OECD Triadic Patent Families

OECD methodology: an overview

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The OECD and Patents Statistics

Increasing demand for patent statistics to provide a measure of technology performance across countries: from policy makers, analysts, researchers.

Develop a statistical infrastructure for patents (databases and methodologies):
- high quality indicators
- with an improved international comparability
**Patents Statistics**

- Most frequently published patent statistics refer to counts of patents applications to a single PTO

**Weaknesses in providing internationally comparable indicators of technology performance:**
- Home advantage bias
- No filters on patents’ values

**Patents Indicators based on PTOs**

Patent applications to the EPO / Patent grants at the USPTO
Country shares - residence of the inventors, priority year 1999

<table>
<thead>
<tr>
<th></th>
<th>EPO</th>
<th>USPTO</th>
</tr>
</thead>
<tbody>
<tr>
<td>European Union</td>
<td>46.5</td>
<td>15.9</td>
</tr>
<tr>
<td>United States</td>
<td>27.8</td>
<td>52.6</td>
</tr>
<tr>
<td>Japan</td>
<td>17.4</td>
<td>20.6</td>
</tr>
<tr>
<td>Other countries</td>
<td>8.3</td>
<td>10.9</td>
</tr>
</tbody>
</table>
OECD Triadic Patent Families

Patents Indicators based on PTOs
Patent applications to the EPO / Patent grants at the USPTO
Country shares - residence of the inventors, priority year 1999

- No more home advantage,
  international comparability of indicators is improved
- High value patents selected,
  costs-benefits to file for protection in several PTOs
Patent Family: country coverage

OECD definition of patent families focus on the triad US – Japan – Europe:

Coverage of patent applications in Europe?
- Filings at the EPO:
  More than 80% of patent applications and grants designate at least Germany, France and the United Kingdom altogether.
- Filings at national PTOs in Europe:
  Priorities at any European PTO (eg FR) extended to applications to JPO & USPTO but not to any other PTO in Europe included in the families.

Patent Family: country coverage

3 alternative definitions tested:
- USPTO + JPO + EPO
  resulting indicators show more balanced country shares: bias of regular patent indicators suppressed (home advantage).
- USPTO + JPO + (EPO or Germany and France and UK)
  no significant changes compared to definition (1), especially in the later years where less than 2% of total patent families are added by DE-FR-UK condition
- USPTO + JPO + (EPO or Germany or France or UK)
  introduction of country specificities: +15% difference with definition (1) for Germany, 30% more families for Japan.

Definition (1) covers almost all of the patent families in the triad US-Japan-Europe.
Patent Family: protect a same invention

- OECD patent families are built by tracking priority applications that have led to subsequent filings at USPTO, EPO and JPO.

- Depending on the PTO or on the applicant’s strategy:
  - a single priority can lead to several patents in a same office;
  - a single patent can be based on several priority applications.

<table>
<thead>
<tr>
<th>Number of priorities per patent</th>
<th>Number of patents with same priority</th>
</tr>
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<tbody>
<tr>
<td>USPTO</td>
<td>1.8</td>
</tr>
<tr>
<td>EPO</td>
<td>1.5</td>
</tr>
<tr>
<td>JPO</td>
<td>1.1</td>
</tr>
</tbody>
</table>

OECD Triadic Patent Families

- Most frequent combinations of triad patents in families -1998:
  - 1USPTO & 1EPO & 1JPO : 78 % of (a) -- 73 % (b)
  - 2USPTO & 1EPO & 1JPO : 13 % of (a) -- 12 % (b)
  - 1USPTO & 1EPO & 2JPO : 1 % of (a) -- 5 % (b)
  - 2USPTO & 2EPO & 2JPO : 2 % of (a) -- 3 % (b)

- Average number of triad patents in families (a) and (b) - 1998
  1.1 EPO patent, 1.3 USPTO patent, 1.1 JPO patent
Patent Family: protect a same invention

- **Consolidate families** - *(include indirect links)*: neutralise patenting behaviour influenced by rules and regulations of a given PTO

<table>
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<tr>
<th>Share of countries in triadic patent families, 1997</th>
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<tbody>
<tr>
<td>(a) Non consolidated</td>
</tr>
<tr>
<td>----------------------</td>
</tr>
<tr>
<td>Germany</td>
</tr>
<tr>
<td>Japan</td>
</tr>
<tr>
<td>United Kingdom</td>
</tr>
<tr>
<td>United States</td>
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<tr>
<td>European union</td>
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</tbody>
</table>

**OECD Patent family**: set of patents taken in various countries that share **one or more priorities**

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Processing Triadic Patent Families

- List all priority applications;
- Identify priorities with at least one subsequent patent at the EPO, USPTO and JPO;
- Regroup priorities *(consolidation)* when
  - more than one priority lead to one EPO patent application;
  - more than one priority lead to one USPTO grant;
  - more than one priority lead to one JPO application.
The consolidation process considers any linkage between patents:
- reduced volume of patent families,
- national specificity suppressed

OECD Triadic patent families, after consolidation, provide an improved measure of the innovative performance and technological change at an international level.
Conclusion

The OECD Triadic Patent Families are defined as a set of patents taken at the EPO, JPO and USPTO that share one or more priorities.

- Provide an improved internationally comparable indicator for OECD requirements (measuring innovative performance of countries).

Remaining weaknesses:

- Asymmetric information in patents for the triad: EPO and JPO applications but USPTO grants (USPTO applications published as of 2001)

- Timeliness: according to the earliest priority date, data almost complete up to 1997, nowcasts conducted on series up to 1999.