Bargaining over Leasing Contracts: Strong by Privilege but Weak by Risk Aversion

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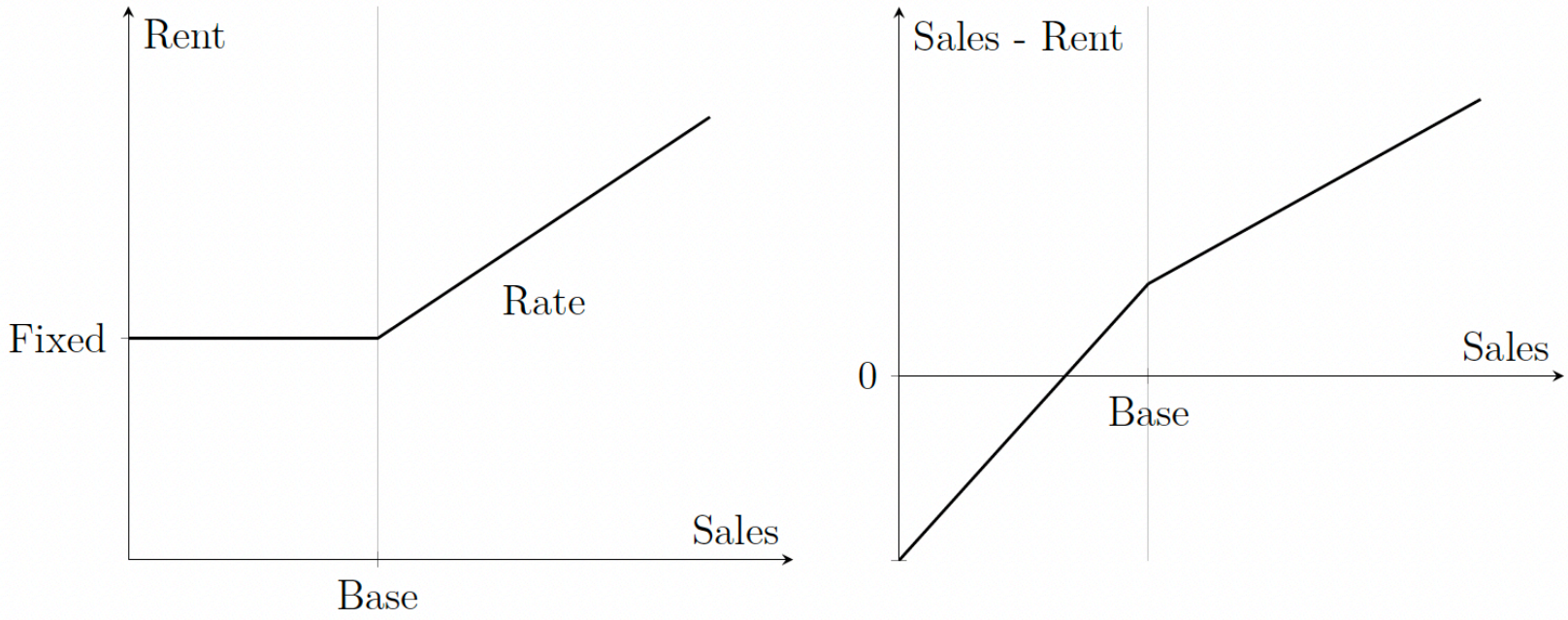
(Un)fair Trading in Complex Transactions

- Fair trading benefits the economy, and regulators like the FTC enforce it
- How can they detect unfair practices? $\rightarrow$ Clear evidence is required
  - Recordings of collusive meetings
  - Certain contractual provisions, such as resale price maintenance
  - High markups: a large gap between price and cost
- Problem: Modern business transactions involve complex transfer schemes
- Examples:
  - *Share contracts* for long-term business relationships
  - In two-sided markets, price and cost structures are more nuanced
- Questions:
  - How does an unfair trading environment emerge in complex transactions?
  - What happens when regulators enforce fairer practices?

