Auctions vs. Beauty Contests: an Empirical Study

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Spectrum Access

- Spectrum Commons?

- Property Rights?

- Licensing?
  - Government as Gatekeeper
  - Exclusive
  - ElectroSpace Based

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How best to license?

- Japan – gave it away : success

- Europe – overpaid : failure

Market Based	Regulated
Auction for setting price	Beauty Contest comparison
+ "Fair"	– Subject to lobbying
+ Generates gov't revenue	– Labor intensive for gov't
– Takes capital away from investment	+ Can build out more quickly

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Our Approach

- Study 3G deployment

- Country by country license comparison

- Regress level of deployment vs.
  - Government and
  - Non-government variables

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3G Deployment

- 3G = {WCDMA, CDMA-2000, …}

- Level of Deployment:

  0. Contracting Equipment Manufacturers
  1. Network Buildout
  2. Network Testing
  3. Service Trials
  4. Service Provisioning

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Country Comparisons

License Method	Auctions	Beauty Contest	Licensing Not Completed
	Australia	Finland	Argentina
	Austria	French	Brazil
	Belgium	Japan	Chile
	Canada	Norway	China
	Czech Republic	Poland	Croatia
	Denmark	Portugal	Estonia
	Germany	Spain	Lebanon
	Greece	South Korea	Hungary
	Hong Kong	Sweden	Ireland
	Israel		India
	Italy		Jamaica
Country	New Zealand		Malaysia
	Netherlands		The Philippines
	Singapore		Romania
	Slovenia		Russia
	Switzerland		South Africa
	Taiwan		Slovakia
	UK		Thailand
			Turkey
			UAE
			USA
			Venezuela

- 49 Countries
  - 18 Auctions
  - 9 Beauty Contests
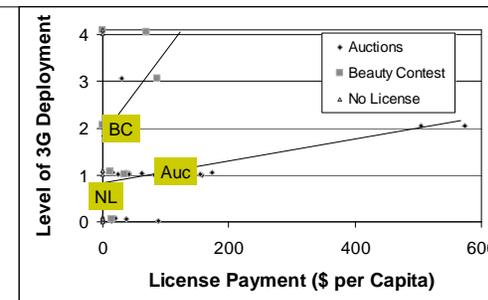 - 22 Incomplete

- Analyzed as of 4/02

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Question 1

- Do fees promote or hinder deployment?
  - Is it Manhattan or Detroit?

- Regress Deployment Level vs. Fees
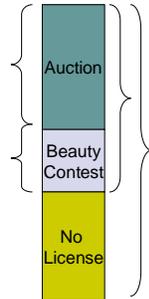
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Results

- Fees promote deployment(!)
- BC are more efficient with fees

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Question 2

- What factors affect deployment?

- Linear regression on data subsets

- Test for significant variables

Auction

Beauty Contest

No License

Variables

- Non-Government Variables:
  - GDP per capita
  - Urban population percentage
  - Total Population
  - Cellular teledensity
- Government Variables:
  - License fee per person
  - Number of licenses
  - Independent regulatory authority

Under policymakers control

Results

- Beauty Contest vs. Auction
  - Beauty Contest > Auction (0.8)

- The following accelerate deployment:
  - High GDP
  - BC + govt carrier
  - BC + more licenses

- Auctions are Riskier

Data	All	BC+A	BC	A
GDP	+	+	+	
Ind Reg	−	−	−	
#Lic	+		+	
$Lic			+	
pop		+		
%cel				-

Study Limitations

- Limited number of countries
  - Equally weighted

- Snap shot in April 2002

- Subjective assignment
  - Hong Kong

- Cause and Effect

Conclusions

- Beauty contests have shown more promise
  - Perhaps because regulators/licensees have more experience

- Competition is important
  - Competition for capital in BC and Auctions
  - Multiple Licensees in BC

- Should track progress over time.

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