

KEI Workshop
Helsinki, 2-3 March 2006

**OECD efforts to measure the
globalisation of R&D**

Outline

- Measuring the globalisation of R&D: why it matters and what complicates it?
- International R&D: where and how it is measured?
- Next steps at OECD

Measuring the globalisation of R&D: Why it matters?

- R&D policy targets >> better measure domestic R&D
- Capitalisation of R&D >> need to correctly measure R&D trade (or better, cross-border R&D spillovers)

Measuring the globalisation of R&D: what complicates it?

- Presence of MNCs (especially for small open economies)
 - reporting
 - intra-company transfers

- Transferability of IPRs

MNCs in small open economies e.g. the Netherlands

(De Haan and van Rooijen-Horsten, 2004)

- ❑ 8 MNCs representing about 50% of Dutch GERD
- ❑ only 2 out of the 8 MNCs report a substantial amount of R&D exports
- ❑ The other 6 MNCs that report zero or almost zero R&D exports in fact have a high concentration of R&D in the Netherlands

R&D royalty payments e.g. Ireland (Lucey, 2005)

Royalty payments and R&D expenditure by nationality of owner (CIP 2002)

Nationality of ultimate beneficial owner	Royalties (%)	R&D services (%)
Irish	0.8	1.8
US	92.9	89.8
EU-15	5.9	5.6
Other	0.4	2.8

Royalty payments and R&D expenditure by country supplying the service (BOP 2003)

Country of service supplier	Royalties (%)	R&D services (%)
US	45.6	85.4
Netherlands	26.2	0.7
Other Europe	8.5	7.2
Rest of the World	19.6	6.6

International R&D: where and how it is measured?

- ❑ R&D surveys (Frascati Manual, OECD)
 - Target: R&D performers
 - Data: R&D funds from abroad and R&D funds sent abroad
- ❑ FDI surveys (Balance of Payments Manual, IMF)
 - Target: affiliates of foreign companies in national territory, foreign affiliates of MNC parents, MNC parents
 - Data: affiliates' and MNC parents' R&D expenditures, sales & other operations data
- ❑ Trade in services surveys (BoP Manual, IMF and Manual on Statistics of International trade in services, UN et al.)
 - Target: exporting/importing companies regardless of ownership status
 - Data: trade in services
- ❑ Administrative sources (for patent royalties and licence fees)

Mini-survey

- bridging an information gap on how countries collect data on international flows of funds from their R&D surveys, and
- bringing together information from R&D surveys and other sources used to develop globalisation indicators in a consolidated way

Mini-survey: highlights

- ❑ To date responses from 21 OECD countries and 3 non members
- ❑ 9 countries were able to complete all parts of the questionnaire
- ❑ The US is the only country that does not collect statistics on R&D receipts from abroad in its survey of industrial R&D
- ❑ Main problem is the measurement of OUTWARD R&D flows
- ❑ Different ways of identifying affiliates under foreign control
- ❑ Most countries have “some” measure of R&D intra-company transfers in MNCs but may capture only some of the flows

R&D surveys: e.g. decomposing Business R&D (BERD)

BERD by who FUNDS it

Domestic

Foreign

Domestic

% of BERD conducted by domestic firms and funded domestically

% of BERD conducted by domestic firms and funded from overseas

BERD by who CONDUCTS it

Foreign

% of BERD conducted by foreign firms and funded domestically

% of BERD conducted by foreign firms and funded from overseas

	Receipts from abroad		Payments to abroad		Nationality of the enterprise
	Total	From businesses	Total	From businesses	
AUT	Y	Y	Y	Y	NO
BEL	Y	Y	Y	Y	Y
CAN	Y	Y	Y	Y	NO
CZE	Y		NO		Y (3)
DNK	Y	Y	Y	Y	NO
FIN	Y	Y	Y		NO (4)
DEU	Y		Y	Y (1)	Y (5)
IRL	Y		Y	Y	Y
ITA	Y	Y	Y	Y	Y
JPN	Y		Y		Y
NLD	Y		Y		Y (6)
NZL	Y		Y		NO
NOR	Y	Y	Y	Y	Y
PRT	Y	Y	Y	Y	Y
ROM	Y	Y	NO		NO
SVK	Y	Y	NO		NO
ESP	Y	Y	Y	Y	Y
SWE	Y	Y	Y	Y	Y
CHE	Y	Y	Y	Y	Y
USA	NO	Y		Y (2)	NO
Israel		Y	Y		NO

(1) Only foreign affiliates

(2) Starting in 2002

(3) First pilot of questions on nationality included in SBS - but not all reporting units from R&D survey are covered by SBS.