Target: Tenant Contract in Shopping Mall

- A type of share contract is used when determining monthly rent



(a) Share of Shopping Mall (b) Share of Tenant

Figure 1. How Sales is Shared with Shopping Mall and Tenant

- Questions:
  - When the mall is stronger, what kind of shape is preferred?
  - In the more balanced transactions, how would the form change?

This Study

- A model of bargaining over leasing contracts in renewal negotiations
  - Two-stage sequential bargaining between the mall and the tenant
    - "Bargaining over earnings estimates" and "Bargaining over risk sharing"
  - Fundamental conflict:
    - The tenant seeks to justify a higher earnings estimate
    - The mall relies on past sales data and prefers to adhere to it
- This model is applied to actual contract and sales data
  - My dataset tracks all tenants in two malls in Japan over six years
- Two opposing effects of the mall's privileged position on contract form
  - A privileged mall prefers variable rents and forgoes a higher fixed rent
  - A privileged mall is more risk-averse and favors a higher fixed rent
- Simulating fairer bargaining: the rent could triple the current level
  - In any cases, the total rent does not necessarily decrease
  - A sharp rise in the variable component by risk attitude adjustments

Related Literature

- Empirical bargaining (Lee et al., 2021)
  - Cooperative approach
    - Separating bargaining problem from power makes model tractable
    - Application: Bargaining under externality (Horn and Wolinsky, 1988)
  - Contribution: Bargaining over contracts
- Sources of bargaining powers
  - Rubinstein (1982), Joskow (1987), Benmelech and Bergman (2008)
    - Risk aversion, relational contract, and liquidation value
  - Recent empirical work: Backus et al. (2020)
  - Contribution: Better performance improves tenant's position
- Tenant leasing in shopping mall
  - Affine contract form is rationalized in agency problem: Benjamin et al. (1992), Brueckner (1993), Lee (1995), Monden et al. (2021).
  - Empirical work: Gould et al. (2005) analyze team problem in mall
  - Contribution: kinked contract form is analyzed

Background

Tenant leasing in a shopping mall

Unfair Trade Practice in Tenant Contracts

- **United States**:
  - FTC enforced consent decrees against restrictive lease clauses (e.g. exclusivity) that block competition.
  - Recent cases (e.g. Simon Property) required removing "radius" restrictions preventing tenants from opening stores nearby.
  - Tenant lawsuits (Lord & Taylor vs. White Flint) show courts uphold lease terms and penalize unilateral changes.
- **Singapore**:
  - A Fair Tenancy Industry Code of Conduct sets standards for balanced lease terms.
  - Prevents landlords from using multiple rent formulas or imposing one-sided termination rights.
  - Government plans to legislate the code, ensuring compliance and dispute mediation.
- Many other cases for example in **South Korea** and **Japan**

Shopping Mall Management and Renewal Negotiation

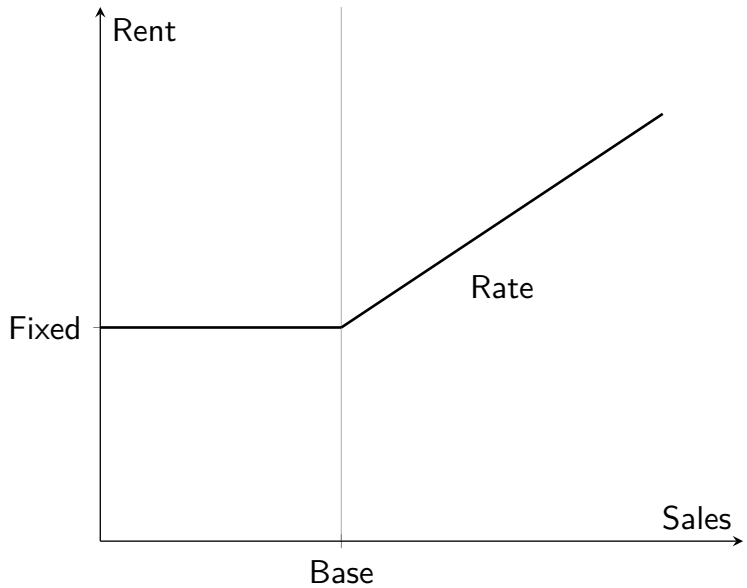
- A shopping mall is operated by a real estate company
  - It generates revenue through tenant rents
- Three phases of shopping mall management:
  1. Searching for new tenants
  2. Negotiating leasing contracts (including renewals)
  3. Maintaining relationships after tenants move in
- Negotiations are delegated to local managers and field staff
  - The company assigns a *manager* to each shopping mall
  - The manager assigns a *representative* to each tenant
- Typical flow of a renewal negotiation
  1. The shopping mall's initial offer: termination or a renewal proposal
  2. If termination is offered, this decision is non-negotiable
  3. Otherwise, negotiations on the terms of the new lease commence
  4. The tenant begins operations under the new leasing contract

