



Estimating the Global Patenting in Public Research Organizations

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1. Introduction

■ The objectives

- » understand the Public Research Organizations (PROs) patenting landscape in the global patenting map
- » identify the key trends in main PROs patenting countries
- » reveal the global patenting changing in 35 years, including PCT and PATSTAT, as well as the concentrations changing of technology fields

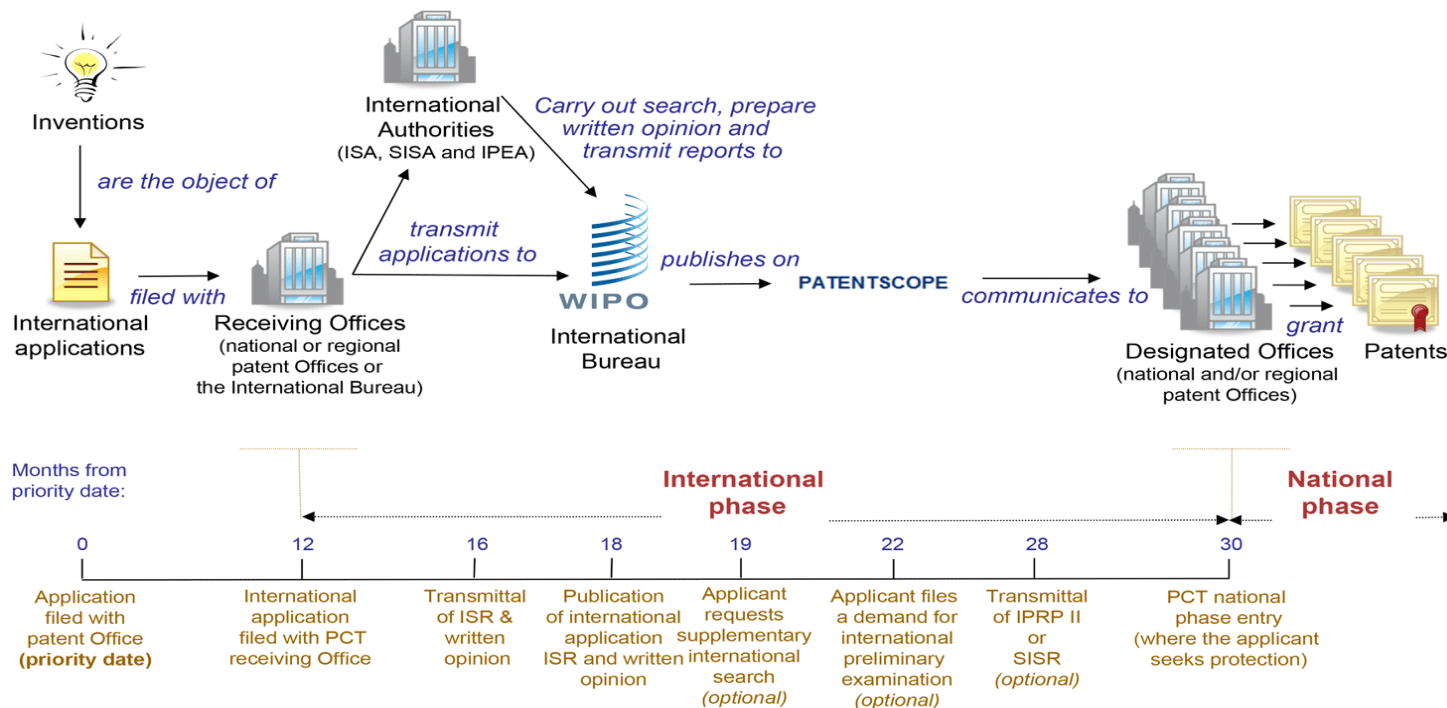
1. Introduction-

Data source: Patent Cooperation Treaty(PCT)



<http://www.wipo.int/pct/en/faqs/faqs.html>

The **PCT** is an international treaty with more than 145 Contracting States. The PCT makes it possible to seek patent protection for an invention simultaneously in a large number of countries by filing a single “international” patent application instead of filing several separate national or regional patent applications. The granting of patents remains under the control of the national or regional patent Offices in what is called the “national phase”.



1. Introduction-Data source:

EPO Worldwide Patent Statistical Database for **PATSTAT**

<http://www.epo.org/searching-for-patents/helpful-resources/raw-data/data/manuals.html>

About PATSTAT

Patent statistics are used as indicators of the inventive activity of companies or countries, and as indicators of the patent system itself. The EPO has created the "Worldwide Patent Statistical Database", in this document often addressed by its abbreviation PATSTAT.

PATSTAT data can be seen as consisting of **3** different components:

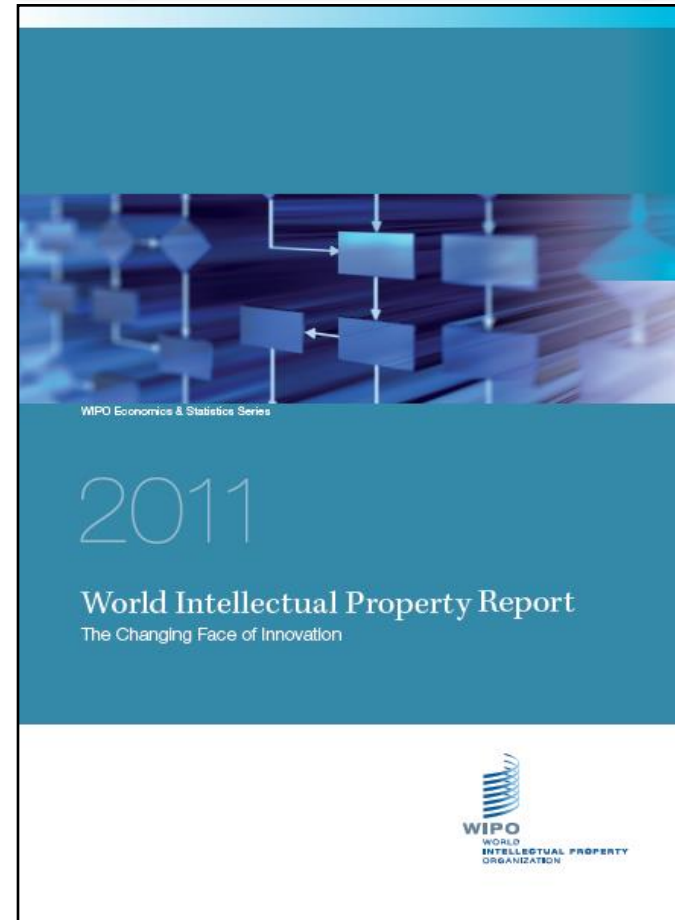
- 1. EPO worldwide patent statistical database for PATSTAT:** This is the **core** of **PATSTAT**.
- 2. EPO worldwide legal status database for PATSTAT:** This is another component to PATSTAT Raw Data which may be additionally subscribed.
- 3. EP register data for PATSTAT:** It contains detailed bibliographic, procedural and legal event information for EP patents.

