

Governing Technology Policies



NOTES ON THE CHINESE EXPERIENCE

ANNA JAGUARIBE

Governance of Policy process



- What have we learned
- What seem to be across the board challenges
- Interaction between National and Global policy space
- The unique case of China and what we can learn from it

What we have learned :Stylized facts



- Promotion of Innovation is a result of:
- State autonomy or Embedded State and a functioning market (Evans)
- Compatibility between policies: monetary, trade and industrial policies and goals
- Mission oriented or constructed consensus regarding innovation goals (Weiss, Mazzucato)

- Competent Financing and Regulatory Institutions-
- Pro-active demand policies
- Encouraging firm environment (OECD Innovation Surveys)

- Public-Private Synergies (Block)
- Institutions promoting circulation of knowledge and networking at a global level
- Intermediary Institutions between knowledge experimentation and development

Challenges Across the Board



- Slow global economy(trade and investments) and higher competition between mid range economies opens new challenges for firms, regulatory institutions and strategic planning (Angang)
- Leapfrogging more difficult and returns of secondary innnovation diminished
- New frontiers of technology: digitalization, big data, robotization telecommunication and changes in energy paradigm alter production models, employment and regulatory patterns
- Rapid technological change alters competition for major and small players. Firms must be efficient and seize spaces across borders.
- (Naughton)

POLICY CAPACITIES ARE STRESSED AT PARADIGM CHANGES



Weberian
Bureaucracies
and regulatory
Institutions
Not change
makers

Vision not based
on emulation
Understanding
of where
opportunity lies

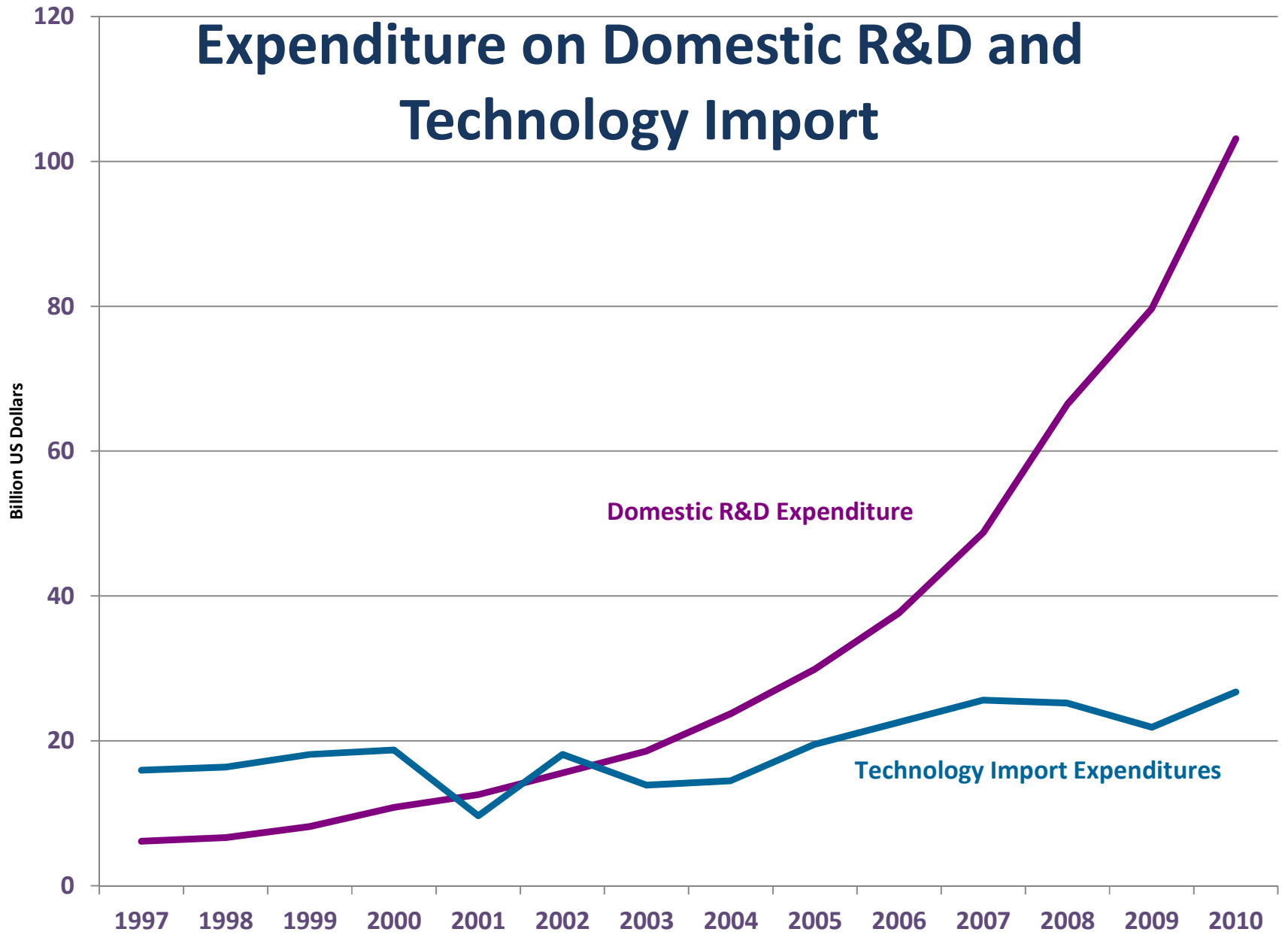
Open space for
innovation
National and
Global contexts
overlaps

