

# SEPs and Patent Grant in China: What the data show

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# Context: anti-foreign bias

- Recent research in the economics of IP on **anti-foreign bias**, which seems to be in apparent violation of WTO TRIPS ‘national treatment principle’.
- Original study by Webster et al. (2014). They take patents by EU and JP applicants that are granted by the USPTO and filed at both the EPO and JPO. They find that EU applicants are more likely to have their patents granted at the EPO, and vice-versa for JP applicants.

# What does this bias reflect?

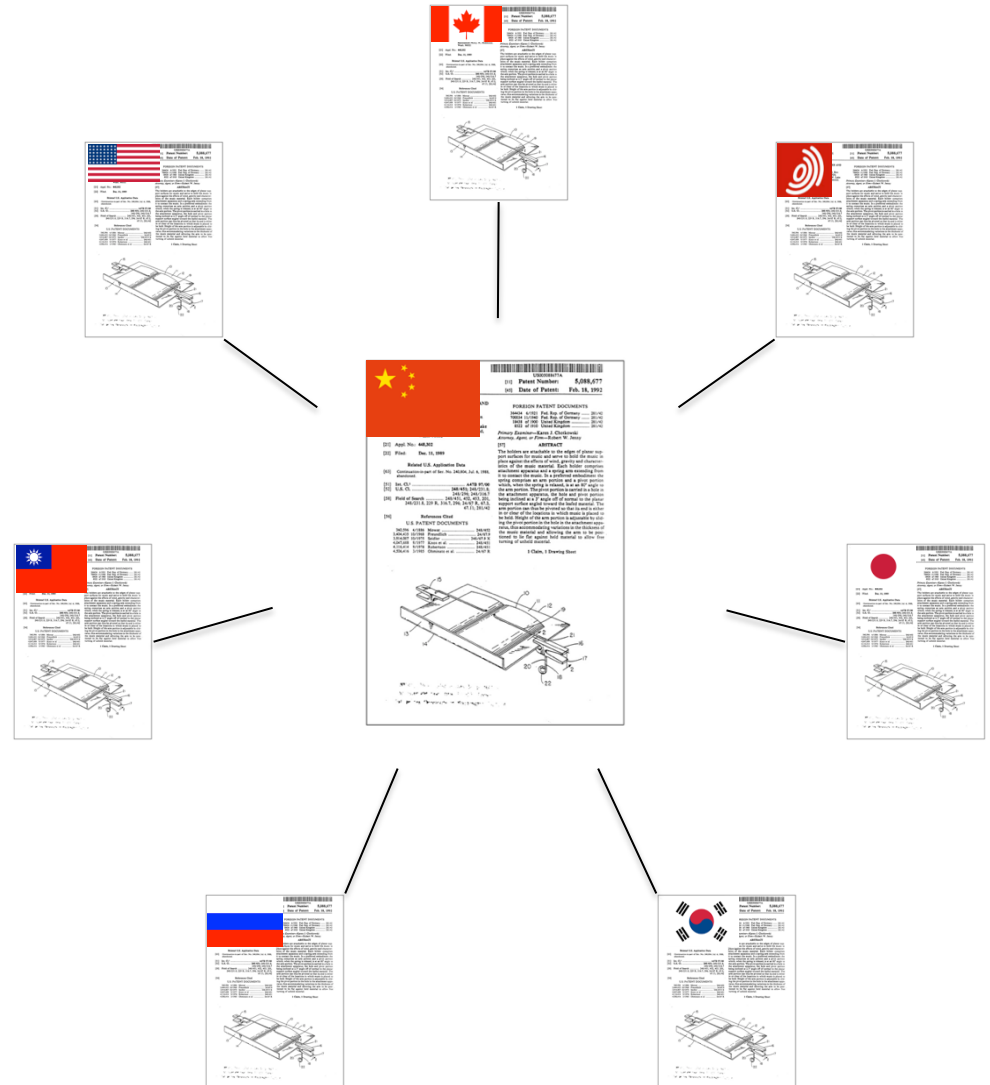
- Hard to tell!
  - Greater incentives to “push for a grant” at the home office?
  - Greater familiarity with home patent system?
  - Discrimination against foreigners?
- Some people have argued that this bias reflects discrimination. We ran similar analyses using data from SIPO.