1. Introduction-Methodology_PATSTAT

Name Harmonization



Key Words Searching



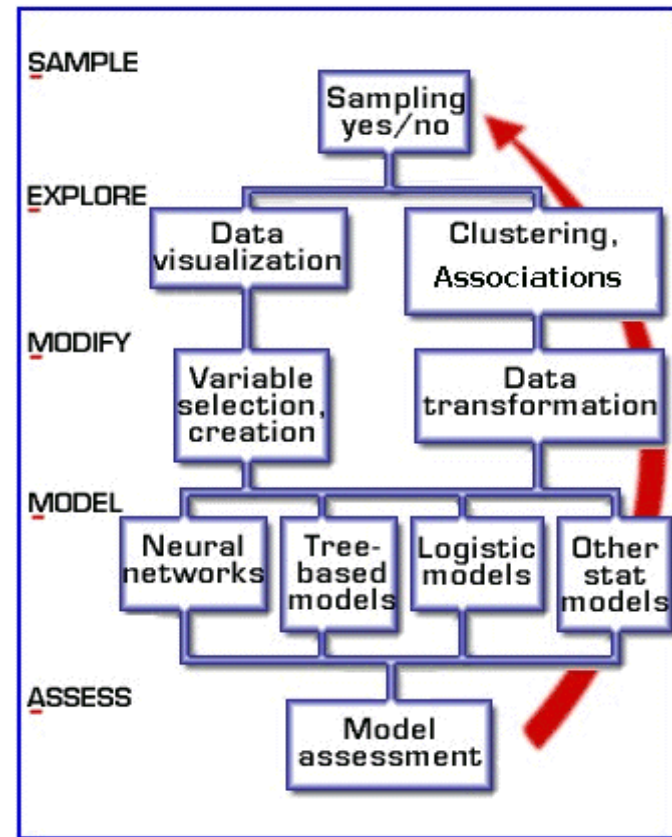
1. Introduction-Methodology_PATSTAT

Verifying the accuracy of WIPO University and PROs from PASTATE Applicant's Names

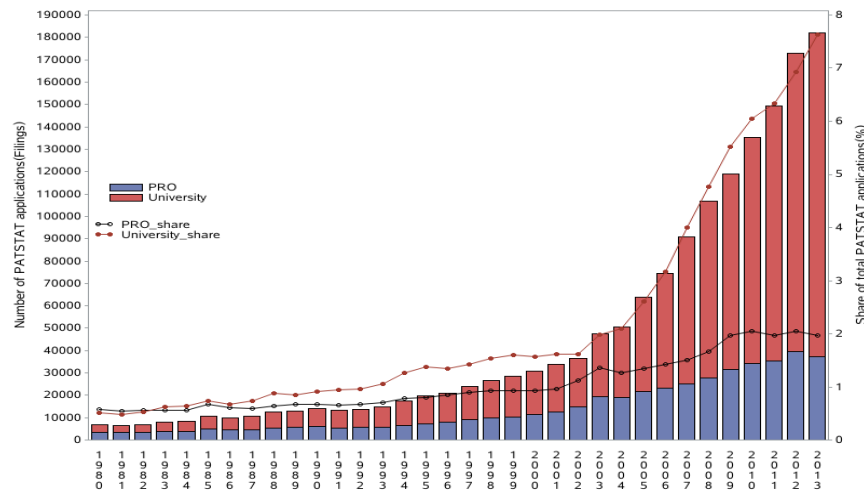
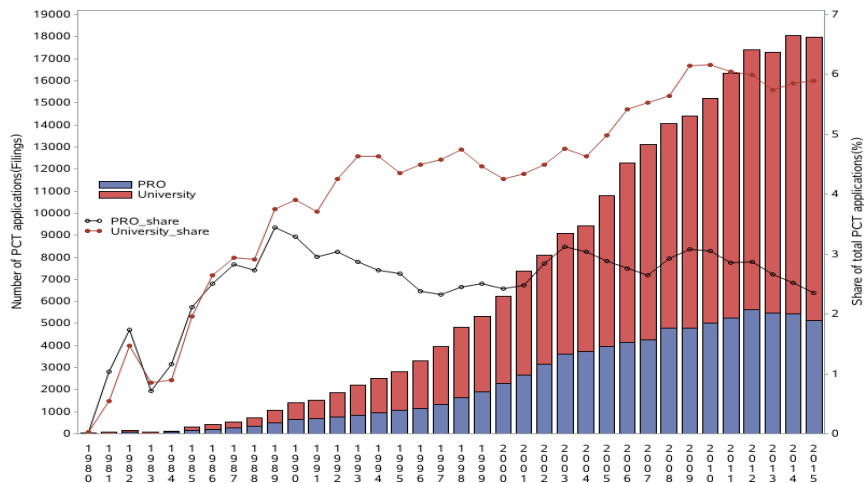
Web Crawler/Spiders/robots