(4) No, but it is possible to use register information.

(5) Yes, but not linked to a specific question in R&D survey.

(6) For even years, the question in the innovation survey of where the head office of the group is located is used.

FDI : surveys of the activities of MNCs



After the Handbook of Economic globalisation indicators ...

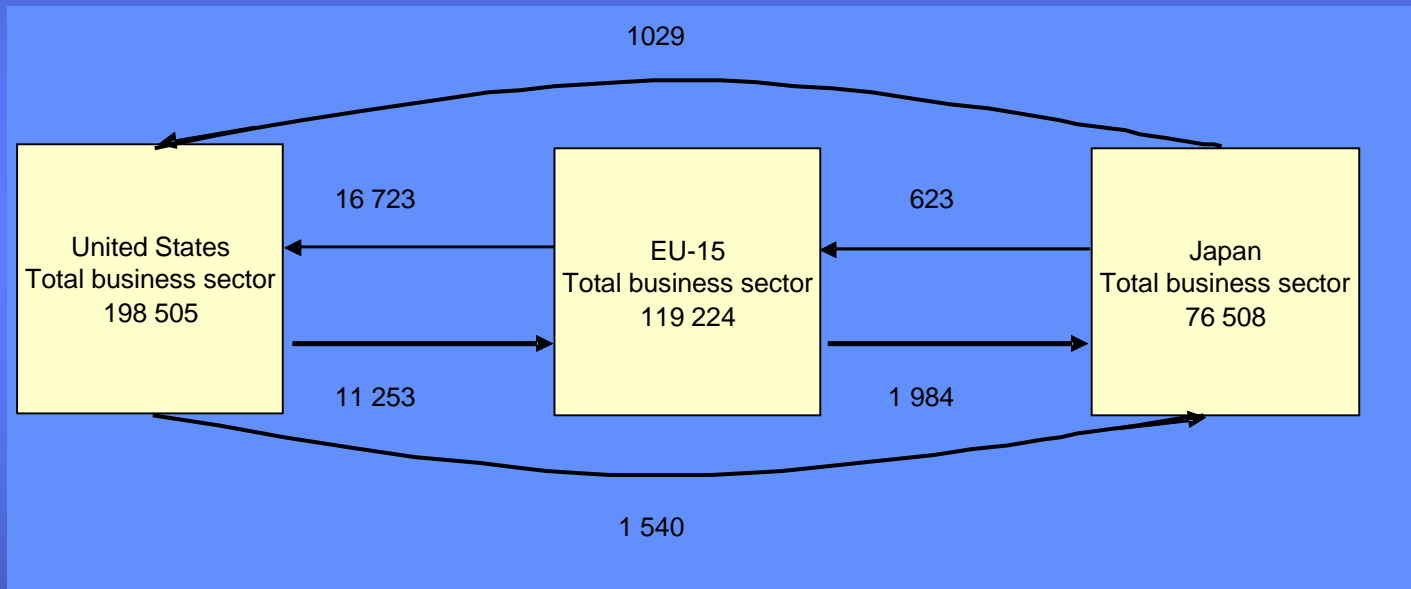


... the INDICATORS: over 250 graphs helping to identify the economic activities of member countries that are under foreign control, and more particularly the contribution of multinational enterprises to growth, employment, productivity, labour compensation, **research and development**, technology diffusion and international trade.

FDI :

