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Comments on patent and competition policy in the era of patent thicket

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Patent thicket problem

- Causes

- Increasing combinatorial innovations

  convergence between computer and communications

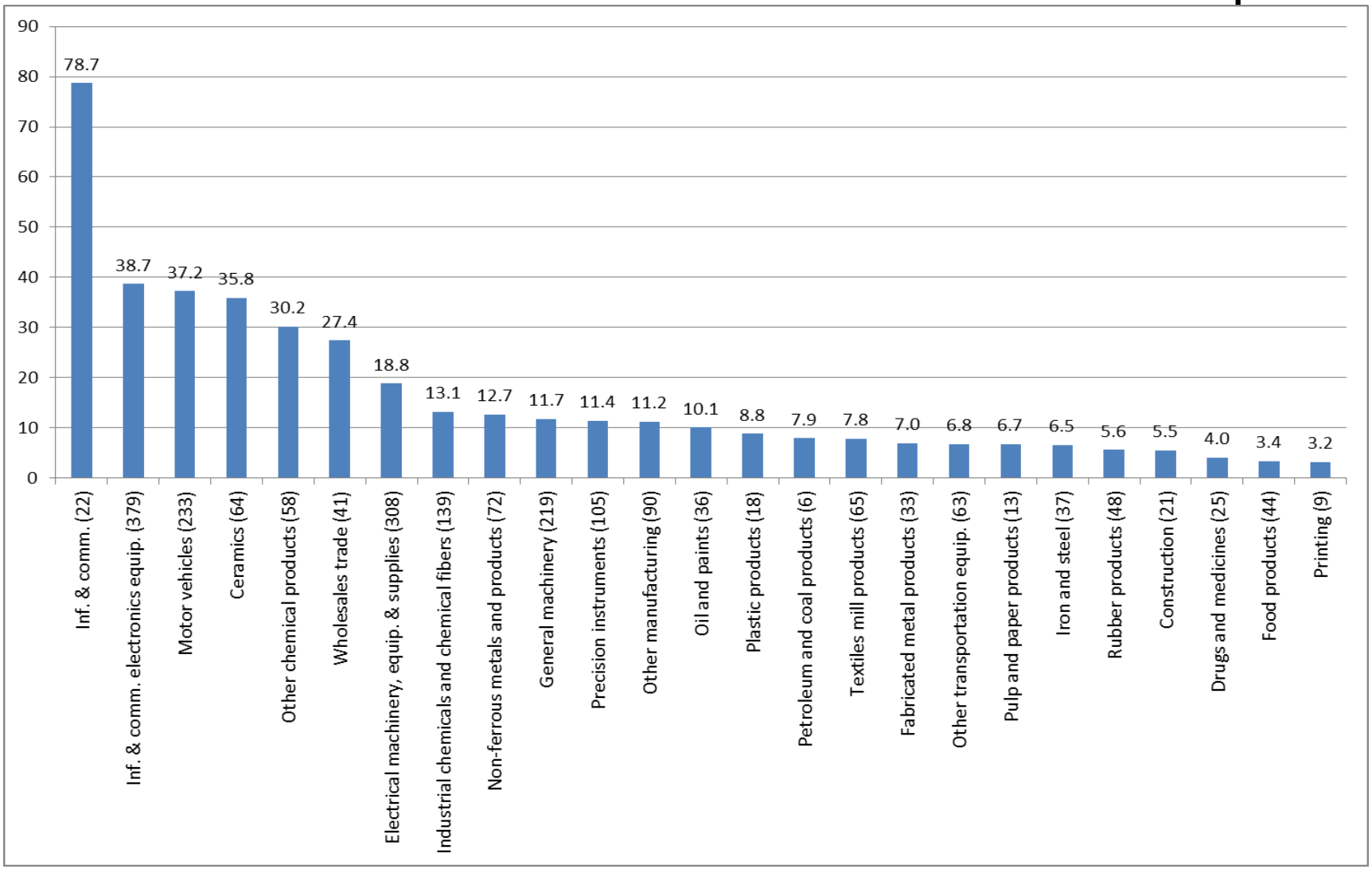
- More competitions

  New players from different technology area

  New players from non-OECD economies

  Exit of incumbents with patents

Figure 1. Number of patents which need to be combined for the commercialization of the focal patent



Source : Nagaoka and Nishimura (2014)

Note. The numbers in the bracket indicate the sample size in each sector.