Modeling

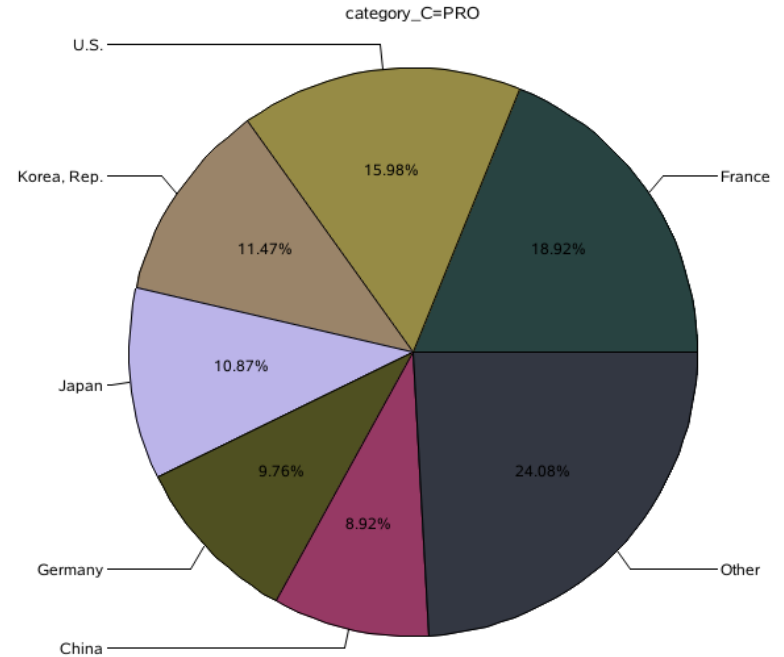
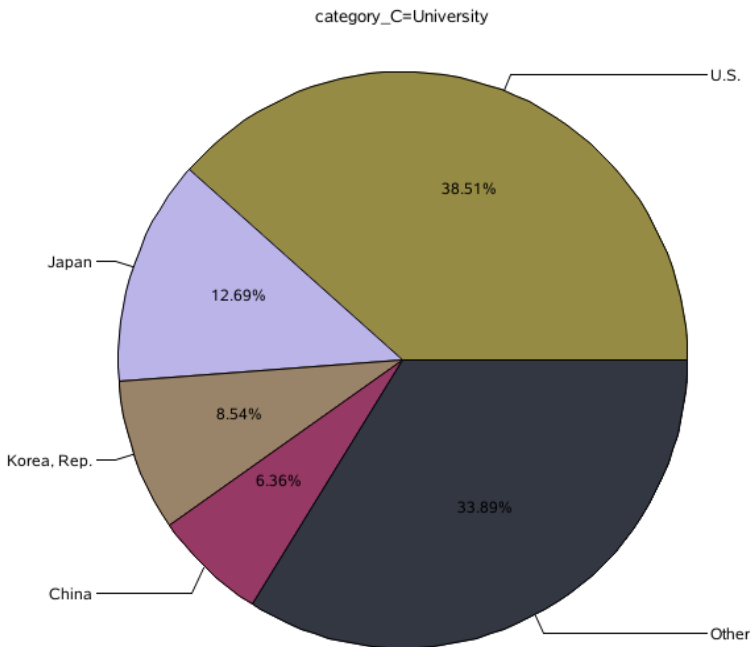


2. Global PRO and university patenting scope— who is the main actor in global patenting map?



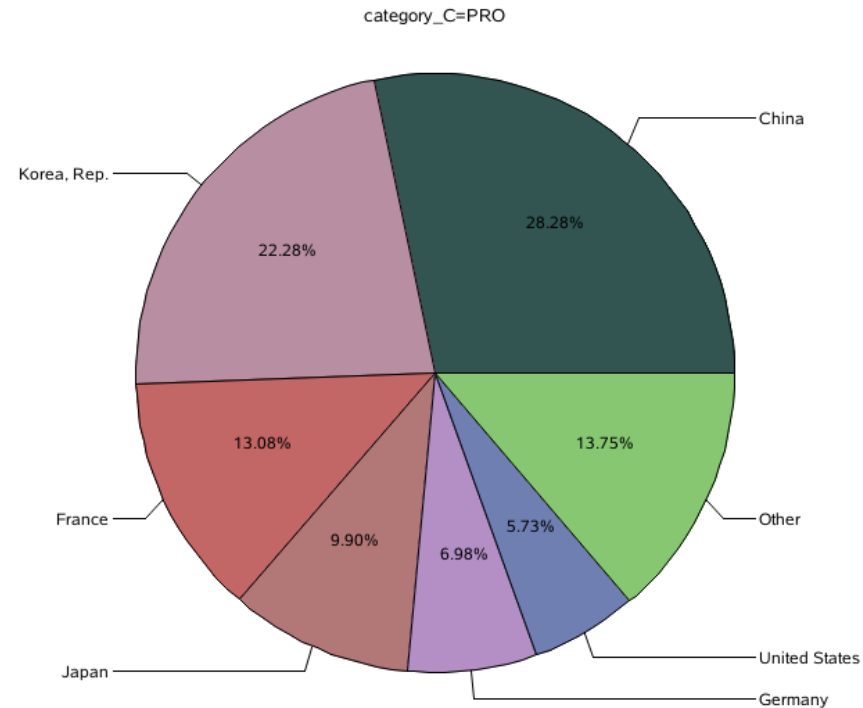
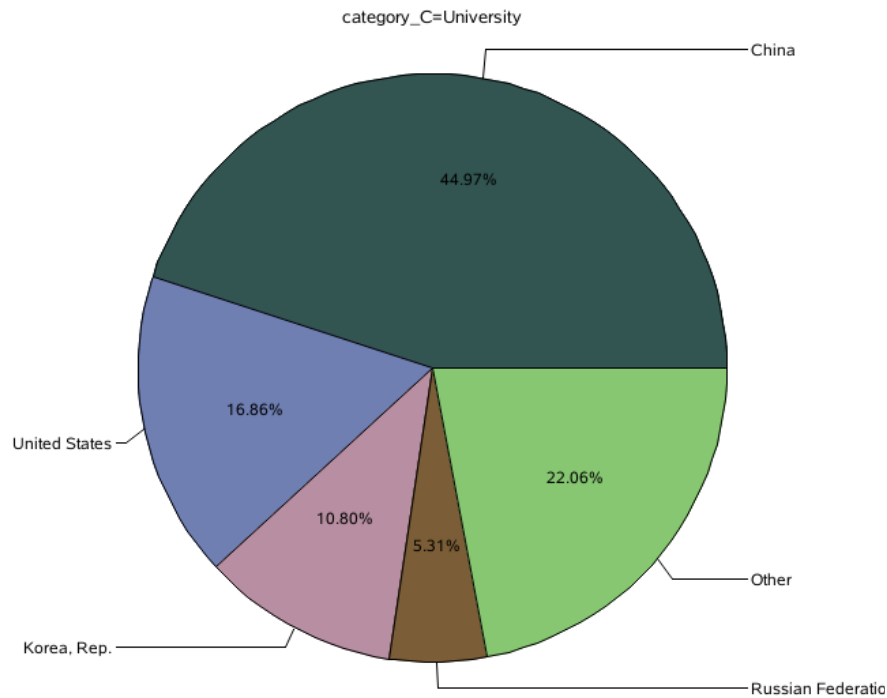
	Share of all applications			Compound annual growth rate		
	Other applications	PRO	University	Other applications	PRO	University
PCT	91.7%	2.4%	5.9%	12.7-13%	13%	17%
PATSTAT	90.4%	2.0%	7.6%	3%	8%	13%