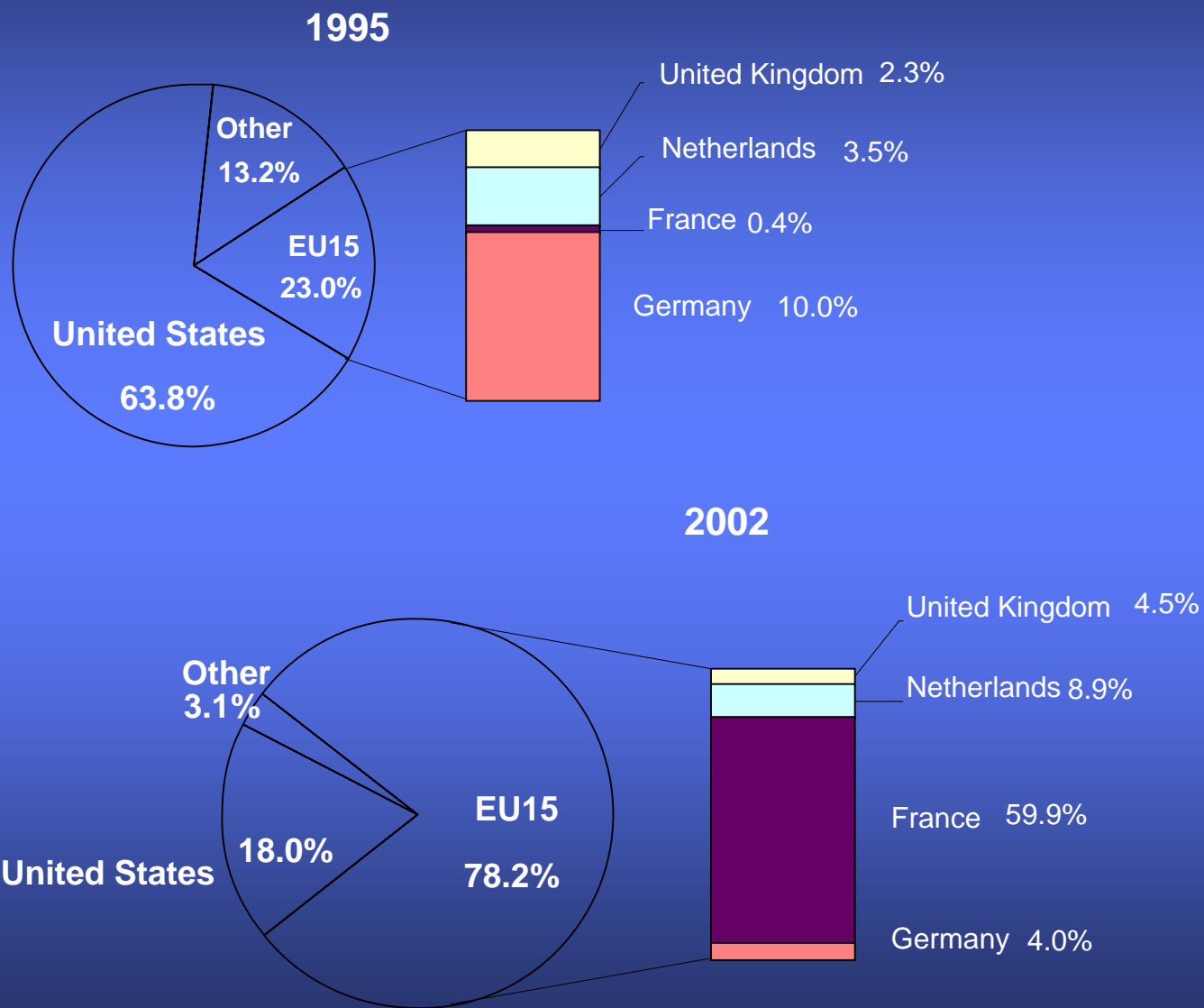
R&D flows between the EU-15, the US and Japan, 2001

(USD PPP million)