Does “patent thicket” reduce incentive for innovate?

- Patent thicket is not a new problem

  private contracting

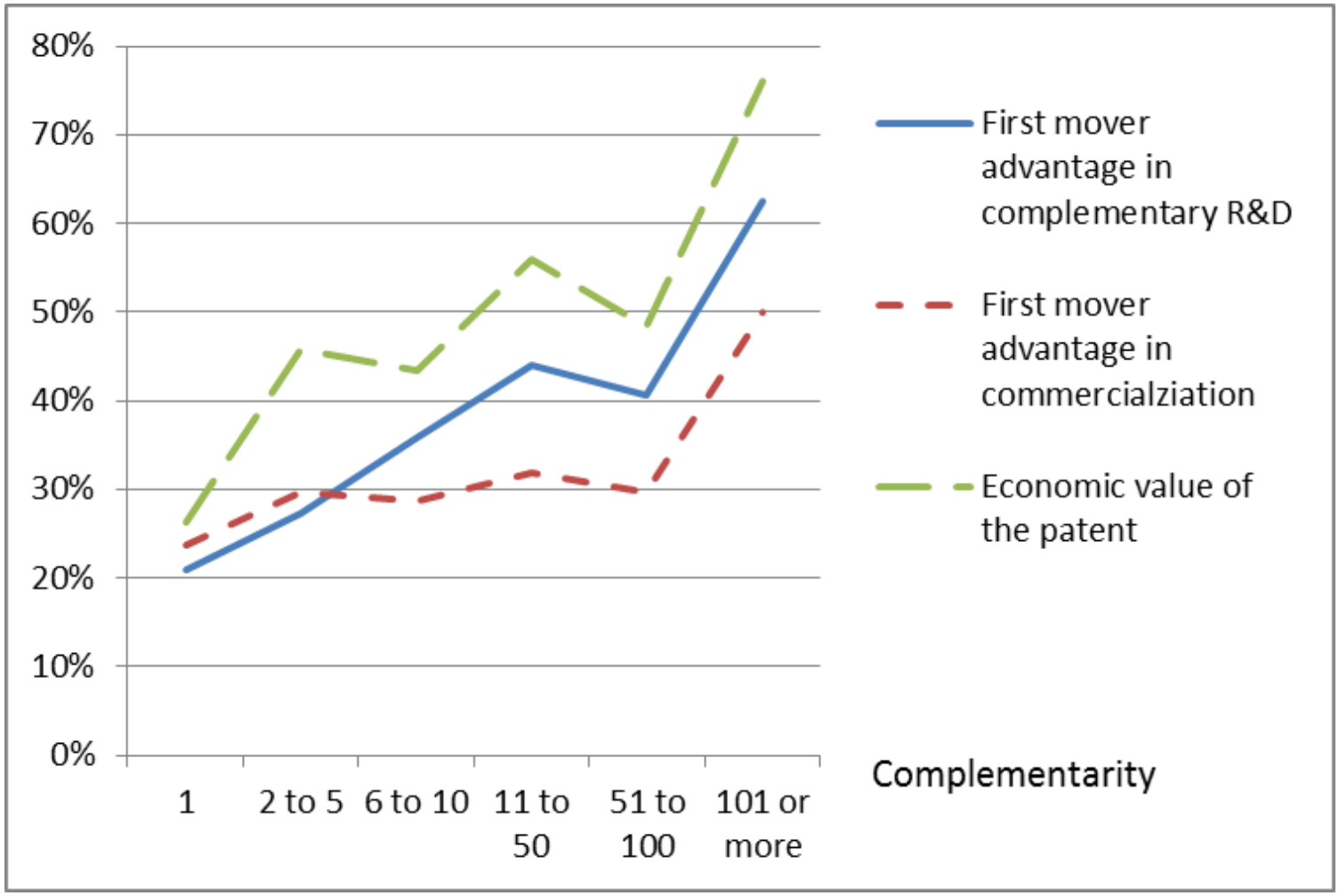
  - cross licensing
  - standard setting and RAND licensing