2. Global PRO and university patenting scope – PCT



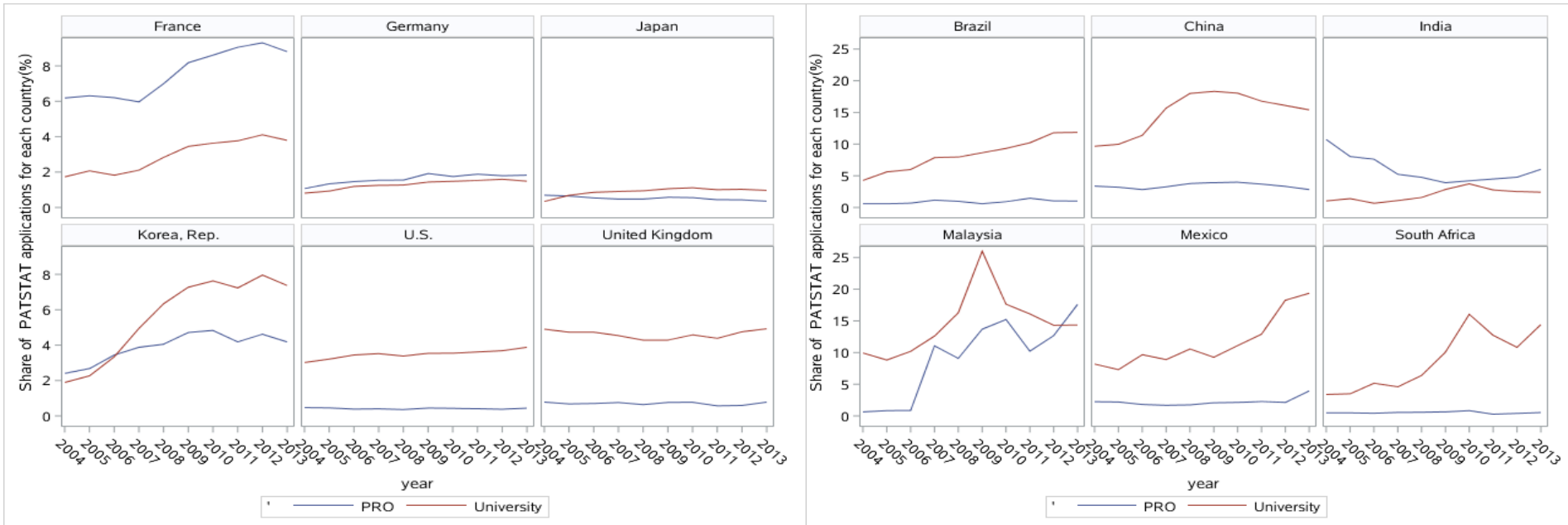
For the international filings, half of the growth driving by and high-income countries

