls independent innovation." renowned U.S. economist and Nobel Prize winner, Joseph Stiglitz, made the comment at a seminar recently held by the China Center for Economic Research of Peking University: "in the past, China has been basically borrowing ideas, trying to close the gap."

"What it recognizes that enormous amount of the rents that exist in the world associate with knowledge rents, the returns to the control of knowledge. So if China's income is going to be raised, it has to create a basis of independent innovation," Stiglitz added.

The Chinese government plans to allocate over 70 billion yuan, or more than 8 and a half billion U.S. dollars, this year for investment in science and technology. That represents an increase of nearly 20 percent year-on-year.

Innovation – a weakness of these economies?
Not for long, it would appear
India

China

Strengths and Vulnerabilities

India – strengths and vulnerabilities

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Ongoing vulnerabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Skilled workers (200,000 + engineers graduate a year), at relatively low wages (average IT salary - $7000).</td>
<td>• Ongoing concern about IP protection – but changing (WTO/Rx Patent regime)</td>
</tr>
<tr>
<td>• English-speaking; globally educated and trained CEOs (Infosys, Wipro, Tata, Reliance).</td>
<td>• Infrastructure – roads, air travel – the basics – difficulty in scaling up for the foreseeable future</td>
</tr>
<tr>
<td>• Messy diversity</td>
<td>• Energy</td>
</tr>
<tr>
<td>• 300 + languages</td>
<td>• Rampant poverty (~40% of population)</td>
</tr>
<tr>
<td>• Religions</td>
<td>• Messy democracy!</td>
</tr>
<tr>
<td>• Occupations</td>
<td>• State, national flux</td>
</tr>
<tr>
<td>• Hunger for success – personal, national</td>
<td>• Multiple voices – not all aligned</td>
</tr>
<tr>
<td>• Economy-focused political leaders - opening economy to foreign investment</td>
<td>• Terrorism and threats to national security</td>
</tr>
<tr>
<td></td>
<td>• Health crises potentially looming – (est. 20 M with AIDS by 2010)</td>
</tr>
<tr>
<td></td>
<td>• Lower FDI than expected.</td>
</tr>
</tbody>
</table>
### China – strengths and vulnerabilities – including a few similarities with India

#### Strengths

- Skilled workers (200,000+ engineers graduate a year), low wages.
- Strong infrastructure and ongoing growth.
- Manufacturing strengths
  - Unique scale, quantity and reliability combination
- Hunger for success – personal, national
- Economy-focused political leaders - opening economy to foreign investment
- High FDI – reflecting great confidence

#### Ongoing vulnerabilities

- Protection of IP – major concern (est. 50-80% patents infringed)
- Environmental crisis looming – pollution in major cities.
- Energy
- Communist- command economy
- Suppression of multiple voices
- Ongoing protests (into the thousands every year)
- Messy Taiwan issue (US role)
- Human rights concerns – post Tiananmen
- Health concerns (TB, avian flu).
- Projected long-term slow down of growth.

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**India**

**China**

**Some tentative implications**
Dynamics across the markets: Tigers, Dragons…

A simple view

United States

versus

India

China

Dynamics across the markets: Tigers, Dragons…

...really simplistic views

Loss of service jobs
Loss of manufacturing jobs

OR

Opening of huge markets
Opportunity for companies to become efficient – increase shareholder value
Dynamics across the markets: Tigers, Dragons...

...a broader, complex view

- Loss of service jobs
- Loss of global clout
- Challenge to core competences, pride, community strength
- Opening of huge markets
- Opportunity to learn, strengthen shareholder value, grow
- Opportunity to influence global trends, institutions

Dynamics across the markets: Tigers, Dragons...