- Complementarity and patenting motivations

  -increasing patenting value and first mover advantages

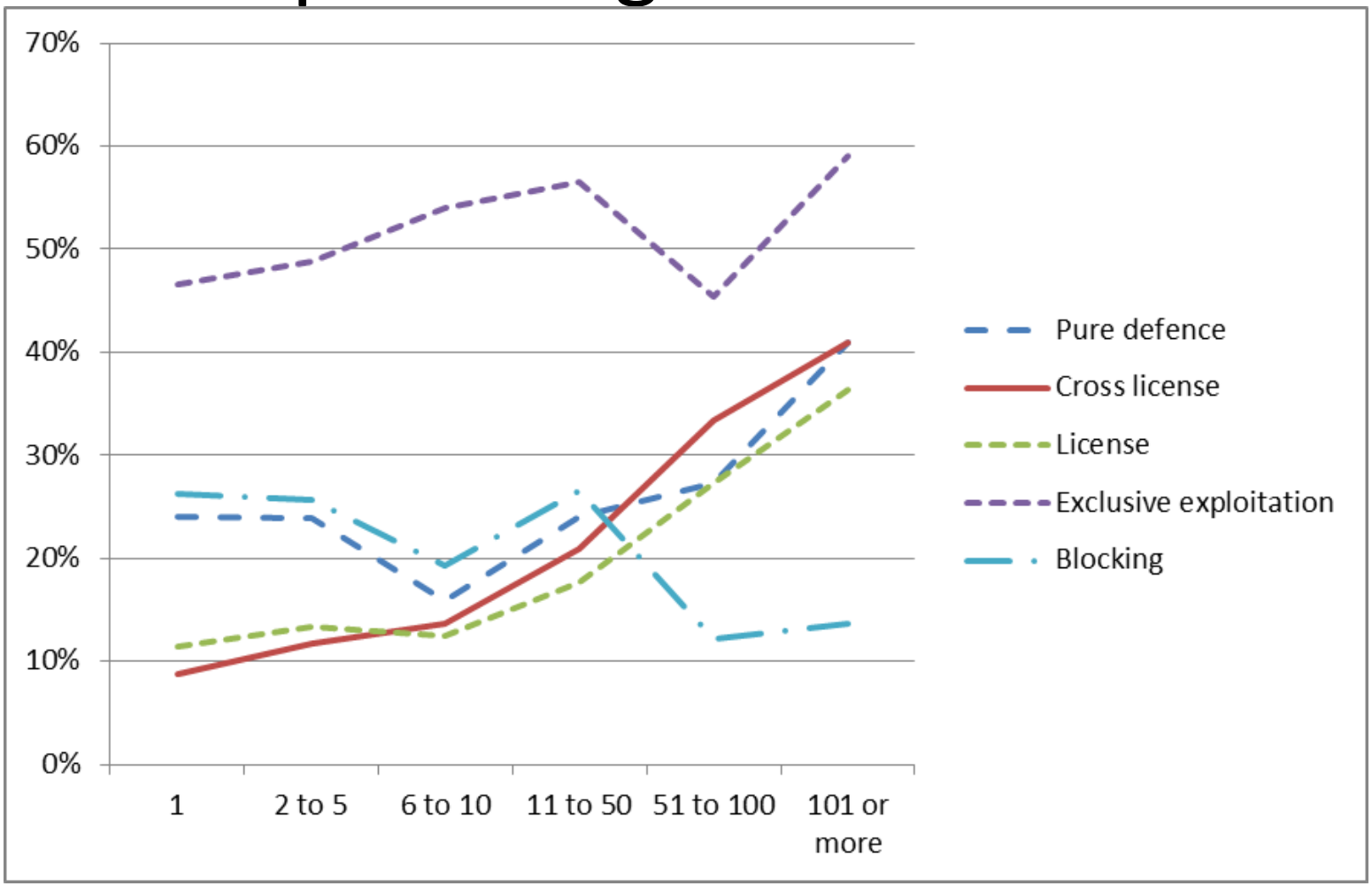
  -licensing vs. blocking (note, however, that the responses are mainly from manufacturers)