2. Global PRO and university patenting scope – PATSTAT



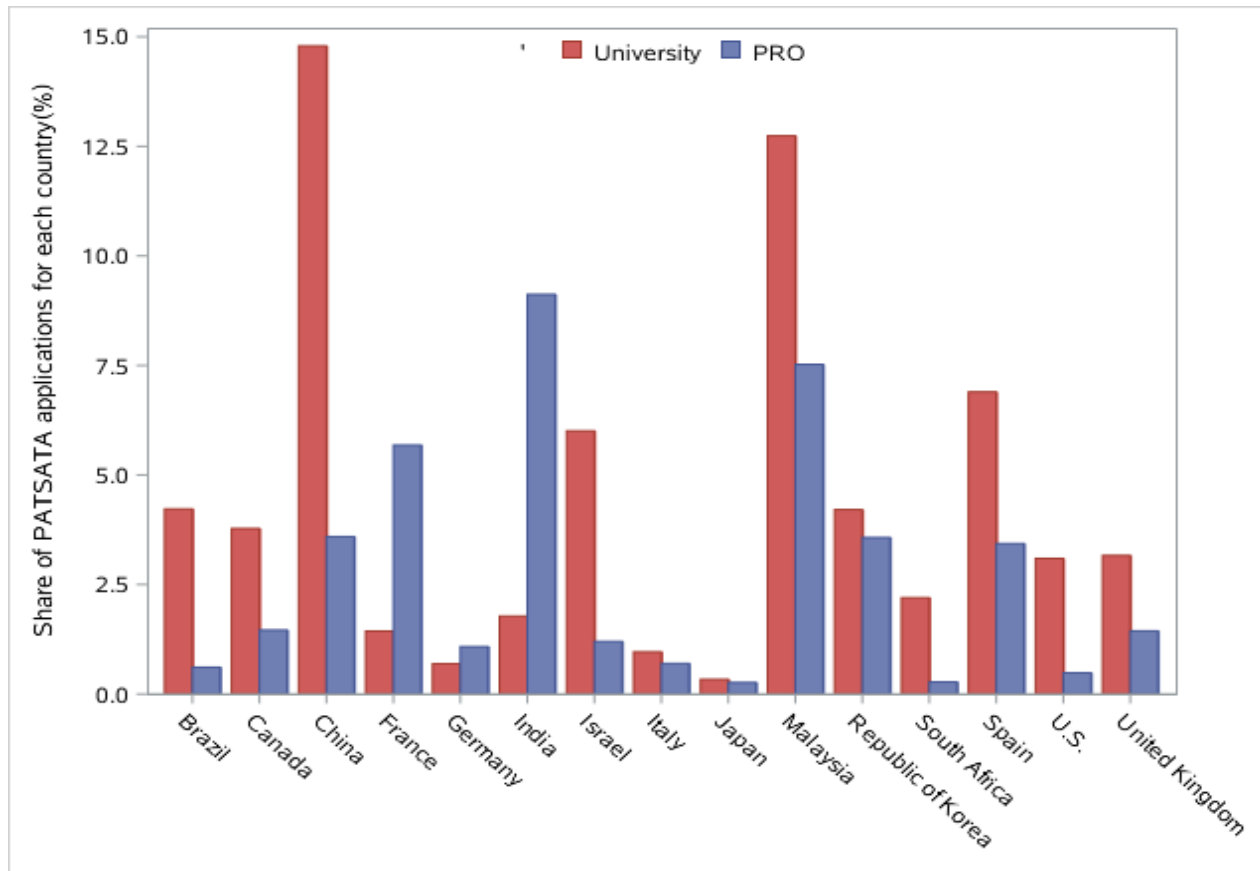
- For the national filings, half of the growth driving by Asian countries

2. Global PRO and university patenting scope—share



- The share of PRO/university filings out of all applicants in high-income country is much more stable than in middle-income country.
- evidence from both PCT and PATSTAT filings

2. Global PRO and university patenting scope— largest share of PRO/university at country level

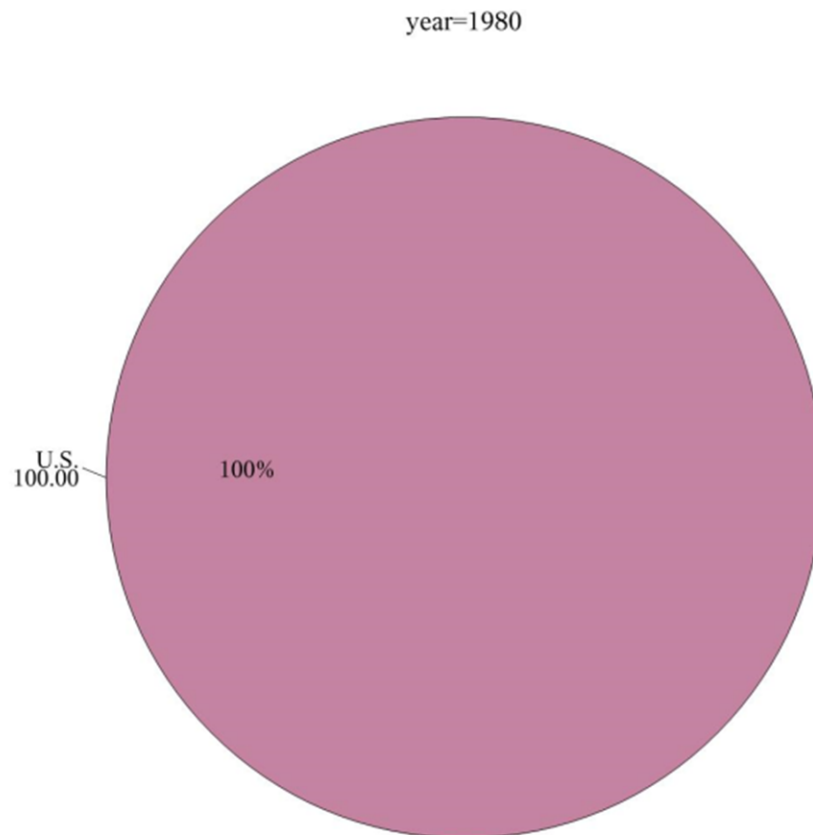


In middle-income group apparently and generally, the share of national universities and PROs patent filings is higher than high-income group.

That's why middle-income group, namely, Brazil, China, Indian, Malaysia, South Africa, seek for implementation and practices of knowledge transfer.

- the countries with the largest share of university applications are China(15 percent), Malaysia (12 percent), Spain (6 percent), Israel (6 percent), Brazil (4 percent) and the Republic of Korea (4 percent). The countries with the largest share of PRO applications are India (9 percent), France (6 percent), the Republic of Korea (4 percent), Spain (3 percent) and China (3 percent).

