Dulling the Cutting Edge: How Patent-Related Polices and Practices Hamper Innovation in China

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Main Research Question

What institutional and regulatory factors (a) closely related to patents/patent quality (b) that can be remedied in the near future hamper patent quality and related innovation in (mainland) China?
Methodology

• **Research**
  – (1) Primary sources (e.g. thousands pgs of measures), (2) secondary sources (e.g. numerous empirical economic analyses), (3) consultations

• **Analysis**
  – (1) Legal, (2) incentive theory/OB, (3) statistical, (4) applied economic

• **Recommendations**
  – (1) Extension of analysis, (2) practicality test
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Types of patents in China

• Patents – legal rights to exclude others from exploiting (making, using, selling) your invention

• Types of patents in China
  – Invention patents
  – Utility model patents
  – Design patents
Why care about patent quality?

• *Innovation* is important to one’s economy
• Innovation = (1) *Inventions* (2) that are *exploited*
  — Incremental
  — Breakthrough
• Patents are an output measure of *inventions*
• Patent *quality*, as defined in the study, is a useful proxy of *innovation*
Study’s definitions of patent “quality” + how the 3 types of patents in China fit within them

• **“Quality” patents** must (1) meet or exceed the statutory requirements for patentability in China, and (2) have reasonable prospects of (i) ultimately being commercialised or (ii) otherwise being transformed to contribute to social, economic and/or environmental progress in China.

• **“Highest-quality” patents** must (1)-(2) meet or exceed the two criteria for “quality” patents (see aforementioned definition); and (3) best advance Chinese government objectives of sustainably increasing breakthrough research and innovation led by domestic entities and FIEs in China.

• **“Low-quality” patents** are those that do not meet the aforementioned standards for quality (or highest-quality) patents.
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Although patent #s are exploding, there’s been a shift in the composition of patents...is this concerning?

Source: SIPO statistics; calculations
Will these trends continue?

Total (domestic + foreign) patent applications in China (2011)

- Design patents: 32% (521,468)
- Invention patents: 32% (526,412)
- Utility models: 36% (585,467)

Total (domestic + foreign) patent applications in China (2015) – Estimate

- Design patents: 29% (1,069,352)
- Invention patents: 30% (1,116,029)
- Utility models: 41% (1,547,188)

Source: SIPO statistics; projections from methodology A in study
China doesn’t score particularly well on patent quality metrics

Example metrics:

• Chinese SOEs’ scores could be better vs. other enterprises
• Time of patents in force/life-span of patents is relatively short
• Poor scores on OECD Patent Citation Index
• Empirical research shows reluctance of foreign firms to patent most breakthrough technology in China
Strategy: Quantity first...quality can follow

Government strategy to first build quantity of patents, then focus on quality:

• Generally, this indeed makes sense
• Government is commendably trying hard to transition
• However, not easy transition...certain practical reforms deserve to be made, and sooner than later
Chinese innovation has a ways to go to be #1

- Innovation in China is certainly increasing, and in some cases impressively so. However, actual innovation sometimes appears overhyped by the media and some businesses.

- Even most complimentary (yet also rigorously crafted) rankings (e.g. by CASTED) = at least 20 more innovative countries than China at present
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Overemphasis on quantitative patent targets misses the mark

• **Government-set, mostly for/by 2015**
  – 10 national-level
  – Over 150 provincial/municipal level

• **Main problem: Does not optimally stimulate patent quality and healthy innovation**
  – Current targets ≠ *innovations*. Not optimal for guiding or assessing the effectiveness of policies to spur innovation.
  – Potentially perverse incentives
Concerns with patent-based performance evaluations

Examples, for:
• Party officials
• SOEs – SASAC
• University and research institutes
• Others

How working exactly? Appears might need some improvement
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Patent filing subsidy system needs reform

- State pays for attorney and official filing fees
- Some reforms, in some places, taking place
  - Only given to invention patents
  - Only given to patents *granted*
- But still more could be done – see detailed recommendations in study
Indigenous IPR still subsidised

• **IPR component of Indigenous Innovation Policy**
  – "Indigenous intellectual property rights" ("IND IP") + financial incentives
  – Concept around since 1990s, and **still** around
  – Delinked from GP, BUT linked to OTHER financial incentives

• **Concerning because:**
  – **First:** Dubious that evidence-based + ‘IND IP thought’ indoctrinates whole system
  – **Second:** likely won’t lead to foreign IPR transfers, and actually worsens perception of innovation environment
  – **Third:** when compounded w/other factors, certain investment might move elsewhere
  – **Fourth:** may be WTO inconsistent, so safe to replace
Indigenous IPR still subsidised

• Central Foreign Trade Development Fund
  – 37.7 BILLION RMB by even old estimates
  – IND IP requirements + subsidies
  – Additional WTO inconsistent provisions

• Sub-central level funds
  – IND IP requirements + S&T and invention-specific funds
  – Incentives for employees to invent, but not necessarily innovate
Indigenous IPR still subsidised, S&T funding system is less than optimal

• **High and New Technology Enterprise (HNTE) scheme**
  – Variation of IND IP requirements + tax breaks
  – 6 utility models = 1 invention patent