China: From Manufacturing Hub to innovation Economy



- From 2001 onwards China grows into a manufacturing hub for the world electronic production and a central player in most global value chains
- From 2011 on the preoccupation with becoming an innovation economy outweighs technological catching up
- (11th, 12th and 13th five year Plan)
- Concerted and strategic investments are made through megaprograms and knowledge platforms to strategic industries Investment in R&D grow constantly at 2% of GNP (Xue Lan)

Expenditure on Domestic R&D and Technology Import



* Seven strategic emerging industries

Strategic Emerging Industry	Focus 35 Sub-Sectors
New information technology (IT) industry	New mobile communication, next generation Internet, tri-networks integration (broadcasting network, telecommunication network, internet), Internet of things, cloud computing, Integrated Circuit, new display, high-end software, high-end server and information service.
Energy-saving and environmental protection industry	High efficiency and energy saving, advanced environmental protection, key technology, equipment, product and service for resource recycling
Biology industry	Biomedical, biomedical engineering products, bio agriculture and bio manufacturing.
High-end equipment manufacturing industry	Aviation equipment, satellite and their applications, railway vehicles equipment, Intelligent-manufacturing equipment
New energy industry	New generation nuclear power, solar energy-thermal application, solar thermal and solar PV(photovoltaic) electricity generation, wind energy technology equipment, smart grid, and biomass energy.
New material industry	New functional material, advanced structural material, high performance fiber and its composite and common basic materials.
New energy automobile industry	Plug-in Hybrid Electric Vehicle (HEV), Battery Electric Vehicle (BEV) and Fuel Cell Electric Vehicle (FCEV) technology

Exhaustion and Reform



Redirecting Growth Prime Movers

- Less Dependence on Trade and Investments
- Sustaining Innovation Economy
- Change in energy paradigm