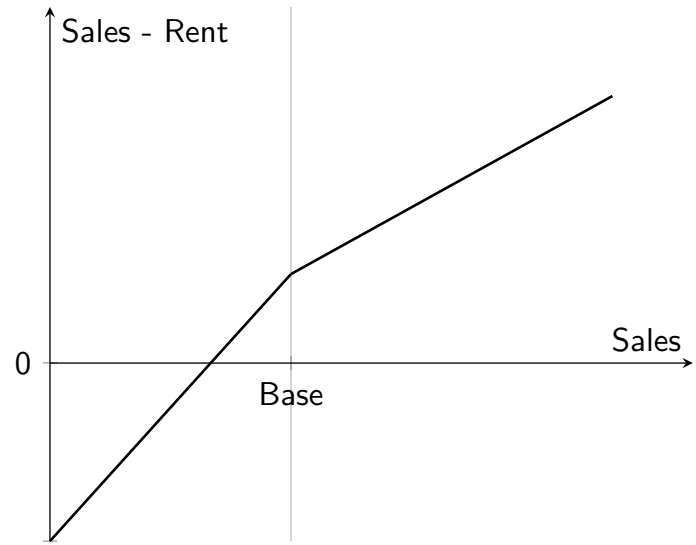
Leasing Contract

- A leasing contract is composed of
  - lease duration, restoration obligations, and monthly rent structure
- Lease durations are typically set to a few years
  - After amortization, the duration is not a big issue for either side
- Restoration obligation is a condition that must be satisfied when exiting
  - A typical example is a skeleton exit
- Rent structure usually becomes a point of conflict. WHY?
  - Professionals say, *"Once expected sales are agreed upon, the rent is naturally determined by industry norms."*
  - Earnings estimate is their main issue

Rent Structure

- Monthly rent is typically determined by a variant of share contract
  - Defined by parameters: *Fixed*, *Base*, *Rate*
  - Base = threshold where commission rate changes
  - Rate = commission rate after Base
- Fixed is hard to negotiate → Base plays a role in searching for a compromise





- General form of contract allows multiple kinks Go to all contracts

Data

Panel data linking performance and contract terms

Data Source

- Data covers two shopping malls over 6 years (2017-2023)
  - Managed by same company, by different managers
  - Located in same region (Western region of Japan)
  - One in downtown (*Mall 0*), one in suburb (*Mall 1*)
- For them, we have the following two data sources:
  1. performance data
  2. contract data
- They are used for actual leasing operation of the management company

Descriptive Stats

- 226 tenants
- They operate under 443 contracts: Avg. # of renewals is 1.00
- Avg. length of lease duration is 1830 days
- Contract terms vary a lot: All monetary values are scaled by 1,000 JPY

