


Calculating Economic Damages: Complex Cases

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Calculating Economic Loss

- direct methods – net present value
 - supply/demand analysis
 - contingency analysis
- indirect method – event study

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Scenario A

- End-users make copies of music
- Retailers sell pirated music
- International music publishers claimed losses of USD 4.3 billion in 2001

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Why Econometrics

- o not every consumer willing/able to pay price of legitimate product
- o need to measure:
 - who would switch from pirated to legitimate product, and
 - how many units they would buy

Scenario A: Demand Estimate

- o demand for legitimate CDs:
 $SALES = -0.0495 PRICE + 0.0842 INCOME + 3.988 PLAYER + 11.34 MTV - 0.4205 PIRACY$
- o every additional unit of pirate sales displaces 0.4205 unit of legitimate sales

Scenario A: Losses per capita

Country	IFPI	Hui & Png
Australia	0.15	0.064
Hong Kong	3.55	1.49
Malaysia	0.084	0.035
Singapore	0.38	0.16
Avg (28 countries)	0.23	0.095

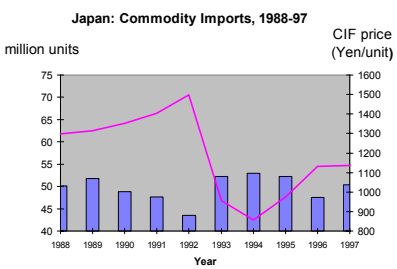
Scenario B


- o Investor set up joint venture with Agribusiness to produce commodity for Japanese market.
- o Planned production = 11–13% of Japanese imports.
- o Agribusiness failed to meet various targets.
- o Investor claimed damages of USD 98 million.

Why Econometrics

- o increase in supply would affect market price
 - *even if production according to plan, profit would be less than forecast*

Scenario B: Market Price






Scenario B: With Harm

- o estimate impact of actual production on Japanese market price
- o calculate year-by-year revenue from actual production
- o calculate year-by-year cost from actual production


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Scenario B: Without Harm

- o estimate impact of planned production on Japanese market price
- o calculate year-by-year revenue from planned production
- o calculate year-by-year cost from planned production

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Scenario B: Damages

- o estimated loss: USD 13.0–55.1 million
- o key econometric issue – demand and supply elasticities

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● ● ● | Scenario C

- Enterprise's action affected Manufacturer's business.
- Manufacturer's sales and profits fell, 1997-98.
- Manufacturer claimed:
 - loss of profit, SGD 7.5 million
 - loss of share value, 42.8–71.4%
 - loss of business opportunities

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● ● ● | Why Econometrics

- Asian financial crisis
 - How much of value loss due to Asian financial crisis?
- Manufacturer's remedial action
 - How much value did it restore?

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● ● ● | Event Study

- efficient market: share price reflects all available information about current status and future prospects of company
- event study – use historical data to construct model of share price relative to market index
 - eliminate effects due to general economic and industry conditions

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● ● ● | Event Study Methodology

- Capital Asset Pricing Model:
 - expected return = risk-free rate + beta x market risk premium
- use pre-harm period to estimate model parameters
- substitute market return over period of harm to estimate return on share absent harm

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● ● ● | Scenario C: Damages

- loss of market value
 - 0.3–3.3% (equivalent to SGD 0.19 – 2.11 million)
- key econometric issue – when action and remedial action fully worked out

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● ● ● | Scenario D

- Bajumi and Tan families jointly invested in Ssanyong Cement, listed on Singapore Exchange.
- At six different times over 4-year period, Bajumis wanted to sell but Tans objected.
- Termination of joint investment: Wong claimed value of share = \$1.03

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● ● ● | **Contingency Analysis**

At each date,

- probability of sale – investor’s keenness (subjective)
- sale price

Estimated sale price = \$3.36 – 3.60.

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● ● ● | **Block Sale**

- block sale would affect market price
- based on historical trading records, sale of 22% block would depress market by 5-15%.

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● ● ● | **Demand/Supply Analysis: Limitations**

- data availability
- missing variables

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Event Study: Limitations

- o works only for unanticipated events
- o depends on pricing model – Capital Asset Pricing Model (CAPM), Arbitrage Pricing Theory (APT), Fama-French
- o market for some shares may be illiquid

References

- o Demand/supply econometrics: Ivan Png, *Managerial Economics*, Malden, MA: Blackwell, 2003, Ch. 3
- o Event Study: David Tabak and Frederick Dunbar, "Materiality and Magnitude: Event Studies in the Courtroom", NERA (undated)
- o <http://www.econaa.com/resources.htm>