• **State S&T funding restrictions**
  – Foreign companies find it difficult to access funds
  – State must own tech. resulting from state-funded projects in certain cases
  – Other overly burdensome restrictions
Standardisation policies not stimulating highest-quality patents

- **Examples of *de jure* and *de facto* restrictions:**
  - FIEs excluded from Technical Committees making standards
  - Difficulties (e.g. in telecom) getting licenses to essential patents
  - Develop national standards exclusively reflecting SOEs’ capabilities
  - IND IP requirements + big subsidies (up to 1 million RMB per standard)

- **Problem:** Overly shield from competition = may fail domestically and/or internationally, wastes resources

- **IND-IP-related concerns too**
Inventor remuneration rules are overly restrictive

- *Service Invention Regulations (draft)* from late 2012, example concerns:
  - Article 19.2 = biggest concern...no flexibility?
  - “Entity to whom the patent is granted” is responsible for remuneration, but should be direct employer of inventor
  - Definition of “technical secret” requires clarification
  - Must be clearer that commercial secrets can be withheld from inventor and gov’t re economic benefit from service invention
  - Minimum remuneration for exploiting IP (% paid from operating profit [w/cap]; % from sales revenue; % from assignment or licensing fee) is even higher than in 2010 Implementing Rules of Patent Law
“Raw deals” haven’t best stimulated breakthrough innovation

• In closed sectors where SOEs dominate, foreign companies frequently get raw deals. Example:
  – Require transfer of key technology as precondition for JV

• Problems:
  – Is the Chinese market just to good to give up? On the whole, and at least to date, not for operations w/most breakthrough technology (given IP concerns)
  – Chinese cos. become over reliant on foreign technology
  – WTO inconsistent
  – May fuel techno-economic security policies abroad
Tech. import and export rules, and various other issues are concerning

• **Technology import and export rules. Some issues:**
  – Subsequent improvements on technology owned by party making improvements
  – Unclear about “restricted” and “prohibited” categories

• **Other issues**
  – Industrial park incentives and industry formulation not optimal
  – “Megaprojects” approach
  – Certain incremental innovation approaches need improvement
  – Other concerns
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Concerns with patent review rules

• Confidentiality Review Process
• Prioritised Patent Review/Green Channel
• Difficulties in patentability in agrosciences
• Others
Concerns with patent enforcement

- Abuse of patent rights
- Restrictions on *prior art* that is considered
- Limited *prior art* review in infringement cases
- Judicial review of Patent Evaluation Reports
- *Anti-Monopoly Law* ambiguities
- Difficulty protecting process patents
- Difficulties obtaining Preliminary Injunctions
- Others
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# 1: China’s patent quality needs improvement as does its innovation ecosystem at large

China does not measure up well on various patent quality metrics, and its innovation appears overhyped

- Although there’s a patent filing explosion, there’s lackluster scores on patent quality indicators
- Lagging scores on innovation indicators
#2: There are systemic problems in China’s patent quality and innovation ecosystem

Individually, and, moreover, collectively problematic:

• **Overemphasis of quantitative patent targets**
  - 10 national level; over 150 provincial/municipal level

• **Patent-promoting policies deserve improvement**
  - Indigenous IPR requirements + subsidies
  - Tax rules, standards, and “raw deals”
  - Many others

• **Rules for patent review and enforcement deserve improvement**
#3: These systemic problems can be practically resolved

Over 50 detailed recommendations in *Dulling the Cutting Edge*. Summarised examples:

- Base innovation targets more on a composite index
- Revise certain tax rules and other financial incentives
- Taskforce to look into standards issues
- Working Group on raw deals to talk to MOFCOM
#4: Some progress has already been made since publication of the study – dialogues

- High-level and working-level meetings with SIPO and other ministries
- Positive response through lobbying via other channels
- Positive continued engagement with local scholars
#4: continued – revised *Patent Examination Guidelines* (draft, comments due Mar. 2013)

- **Changes to somewhat improve vetting of utility models**
  - Stronger language in revisions vs. currently in force measure:
    - (rev.) “shall judge” whether obvious lack of novelty, and may do so via consideration of prior art or conflicting application VS. (cur.) “generally does not determine via search,” but “may” judge via same aforementioned materials not gathered via search
    - (rev.) “where abnormal application might be involved” mandatory consideration of materials via search or other means VS. (cur.) “where abnormal application is involved”
    - (rev.) “may examine” in PE if meets Article 9 VS. (cur.) “shall not be examined via search” if meets Article 9

- **Also, changes to somewhat improve vetting of design patents**

- **While certainly more can be done, measures are a welcome step**
#4: continued – regulatory and other changes in last few months

• Invention patents in force/10,000 individuals to be more widely used metric
• Incentives pledged to be more on demand side than just supply side
• Initiatives to improve IPR services industry (e.g. intermediaries)
• Measures focus on regionalising IP in SEIs, focus on strengthening specific IP clusters and management zones (not just blanket instructions)
• Some transparency under 2013 draft measure for national standards involving patents
• Others
Q&A

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