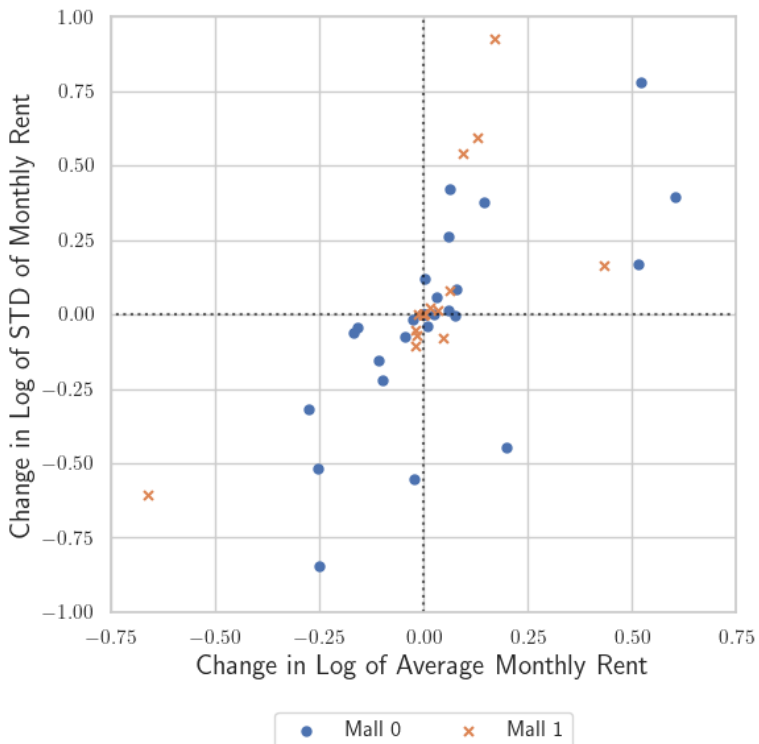
	Mean	Std	Min	25%	50%	75%	Max
Fixed per Area	5.26	4.11	0.15	2.74	4.51	6.05	27.69
Base per Area	62.02	43.25	3.22	42.36	54.78	60.50	435.57
Rate (%)	0.91	0.30	0.20	0.80	1.00	1.00	3.50

- Commission part is non-negligible

	Mean	Std	Min	25%	50%	75%	Max
Avg. Variable Rent / Total Rent	0.19	0.19	0.00	0.02	0.14	0.31	0.89
Prob. of Sales over Base	0.55	0.36	0.00	0.17	0.67	0.88	1.00

Obs. : Risk Attitude Matters

- For all contracts:
  - Average monthly rent
  - Standard deviation of monthly rents
- Changes in these metrics over two successive contracts are plotted
- Higher rent must be accompanied by larger variance



Obs. : Performance Affects External and Internal Margins

- External margin: Better performance $\rightarrow$ less exit
- Internal margin: Better performance $\rightarrow$ more rent
- Performance surely describes bargaining position but not perfectly