3. The global patenting changing in the 35 years-PCT-PRO



The global patenting actually moves in waves
1980-2015

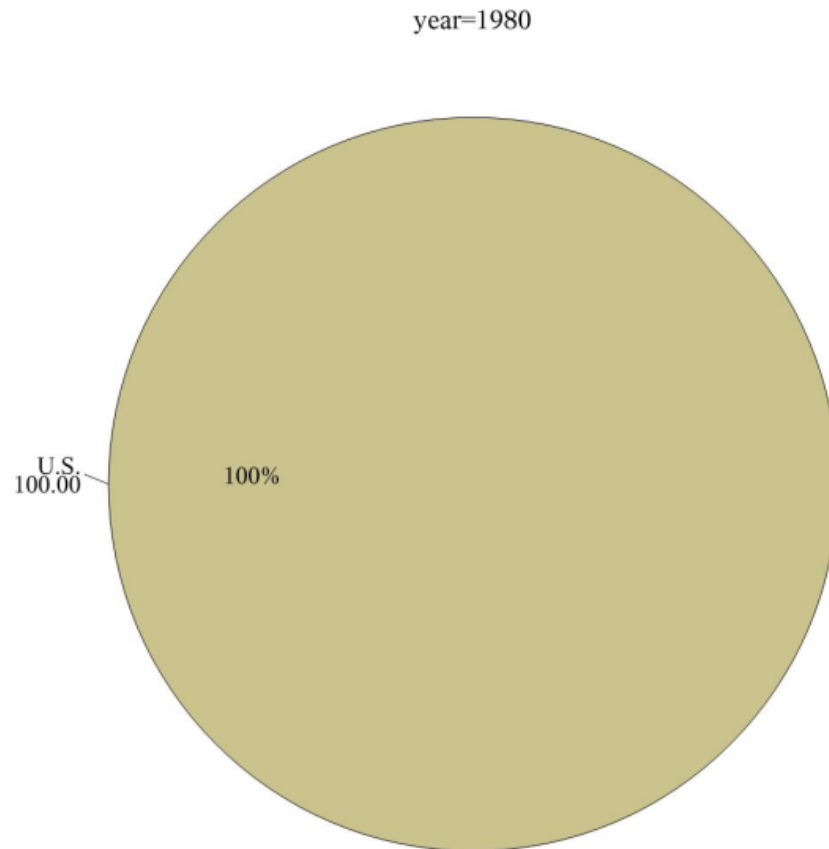
While the U.S. patent applications went from 45% of global applications in 1992 to 15% in 2015.

U.K. shrunk from 30% of global patenting in 1985 to less than 5% after 1999.

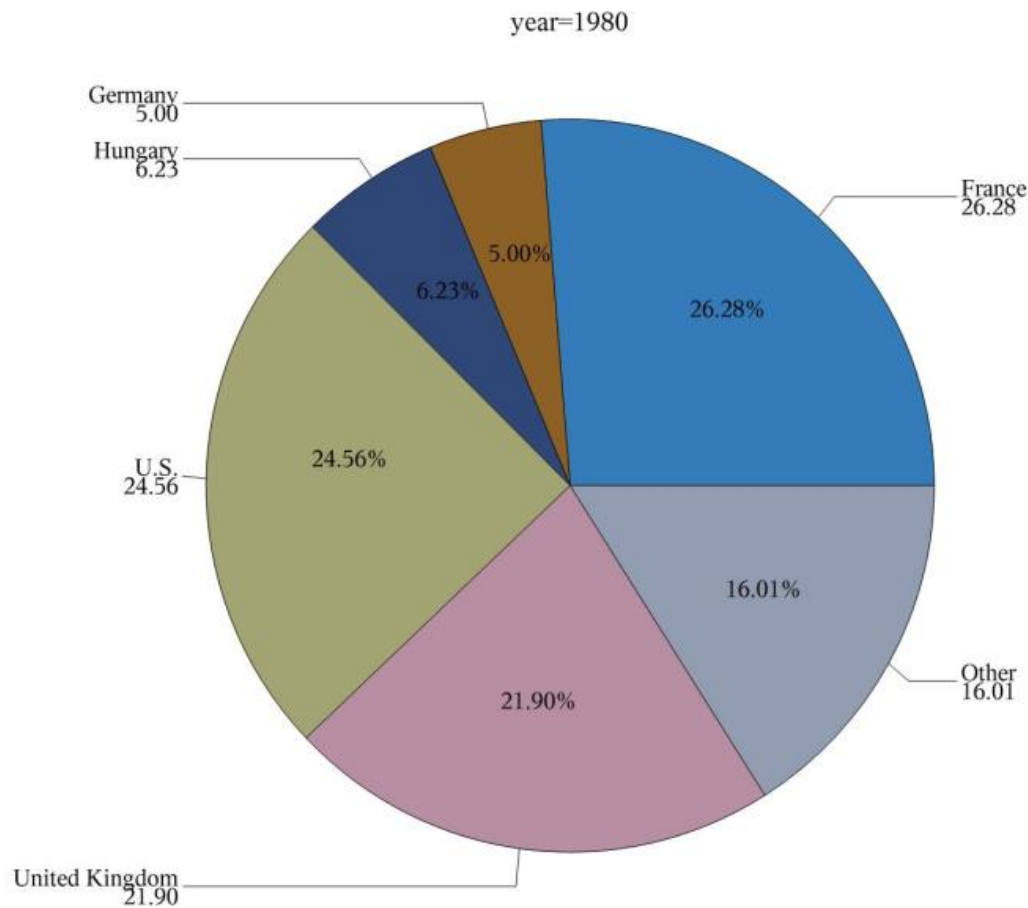
The biggest story is of course China, which grew from less than 5% of global patenting before 2010 to 12% in 2015.

Asia taking a strong share of the global patenting in university and PRO, Asia's current share of the global patenting is roughly equivalent to Europe's share in 2015 (32%).