...an evolving view

- Developing strong ties
- Complementarity – manufacturing versus services; innovation-scale
- Easy understanding of shared opportunities, challenges
- Hunger of the late movers – mid 20th century industrial growth

- Despite lingering uneasiness
  - Post-1962 hangover
  - Inevitable shift to a zero-sum game – competing for customers, resources, FDI
  - India’s growing relationship with the United States
But, the relationship continues to be in flux -

India, China end border talks with no breakthrough
Mon Mar 13, 2006 8:54 PM IST

NEW DELHI (Reuters) - India and China ended three days of talks on their long-standing border dispute without a breakthrough on Monday but the Indian foreign ministry said both sides would meet again for further dialogue.
In a statement, the foreign ministry said the next round of talks on resolving differences over the 3,500 km border would be held in China but dates were yet to be decided.
The Asian giants fought a brief border war in 1962 but last year they agreed on a roadmap to settle the row politically.
BEIJING, MARCH 16: China today charged India with raising a series of "obstacles" in trade, including slapping of over 90 anti-dumping duties on Chinese goods, and not granting 'market economy' status to the world's third largest trading nation.

"Currently the major problems in Sino-India bilateral economic and trade cooperation are India's frequent investigations on our products exported to India, such as anti-dumping investigations, investigations on safeguard measures and investigations on special safeguard measures," spokesman of the Chinese Ministry of Commerce, Chong Quan said.
Scott Moore, the owner of Murphy Motor Co., hopes to sell more than used cars on the lot. If he can make the deal happen, Moore wants to sell Cherys, the Chinese cars being brought to this country for the first time by auto-entrepreneur Malcolm Bricklin.

Chery's most popular small car, the QQ, priced around 40,000 yuan (US$4,950), generates only a 500 yuan profit, while cars in the mid and upper ranges can be marked up 20,000 yuan or more.

Chery sold 21,000 vehicles in February, a 130-percent jump from the same period a year ago, following Shanghai Volkswagen with 23,600 units and Shanghai General Motors Corp with 22,800.

Sources: Multiple news report
...the shagamow...

A mythical animal. Populates folklore in Maine, in particular.

This animal confused woodsmen for a long time, because its front legs are those of a bear, but its back legs are just like a moose’s. It walks 440 steps with its front legs, then quickly hops to its back legs, leaving very confusing trails (Bruce Van Patter).

...not easy to define, track...

Implications for the United States: A multi-faceted approach

National policy and responses set the stage for more granular strategies at corporate levels.

Shapes the multi-dimensional “image” of united states – cultural, relational, political, military – and business dimensions.

Individual companies, today at the forefront of global opportunities and challenges, are a second facet.

Company specific responses – customized, market and segment specific.

Long-term – the foundation for building on strengths – and shoring up vulnerabilities.

Creates both academic and “global” cultural strengths.
Implications for the United States: A multi-faceted approach

National, state response

- National strength in global markets emerges from multiple dimensions
  - Moral, relational strength
  - Military strength and actions – competence and benevolence
  - Economic strength and actions – competence and benevolence
- National level initiatives – such as those sponsored by the Council on Competitiveness including Innovateamerica.org
- Inclusion/entry of business leaders in national policy at the executive and legislative levels

Company responses

- A constant focus on challenges posed by global changes as well as opportunities
  - More global outposts
  - Company ethic
  - Hiring practices focused on global skills, flexibility

Educational responses

- Building global alliances – consider shagamow characteristics (complex, difficult to imitate competencies)
- Less reliance on generic ideas for global competition – the company’s strategic orientation, value proposition to customers/employees, markets – should dictate specific strategies
Implications for the United States: A multi-faceted approach

• National, state responses
  • Rethink any knee-jerk reaction to refocus on math, sciences at the cost of curricular diversity. Remember, these are basics – everyone should and will be good at this – American students also. But it will not be a basis of comparative advantage.
  • On the other hand, the current differentiators – creativity, innovation, broad curricula – should be sustained. They can come back into play – culturally unique and difficult to easily duplicate.

• Company responses

Educational responses

Summary Implications

1. There are major challenges – and downsides will occur naturally – with or without effort. However, opportunities will only fully emerge with the right perspective and actions.

2. An approach focused on one line of business, a given business or business alone may be myopic. It is not a strand that binds, but a multi-stranded rope.

   The focus is not just India or China, or even the emerging idea of India and China. It may be other nations or clusters of nations competing against each other. Adopt difficult-to-replicate approaches and national clusters.

3. Protecting the carefully built, and well-known strengths of the US education system is crucial. A focus on the weaknesses in the basics – math/sciences is immediately needed, but not at the cost of traditional strengths – creativity/exploratory thinking.