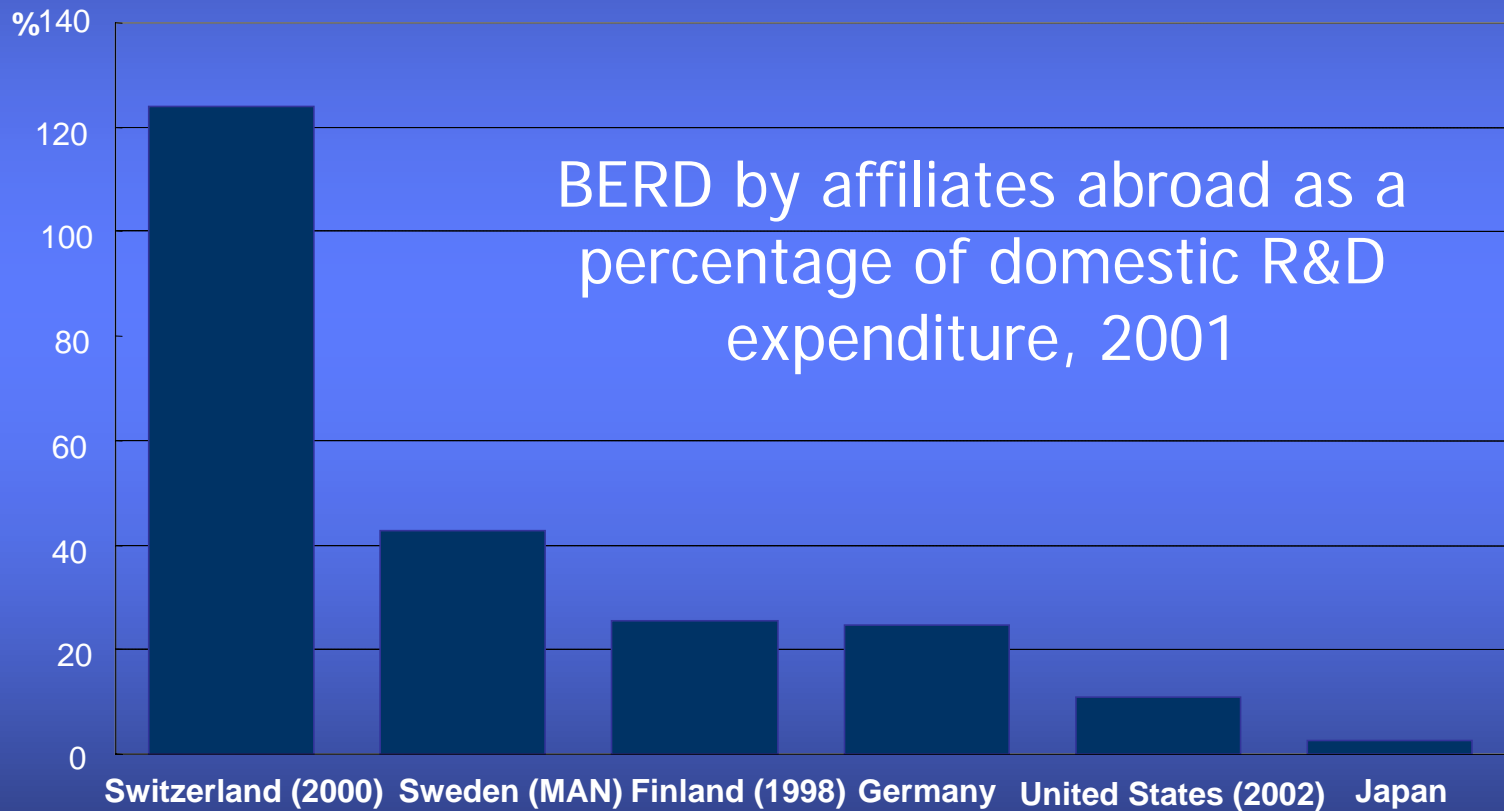


Source: OECD Economic Globalisation Indicators, 2005

Japan: R&D under foreign control



Few OECD countries collect data concerning the R&D activities of their MNCs abroad (Outward Investment)



Sources patent royalties/licence fees

AUT	BoP
BEL	BoP
CAN	R&D
CZE	Trade/Pat/ BoP
DNK	
FIN	
FRA	Pat
DEU	BoP
IRL	R&D
HUN	BoP
ITA	BoP
KOR	R&D/BoP
JPN	R&D
NLD	R&D/Trade
NZL	Trade/R&D
NOR	BoP
PRT	BoP
ROM	Pat
SVK	Pat/ BoP
ESP	R&D
SWE	
CHE	BoP
UK	Trade
USA	FDI/Trade/BoP
Israel	R&D

Next steps @ OECD : NESTI task force on R&D internationalisation

- ❑ Lead: United States.
- ❑ Other participants: Belgium, Finland, Germany, the Netherlands, United Kingdom, Israel and Eurostat.

OECD task force: longer term work agenda

- ❑ Reconcile R&D surveys with other sources
- ❑ Collaborate with National Accountants to better measure R&D international transactions
- ❑ Review the Frascati Manual
- ❑ Review the Technology Balance of Payments (TBP)

In the meantime (for NESTI, end of May 2006)

- Look closely at the measurement of outward R&D flows

- >> Pilot study/experiment: micro-data extractions (from BERD surveys or surveys of foreign controlled affiliates) of inward R&D data broken down by country of origin to see whether one can capture outward flows by using inward data in destination country

THANK YOU.
alessandra.colecchia@oecd.org