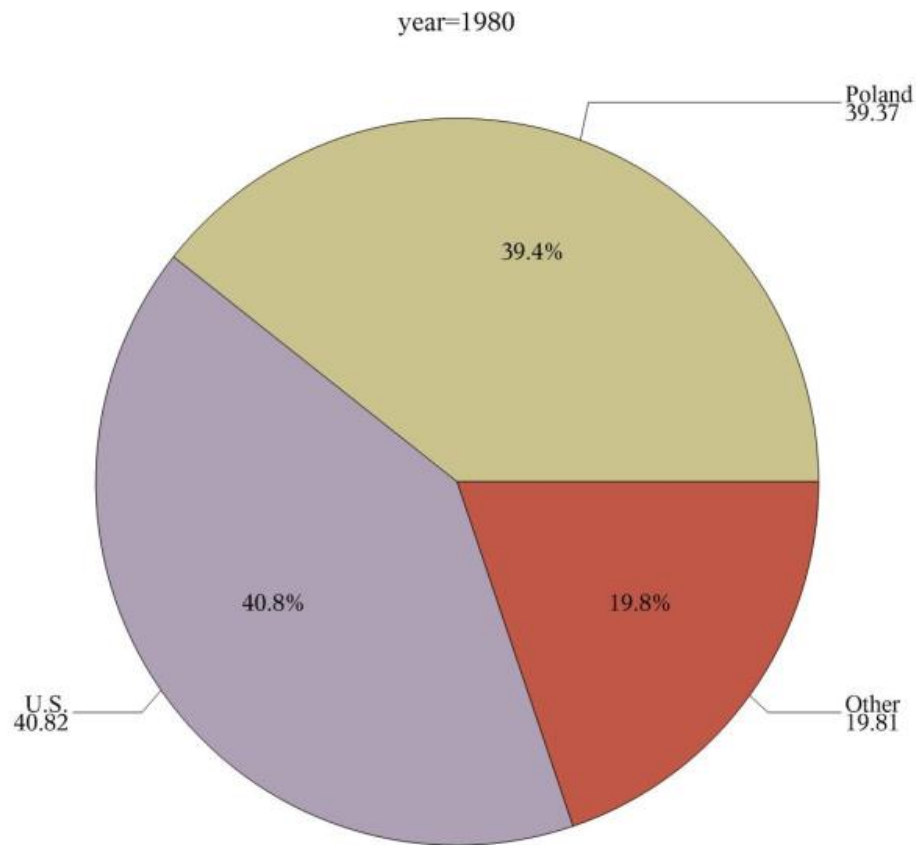
3.The global patenting changing in the 35 years-PCT-university



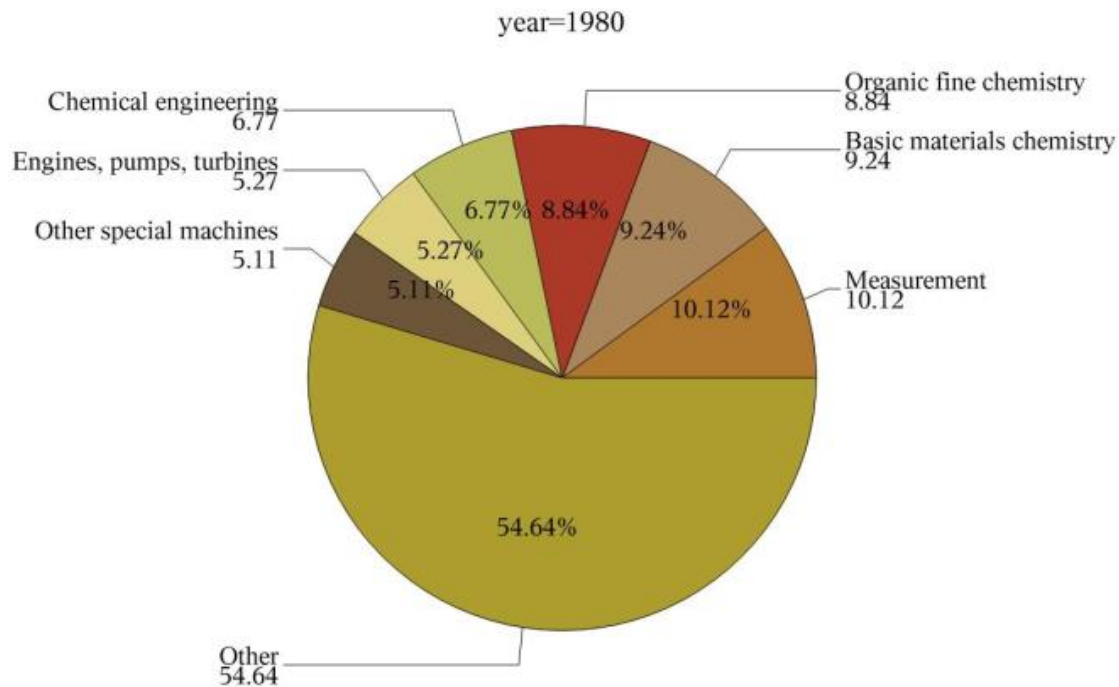
3.The global patenting changing in the 35 years-PATSTAT-PRO



3.The global patenting changing in the 35 years-PATSTAT-university



4. The technical fields changing of global patenting in the 35 years-PATSTAT-PRO



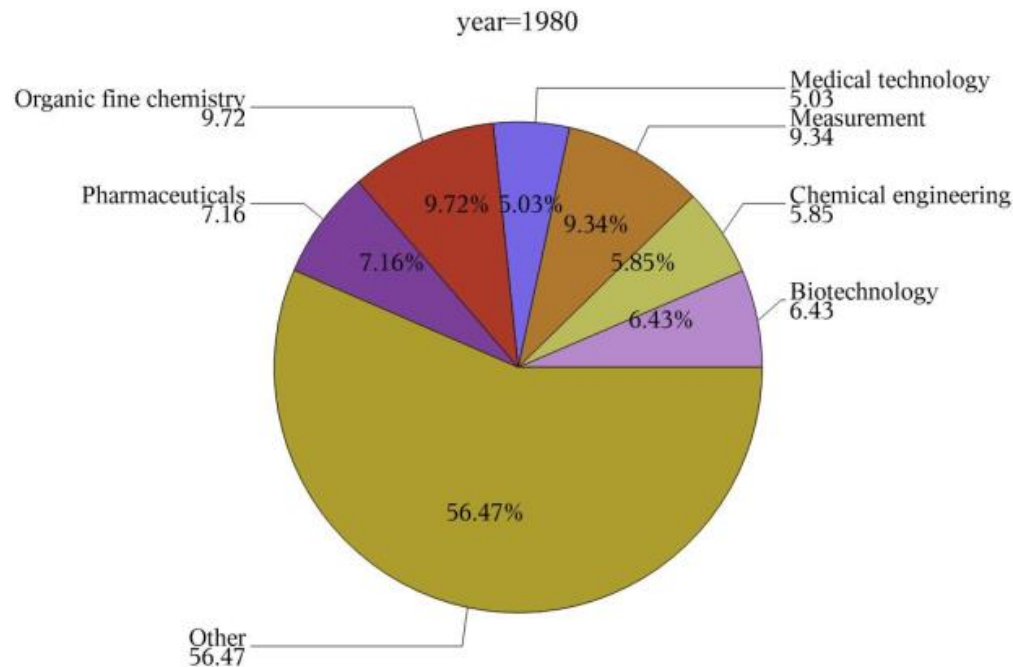
Measurement comes back to the top one in 2015 (11 percent), since it started to expand to 6 percent in 2004.

