# Intellectual Property Disclosure in Open Standards Development

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  - How to define (F)RAND royalties?
  - Costs & benefits of ex ante negotiation?
    - Costs: Collusion & participation
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- This project: Causes & effects of current disclosure regime

#### Institutions & Data

- Convenience sample of major SSOs
  - ANSI, ATIS, ETSI, IETF, IEEE, ISO/IEC, TIA
  - Basic policy: Disclosure and RAND

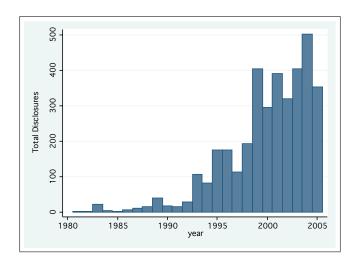
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- Two bits of information
  - Does the disclosure list any IPR?
  - Does it commit to a price (Free vs. RAND)?

## The Disclosure Boom



# **Explaining the Disclosure Boom**

- More patents & aggressive licensing
  - Texas Instruments & Rembrandts in the Attic
  - Demonstration Effects: Qualcomm
- More standards-based open platforms
  - Micro-computer, Internet
- Less symmetric industry structure
  - NPE's don't cross-license
- Outside Enforcement (FTC)
  - Wang, Dell & Rambus cases (right timing)
  - Disclose-it-or-lose-it regime

# Disclosure Content by SSO

SSO	IPR Listed	Price Listed <sup>†</sup>	Obs.
ANSI	0.34	0.13	323
ATIS	0.35	0.14	57
ETSI	0.62	0.00	397
IEEE	0.33	0.01	553
IETF	0.40	0.29	594
ISO	0.13	0.02	1460
ITU	0.31	0.07	711
TIA	0.05	0.05	217
All CCO.	0.00	0.07	026 74
All SSOs	0.28	0.07	836.74

## Disclosure Contents Over Time

Period	IPR Listed	Price Listed	Obs.
1980-84	0.21	0.52	29
1985-89	0.27	0.09	75
1990-94	0.24	0.06	248
1995-99	0.24	0.04	1060
2000-04	0.25	0.06	1908
2005-08	0.40	0.12	992
All Years	0.28	0.07	4312

## Stylized Facts

- Variation across SSOs
  - Forum shopping (Chiao et al)?
- Very little pricing commitment
  - Why do RAND and Free dominate?
- IETF is an outlier

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  - Detailed administrative data
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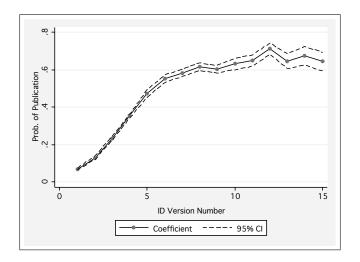
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- Linear probability models
  - Every coefficient is a change in probability

# Disclosure and RFC Publication

Unit of Obs = Proposal  Full Sample			
Disclosed	0.096*** (0.02)	-0.032* (0.02)	
WG-Year Effects Version Effects Year Effects	Y N N	Y Y N	
N R-squared	16472 0.002	16472 0.229	

## Disclosure is not random!



# Disclosure and RFC Publication

Unit of Obs = Proposal				
Matched Pair Sample <sup>†</sup>				
Disclosed	-0.103*** (0.03)	-0.122*** (0.03)	-0.143*** (0.03)	-0.157*** (0.04)
Working Group	0.517*** (0.03)			
Royalty Free		0.062 (0.05)		0.056 (0.05)
Specific IP			0.094** (0.04)	0.092** (0.04)
WG-Year Effects Year Effects	N Y	Y N	Y N	Y N
N R-squared	744 0.279	744 0.020	744 0.024	744 0.026



## Disclosure and Standards-Track Publication

Units = Published RFCs Sample = All RFCs				
Royalty Free	0.156** (0.08)		0.150** (0.08)	
Specific IP		-0.068 (0.07)	-0.056 (0.07)	
Disclosed	-0.002 (0.04)	0.069 (0.05)	0.025 (0.05)	
Working Group				
WG-Year Effects	Y	Y	Y	
Obs.	3711	3711	3711	

### Conclusions

- Reasons to be pessimistic about disclosure policies
  - Little IPR specificity
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- Reasons to be optimistic
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- Open Questions
  - Explaining SSO heterogeneity
  - Reluctance to discuss price ex ante
    - Participation constraints
    - Antitrust issues
  - Link to diffusion, innovation, profit & growth