# The main analysis

- We use more than 1 million patent applications from China (filed by foreign firms or Chinese firms) in the 2001–2009 period.
- We try to **predict the probability that an application is granted**. We account for many effects such as, most importantly:
  - the ‘quality’ of the patent attorney firm
  - the grant outcome of ‘twin’ patents at other offices
  - (trust me, lots of factors)

# Tracking the fate of twins at 7 offices

- Not always a twin at each office.
- We look at the average grant rates of these twins. We obtain a **baseline probability of grant**. It informs us about the likelihood of grant at SIPO.  
*(More sophisticated than original study.)*

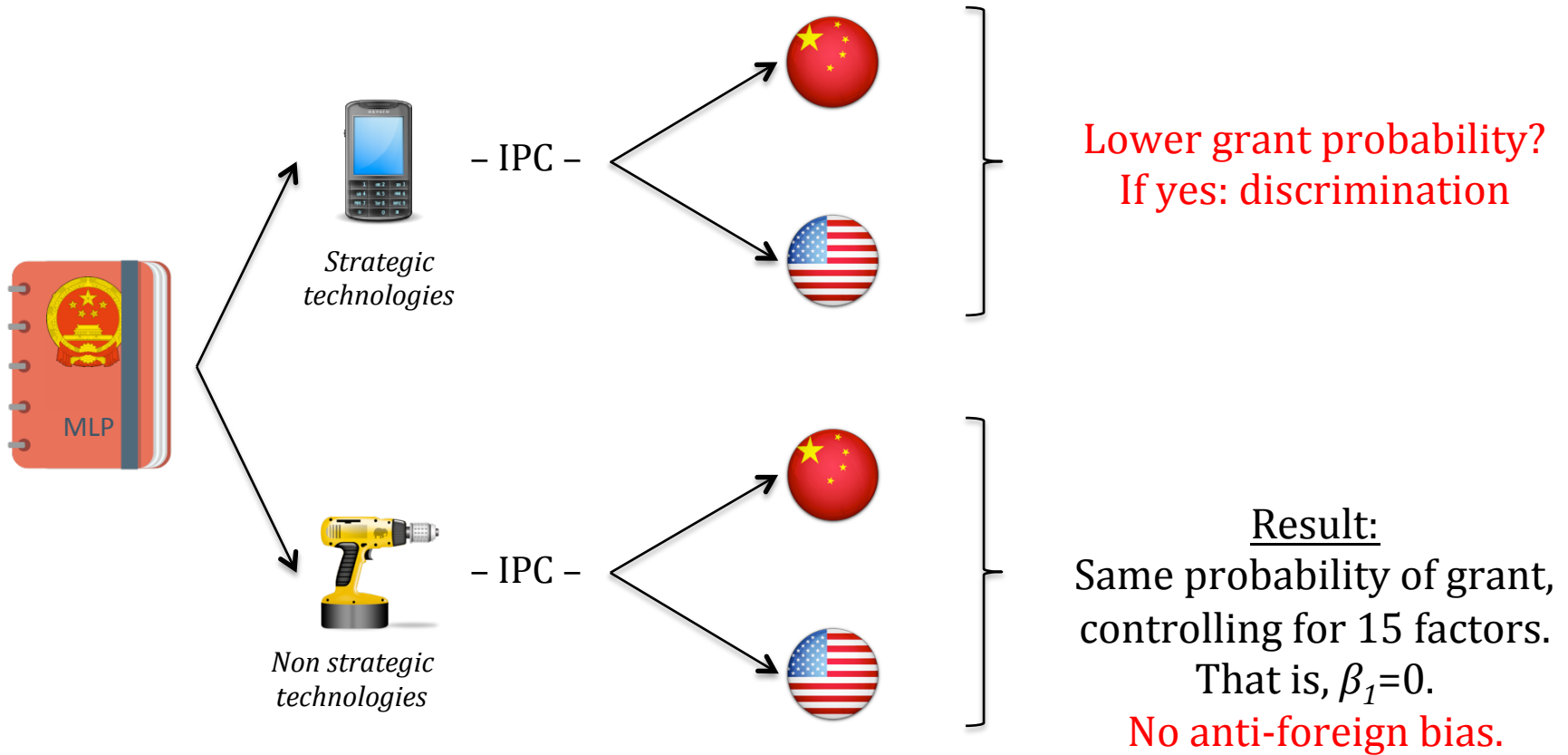


# The main analysis (cont'd)

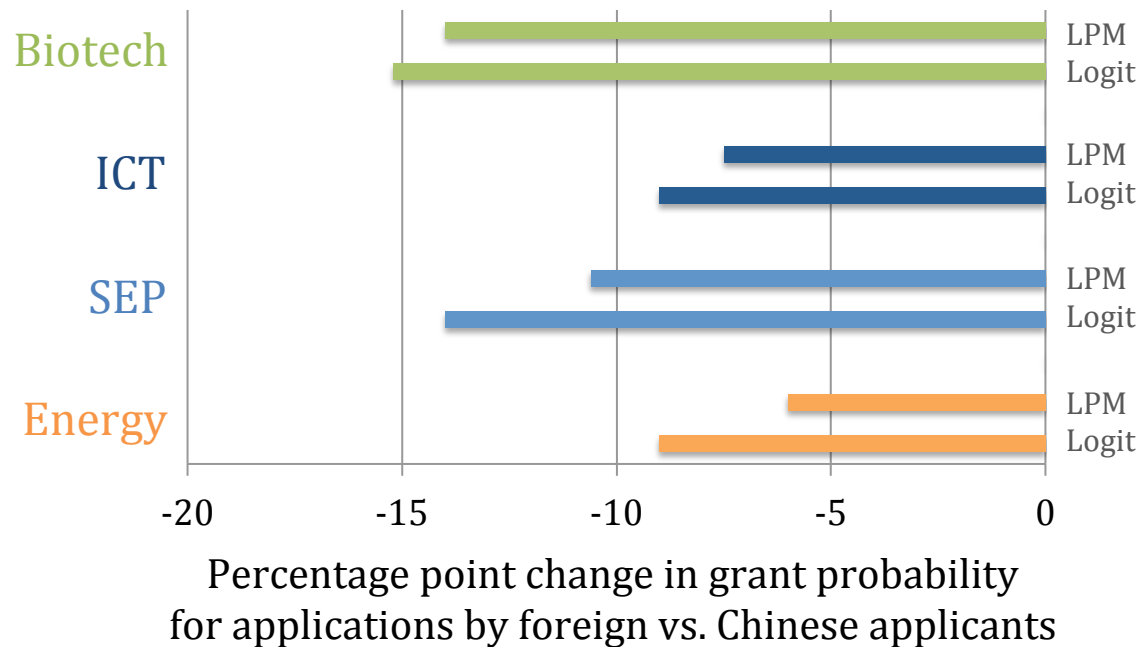


- Do we find that the probability of grant at SIPO **departs systematically** from the baseline probability for specific types of patents?
  - For foreigners? If yes: ‘anti-foreign bias’
  - For foreigners in specific technologies?  
If yes: discrimination?
- We identify areas of “strategic importance” for China using the *National Medium and Long-Term Program for Science and Technology Development 2006—2020*.

# The empirical test



# We find evidence of what appears to be discrimination



*SEP: Standard-essential patents*



# Second analysis

- Very strong apparent ‘discrimination’ for SEPs. Let’s zoom into the issue and consider an even more robust empirical framework.
- Idea of the test. Let’s take a sample of patents that are eventually declared as SEPs. However, when they enter the substantive examination phase at SIPO, **not all of these patents have already been disclosed as SEPs** yet. Do we observe different outcome(s) for Chinese vs. foreign firms?



# Second analysis

- We focus on 3GPP WCDMA and LTE standards, and look at disclosure at the European Telecom Standards Institute (ETSI).
- We track three outcomes:
  - 1) Probability of grant
  - 2) Grant lag: time elapsed from filing to grant
  - 3) Change in scope: number of words added per independent claim

# We find evidence of what appears to be discrimination

- Patent applications by foreign firms...
    - Have a 9 percentage points **lower grant rate**
    - take **one year longer** to be issued (when they are)
    - are **more extensively amended** (14 more words per claim)
- ... but **only if** the application has been declared as SEP!  
(That is, if the examiner knows for sure that it relates to a SEP).

# Concluding remarks

- It seems that the Chinese prosecution process works largely in a non-discriminatory way.
- At the very least, our results suggest that foreign applications in “strategic fields” are more intensively scrutinized.
- Regarding SEPs: that fact that the outcome(s) of the prosecution process are significantly less favorable only if the examiner knows that the patent is a SEP is troubling.