Figure2. Complementarity and FMAs/PV



Source : Nagaoka and Nishimura (2014)

Figure3. Complementarity and patenting motivations



Source : Nagaoka and Nishimura (2014)

Patent system for innovations

- Patent system promotes innovation if

(1) rights are given only to the inventions with novelty and inventive step,

(2) the inventions and the claims are clearly delineated and disclosed, and

(3) the patents are enforced.

- This set of conditions will encourage ex-ante licensing, which results in

- More combinations for better products for consumers
- More incentive for R&D

Patent policy issues

- Probabilistic patent

- Uncertainty in validity and infringement

- Weak Patents may be strong (Farrell and Shapiro (2008)

- Patent quality is important (examination and its infrastructure, third party contributions)

- Subject matter issue: Software patents in the US vs. Japan

- Long-term licensing commitment similar to “RAND-encumbered” patents

- A mechanism encouraging patentee makes an ex-ante commitment that a particular (bundle) of patents is licensed under fixed conditions, even after it sells the bundle of the patents later to a third party.

- Transparency in transfer of ownership

Table 1. Value of patent disclosure by sectors

		%, very important			%, very important	
	Japan	patent	science	US	patent	science
Most important	Resins	37	19	Drugs	33	51
	Drugs	32	51	Resins	32	26
	Organic Compounds	32	31	Surgery & Medical Instruments	24	26
	Coating	31	27	Miscellaneous-chemical	23	23
	Biotechnology	30	47	Coating	19	23
	All sctor average	23	19	All sctor average	13	20
Least important	Measuring & Testing	17	30	Miscellaneous-Elec.	7	10
	Optics	16	11	Information Storage	5	18
	Semiconductor Devices	16	21	Motors, Engines & Parts	4	10
	Information Storage	16	16	Metal Working	2	7
	Computer Software	10	16	Computer Software	1	14

Note. 5 sectors where patent literature is most frequently or the least frequently the very Important source for suggesting the research project
Based on the RIETI and RIETI/GT inventor survey

Competition policy issues

- Encourage efficient patent aggregation, while prevent the exercise of the market power created through aggregating substitute patents

- aggregating the substitute patents owned by different parties can significantly reduce competition in technology market Prevent hold-up behaviors

- Prevent the patent being used for constraining the competition through the breach of implicit contracts (such as through strategic delegations)

New competition policy issues for aggregators

- An aggregator has a single ownership control over the patents
- Thus, the following mechanism which protects competition in the case of a patent pool does not work

(1) An option for independent licensing does not work, unlike in the pool with multiple owners (Lerner and Tirole (2004))

(2) No competitive incentive for screening "essential patents" as in the case of a pool

References

- Lerner Joshua and Jean Tirole. 2004, “Efficient Patent Pools,” American Economic Review, Vo. 94, No. 3, 691-711
- Farrell, Joseph and Carl Shapiro. 2008. “How Strong Are Weak Patents?“ American Economic Review, 98:4, 1347–1369
- Nagaoka Sadao and Nishimura Yoichiro, 2014, “Complementarity, Fragmentation, and the Effects of Patent Thickets,” RIETI Discussion Paper Series 14-E-001