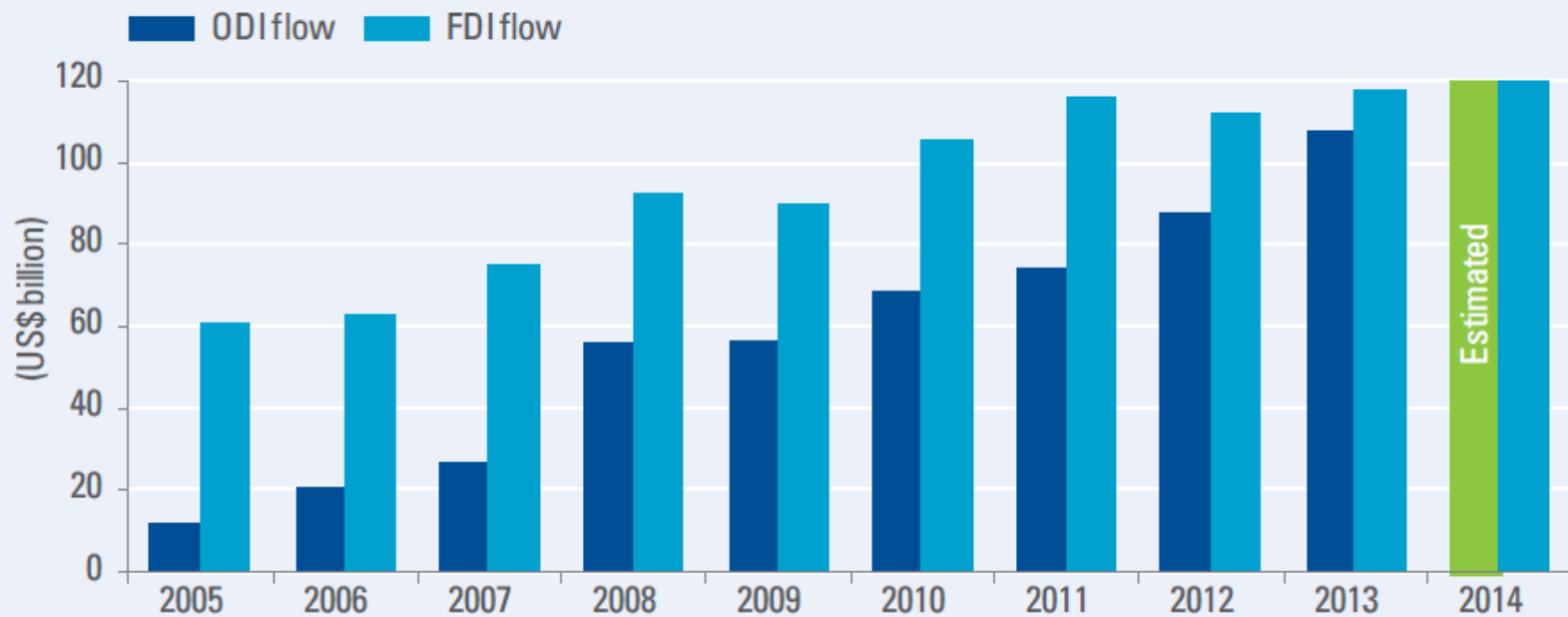
Managing new growth factors

- Stimulating Service economy
- Diversify Financial System
- Using ODI as a tool

New international policy

- Foreign policy joins Growth Strategy: BAR
- Forging Asian Trade Agreements
- New Transnation industrial Policy

FDI e ODI



Source: '2013 Statistical Bulletin of China's Outward Foreign Direct Investment', Ministry of Commerce, 21 January 2015, <http://www.mofcom.gov.cn/xwfbh/20150121.shtml>, 27 October 2014, <http://www.mofcom.gov.cn/article/i/dxfw/gzzd/201410/20141000773143.shtml>; '2014 China Statistical Yearbook', NBS, <http://data.stats.gov.cn/english/easyquery.htm?cn=C01>; KPMG Analysis

Belt and Road



Grand Scale policy in a slow growth global economy .

65 countries, 4.4 billion people and 40% of the world GDP. It combines traditional ODI with New Development Finance through the creation of the AIIB, NDB, SRF and Financing arm of Shanghai Cooperation Organization (Natixis Reports)

It is geographically diverse with shifting sectoral targets. From natural resources and commodities to advanced manufacturing, high speed rail nuclear, aviation and telecom

In 2010 61% ODI directed to energy and mining declining to 16% in 2014 In 2010 6% of ODI went to technology , media and telecom and 21% in 2014

Is a counter tendency to isolationist movements .With demise of TTP the FTAAP and the Regional Economic Comprehensive Partnerships will be the main game on the table

Players, Objectives, Volume



Players

SOE &
Other Public Firms
Large, medium and
firstcome
Private Firms

Short/long term Objectives

Enhancing trade
Increasing returns
Technological
Upgrading
Building Networks
Widening Financing
Services
Widening Knowledge
Networks

Volume

2015 ODI
US\$145.67 Billion
M&A US\$160 billion
Estimated B&R
SRF US\$ 40 billion
AIIB US\$ 100 billion
CDB US\$900
Billion(WB)

Unique Design



Private and
Public Firms
+
Strategic
Planning

Foreign
Policy
Integrated
with Growth
Strategy

Beyond trade:
Knowledge Flows,
Financing,
New Value
Chains

Volume:
Belt& Road
U\$ 4 trillion
Marshall Plan
U\$250
billion(PIE)

Regional
Design with
Global Impact
+
Transnational
Industrial
Policy

International Challenges



- Global Investments as a Transnational Industrial policy faces many challenges and has contradictory outcomes due to project design, business models and political conflicts
- The reformulation of growth zones is geopolitically sensitive.
- Changes the nature of global competition, for value added, nature of global production chains and interaction between firms, opens and closes paths for technology standards and knowledge flows
- It calls for rethinking :
 - modalities of participation in global markets
- internal coordination of governing institutions
- the link between financial risk, technology promotion and market gains

What moves innovation Challenges?



- Big data and Digital platforms have disruptive effects which can address endogenous social, economic and commons issues
- What are metrics of success in the new technology drives? Is there a constant catching up and/or leapfrogging dynamic?
- New paradigms are also knowledge platforms and bring across the board technologies that can be a tool of public policy and breed a new metric of success
- China seems to be aiming at both: guaranteeing its role in the frontier but making social use of the new tools

Thank You

