Global Political Economy

Technology Demand and FDIs
Lecture 1

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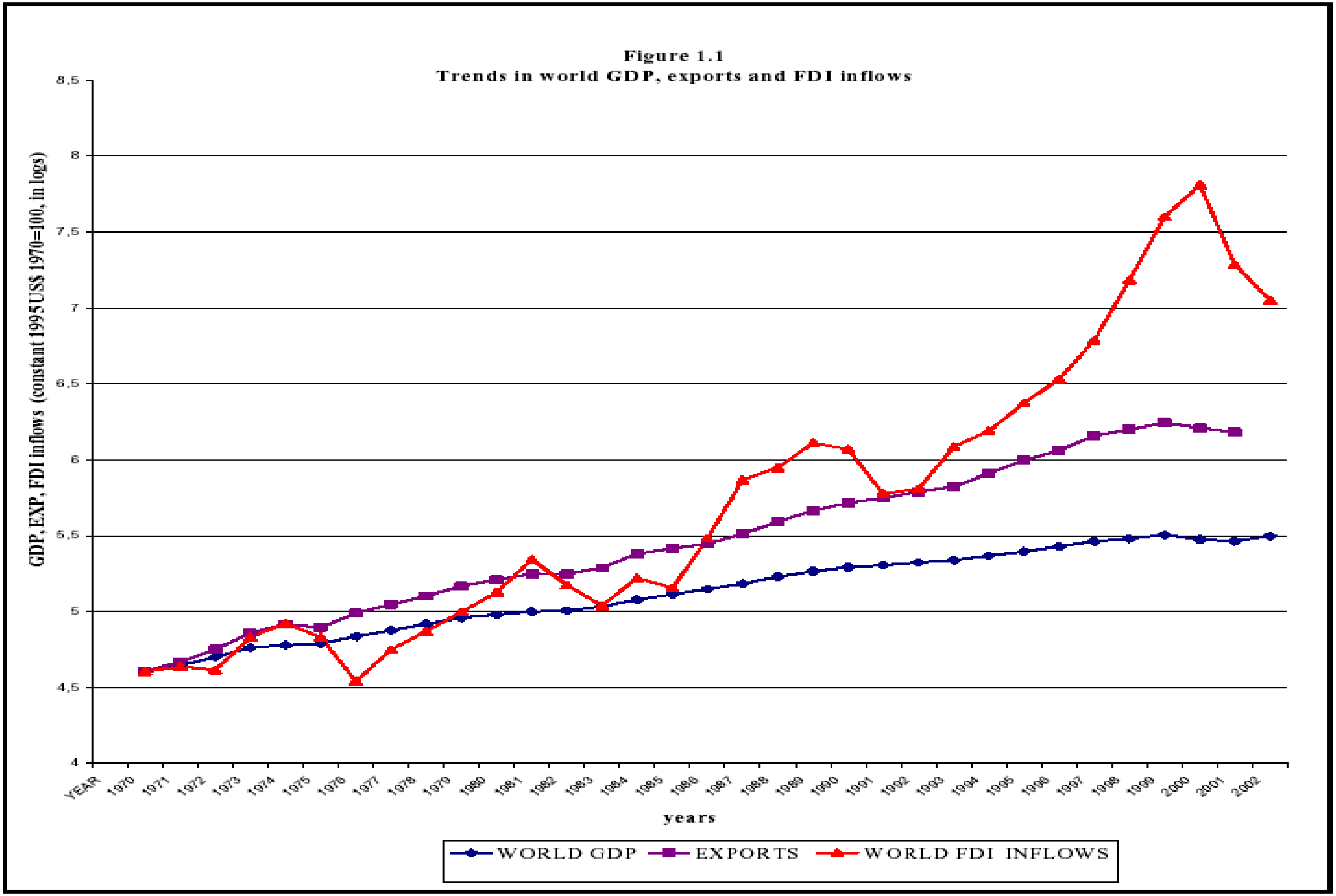
Our point of departure: Increasing FDI/Export ratio



Source: authors' calculations on World Bank WDI and UNCTAD data
Notes: the value of the index (100 in 1970) for the year 2002 (base year 1970=100) corresponds to *1319* for "World FDI Inflows" and to *244* for "World GDP", while for "Exports" the last available data refers to 2001 and the corresponding value of the index is *484*.

Connecting to previous lectures

- The choice between Export and FDIis under monopoly is affected by sector and country specific characteristics, inter alia by trade costs
- However standard monopoly models with trade costs do not explain the paradox of increasing FDI/Export ratio
- Considering different types of FDIs helps frame the paradox and explain why FDIs may increase in the presence of diminishing trade costs
- Introducing Oligopoly assumptions and taking into account technological advantages and firm heterogeneity also helps explain the paradox

Today’s focus

- Interactions between demand and technology factors in shaping exports and FDIs
- Technology accumulation approaches to internationalisation
- Ex ante and ex post technological advantages as drivers of FDIs
- Measuring asset exploiting and asset seeking FDIs

Interactions between technology and demand factors

Vernon’s Product Life Cycle (1966)