Basic material chemistry less than 5 percent since 1994, then disappeared.

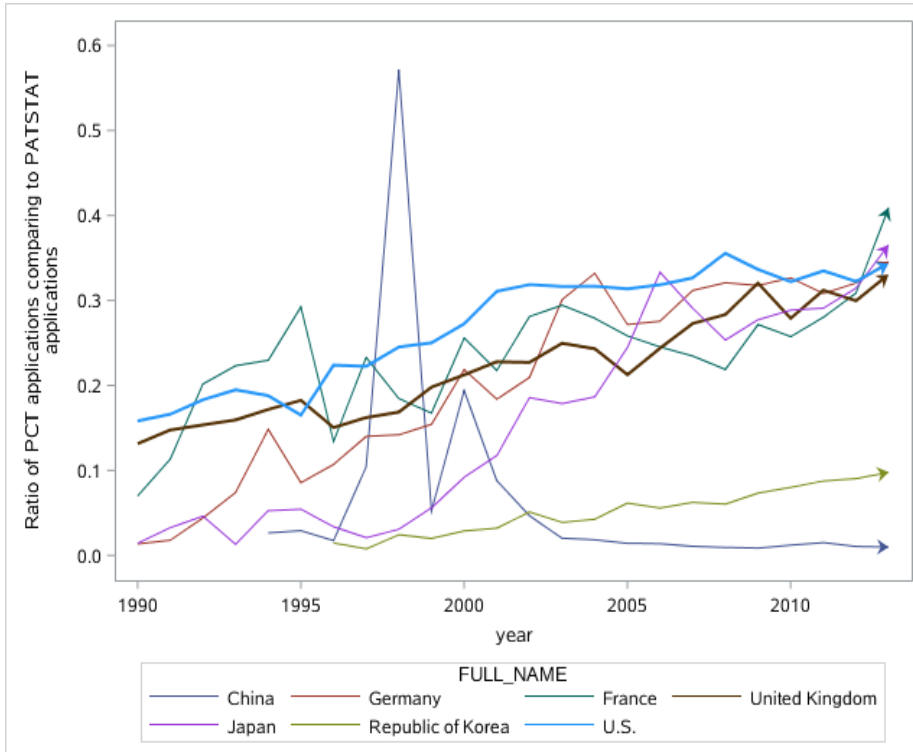
Biotechnology

Computer science surge up to 6 percent since 2005 .

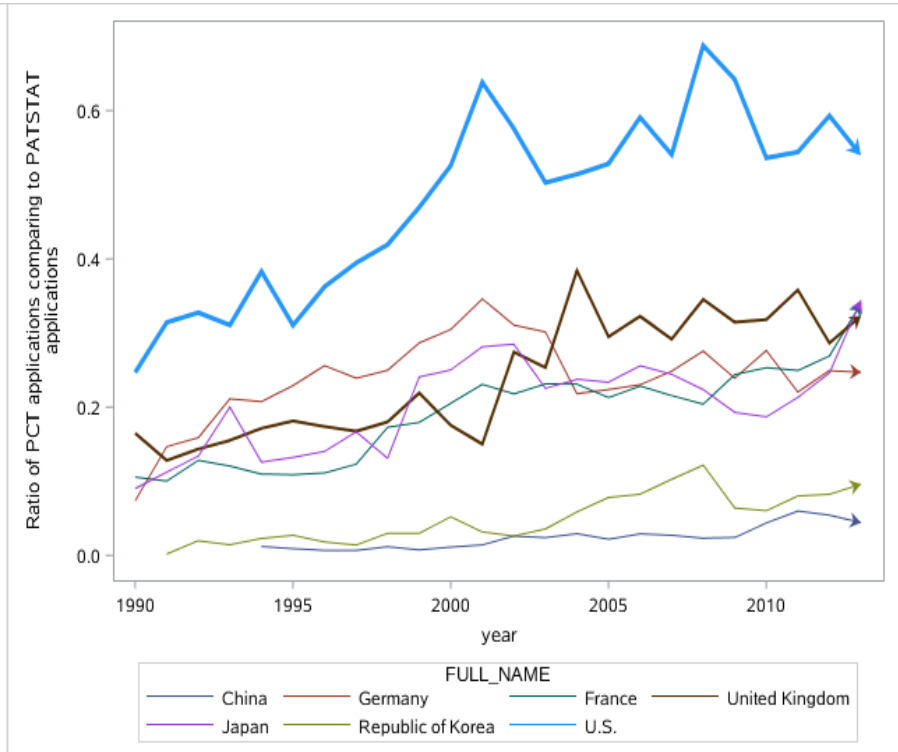
4. The technical fields changing of global patenting in the 35 years-PATSTAT-university



5. Comparing patent filings of PCT to the filings of PATSTAT



In terms of universities, **France** has the highest share of PCT filings out of national filings among top groups in 2013



In terms of PROs, **U.S.** has the highest share of PCT filings out of national filings among top groups in recent decade

6. Main findings

- 1. The global patenting actually moves in waves: Main actor is still private sectors, but PRO and university are surging as important innovation drivers.
- 2. The biggest trend over the last 35 years was a transfer of PRO and university patenting dominance from U.S. to Asia. Asia's current share of the global patenting is roughly equivalent to Europe's share.
- 3. The share of PRO and university from Chinese and Republic of Korea patents which get filed under PCT is still a small fraction of patents filed at national level, compared to the share in U.S., UK, Japan, France and Germany.

Reference

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Discussion