- Historical setting: US technological leadershiop and multinational growth after WWII
- Trade and FDI are innovation driven
- Innovation is demand led: US consumers and user firms are more advanced and induce early introduction of technology in the US market

Vernon (cont’ed)

- Phase 1: new product is produced for local market
- Phase 2: new product is exported when local market is exhausted and foreign (EU) markets emerge for it
- Phase 3: product gets standardised and its price elasticity increases → FDIs to react to competitive threats from firms in local markets via cost reduction and proximity to consumers
- Phase 4: product reaches maturity, actual competition increases in the EU market → EU market is abandoned and less developed markets are exploited though FDIs →new product are introduced and a new cycle starts

- FDI substitutes for Trade when technology matures and competition emerges

- This story illustrates globalisation processes in an era of economic and political integration in the Western world (Washington Consensus, IMF, GATT/WTO) → Innovation driven FDIs occur even in the presence of decreasing trade costs

- Limitations:
  - demand-pull is only one of the sources of innovation
  - product cycles may not follow the same patterns
  - other leaders (different from the US) emerge over time

The Technological Accumulation Approach

- Innovation may not be demand driven
- Technological evolution follows firm specific and path dependent patterns (Rosenberg, 1982; Nelson e Winter, 1982)
- Firms strategically invest in R&D to innovate, expand their market shares and increase their market power Cantwell&SannaRandaccio 1994) → ***multiple technological leaderships*** within and across countries according to R&D investment patterns
- Knowledge accumulated through R&D investment creates opportunities that can be exploited internationally (Cantwell 1989)

The Technological Accumulation Approach (cont'ed)

- As knowledge is at least partially ***tacit*** its international exploitation requires proximity to application markets through FDIs
- Technological development requires access to complementary bits of knowledge→FDIs to gain access to foreign sources of knowledge
- FDIs thus depend on firm specific technological accumulation and on technology sourcing strategies, *regardless of distance and of transportation costs*
- From the traditional view of FDIs as driven by «ex ante» advantages to a new emphasis on FDIs as determinats of «ex post» advantages

The traditional view: Ex ante advantages as drivers of FDIs

Links between innovation and internationalisation in the literature on MNCs and on intern'l trade

Ex-ante advantages have been traditionally emphasised

- Needed to overcome "Liability of foreignness" (Hymer 1960)
  - MNCs endowed with "superior technology" and able to exert higher market power than uninational firms
  - MNCs associated with market imperfections and long term investment decisions
- Innovation as the dynamic engine of internationalisation (Vernon 1966)
- Ownership advantage as a pre-condition for intern'l investment (Dunning 1970, 1977)
- Internationalised firms outperform uninational firms: An old idea that has been recently formalised in international trade theory (Helpman, Melitz,Yeaple 2004)

Differences in productivity and internationalisation -USA vs.Italy

	Italia (Castellani,Zanfei 2006)	Usa (Helpman,Melitz, Yeaple 2004)
Multinazionali	0.165***	0.537***
	(0.027)	(0.037)
Esportatori non multinazionali	0.038	0.388***
	(0.025)	(0.041)
Differenze nei coefficienti	0,128	0,150
p-value	**[0,000]**	**[0,000]**
numero di imprese	1106	3202

Differences in productivity, innovation and internationalisation- Evidence on Italy

	N. firms	%	Empl.	Labour Prod.	"Approx." TFP	TFP
DOM MKT	98	*13%*	435	73.0	0.97	1.00
EXP	395	*51%*	393	76.8	0.96	1.01
MN NON MAN	164	*21%*	1511	79.3	1.00	1.06
MN MAN	121	*16%*	1756	88.7	1.09	1.12
Total	778	*100%*	881	79.0	0.99	1.04

	Share of firms			R&D intensity		
	Innov. products	Innov. processes	Carrying out R&D	Total R&D	Internal R&D	External R&D
DOM MKT	28%	40%	34%	1.9%	0.2%	1.7%
EXP	59%	59%	65%	2.5%	0.7%	1.7%
MN NON MAN	69%	66%	73%	3.0%	0.9%	2.1%
MN MAN	80%	78%	89%	3.1%	1.2%	1.8%
Total	60%	61%	66%	2.6%	0.8%	1.8%

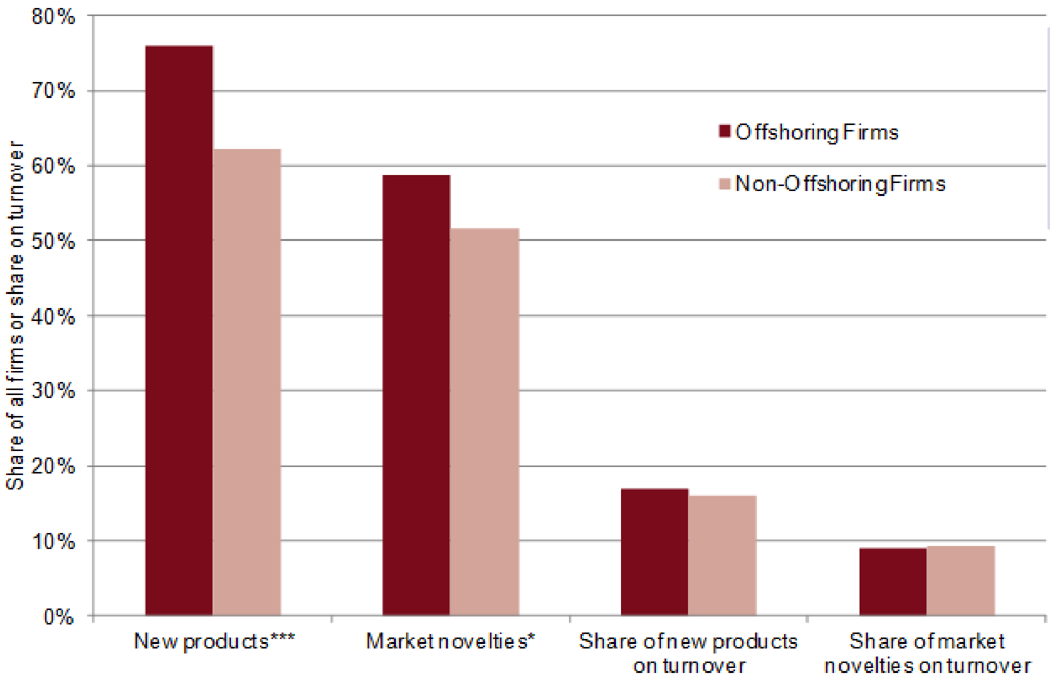
Source: Castellani D., Zanfei A., Multinational firms innovation and productivity, E.Elgar, 2007

Differences in “best managerial practices” and internationalisation

Figure 2b: Management practices, firms by country of ownership

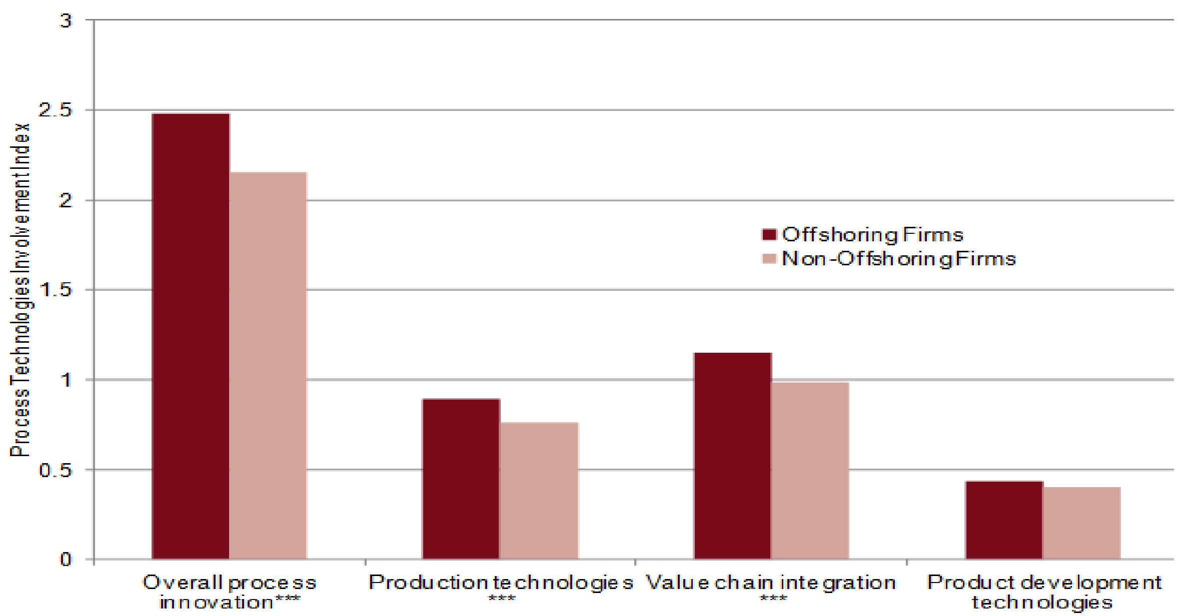
N.Bloom, R.Sadun, J.Van Reenen, Oxford Review of Ec Policy, 2006

Product Innovation



Dachs et al (2013) based on European Manufacturing Survey, 7 countries

Process Innovation



Ex post advantages and FDI

Correlations between ex ante advantages and FDIs are often based on cross-sectional data: *direction of causality?*

- "*Asset seeking*" **(AS)** investment and "*competence creating subsidiaries*" as sources of "*ex-post advantages*" (Dunning&Narula 1995, Cantwell& Mudambi 2005, Santagelo 2013)
- The *nature of ownership advantages changes*: They are needed to compete with other MNCs and to filter/absorb external knowledge (Cantwell&Narula 2001)
- ***AS** co-exist with Asset Exploiting **(AE)*** (Criscuolo et al 2005):
  - One reinforces the other
  - Firms need to use a variety of assets and their portfolio is diversified in terms of strength and weaknesses