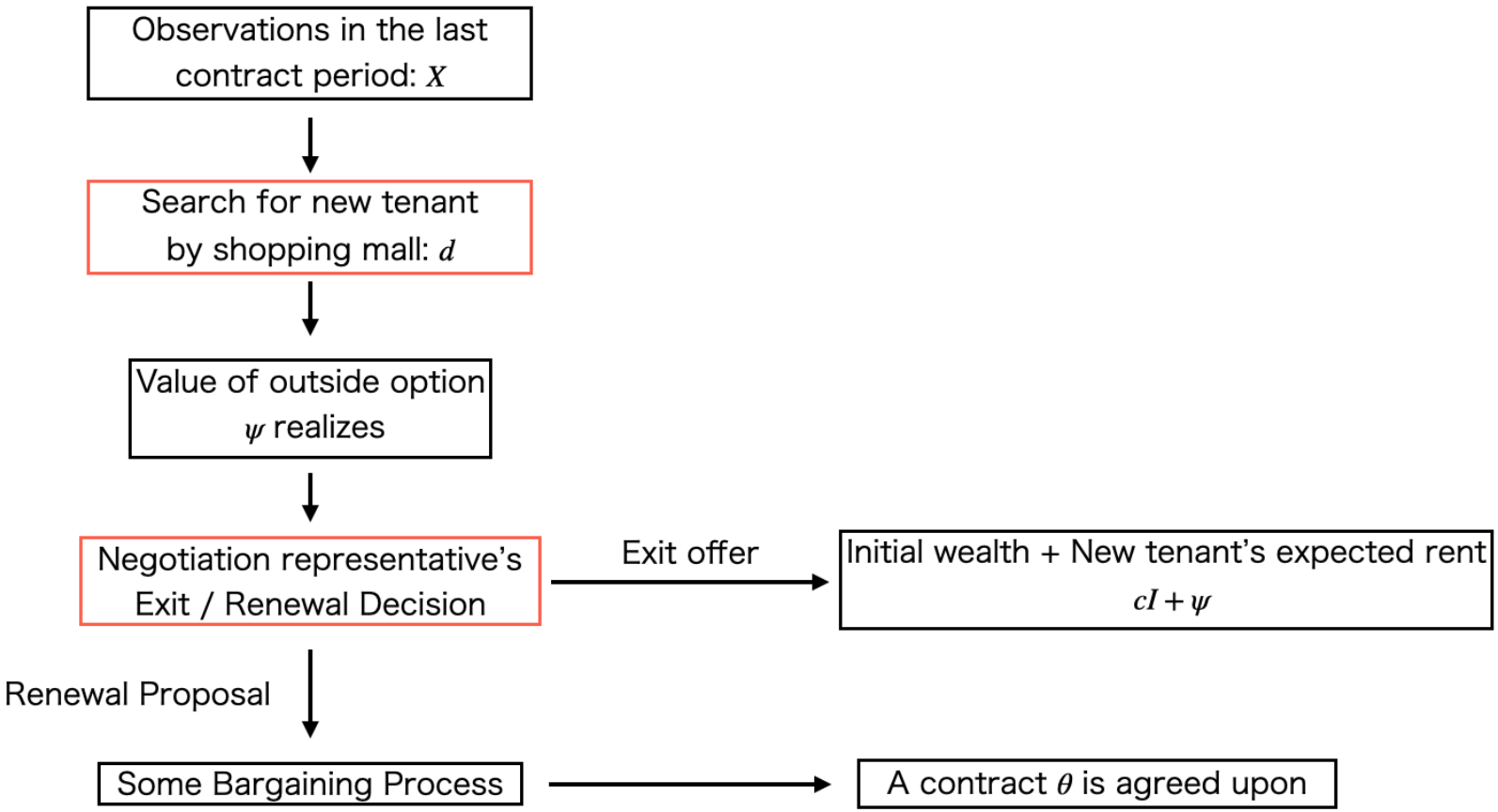
	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.	Exit	Exit	Exit	Rent Increase	Rent Increase	Rent Increase
Avg. Sales	-1.50e-09			0.000944*		
	(9.78e-10)			(0.000536)		
Avg. Sales per Area		-1.02e-08			0.00341***	
		(7.19e-09)			(0.000601)	
Avg. Pct. from Bottom			-0.00406***			1258.5***
			(0.000614)			(202.6)
fixed	-5.77e-08**	-5.90e-08**	-3.79e-08	0.161***	0.160***	0.160***
	(2.63e-08)	(2.53e-08)	(2.40e-08)	(0.0253)	(0.0255)	(0.0251)
rate	0.000108**	0.000119**	0.0000360	80.85***	67.87***	94.43***
	(0.0000541)	(0.0000513)	(0.0000499)	(12.01)	(9.701)	(11.99)
area	0.000401	-0.0000225	-0.000190	1560.5***	1802.5***	1918.0***
	(0.000311)	(0.000148)	(0.000169)	(237.2)	(306.5)	(319.8)
N	285	285	285	11820	11820	11820
adj. R^2	0.021	0.018	0.145	0.384	0.383	0.392

Model

Sequential bargaining:

earnings estimate and risk sharing

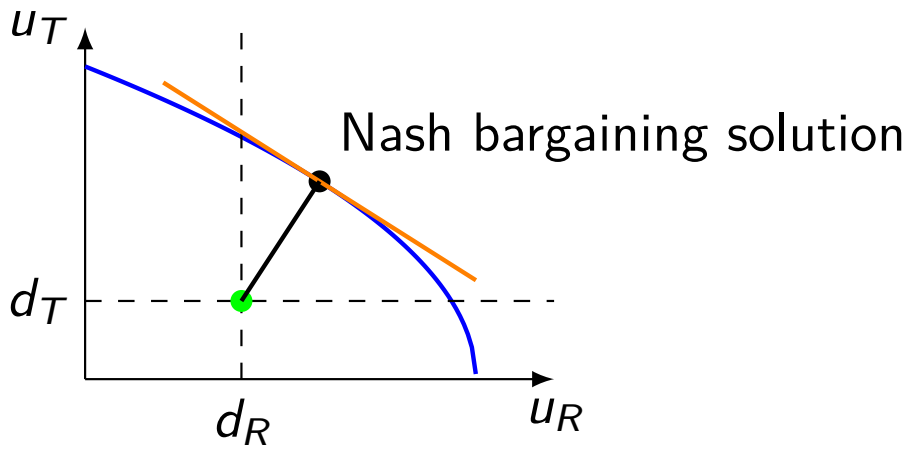
Model Overview



Two Bargainings

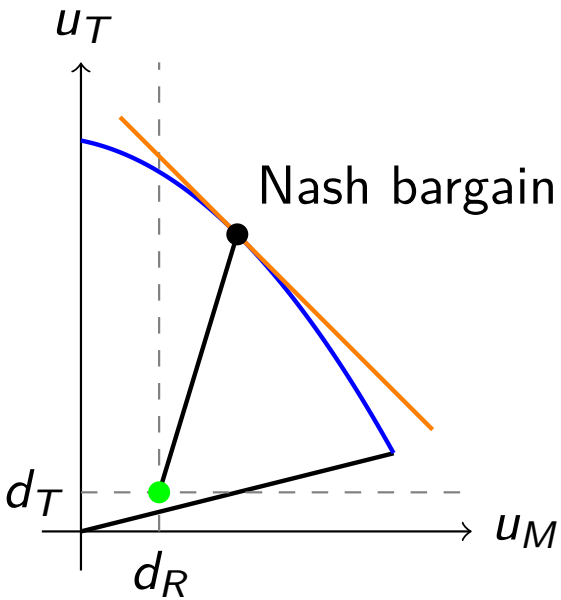
- Rent structure specifies how the sales generated in the space is divided
  - Parties face risk and uncertainty
  - Sales $S \sim N(\mu, \sigma^2)$: μ is unknown and σ^2 is known
- The two issues are sequentially bargained
  - First: *Bargaining for earnings estimate*
    - Negotiation over μ
    - Involved parties: mall manager, M, and tenant, T
  - Second: *Bargaining for risk sharing*
    - Negotiation over contract terms given μ
    - Involved parties: mall's representative, R, and tenant T
- I do not model incomplete information bargaining
  - I focus on what happens when power balance changes,
  - Not on how the balance is determined
  - Such model is hard to use for empirical analysis due to multiple equilibria

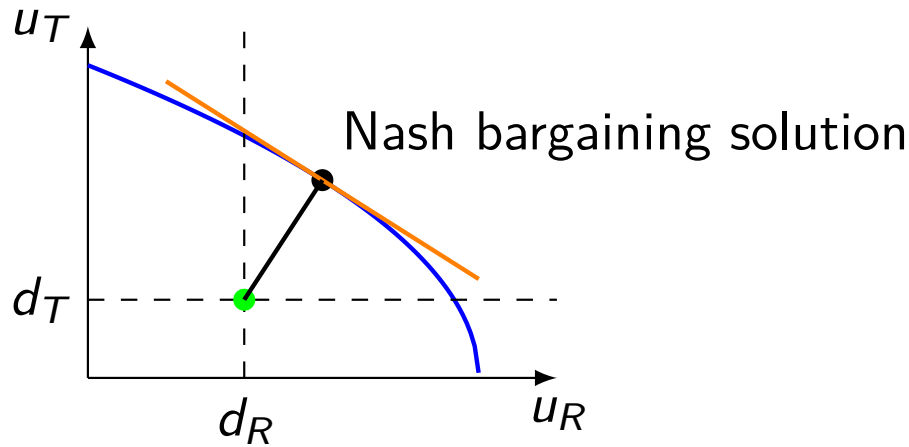
Nash Bargaining Solution



- Primitives:
  - Preferences of both parties, determining bargaining frontier
  - Bargaining power ratio
  - Break-up point
- Outcome: Surplus split between parties

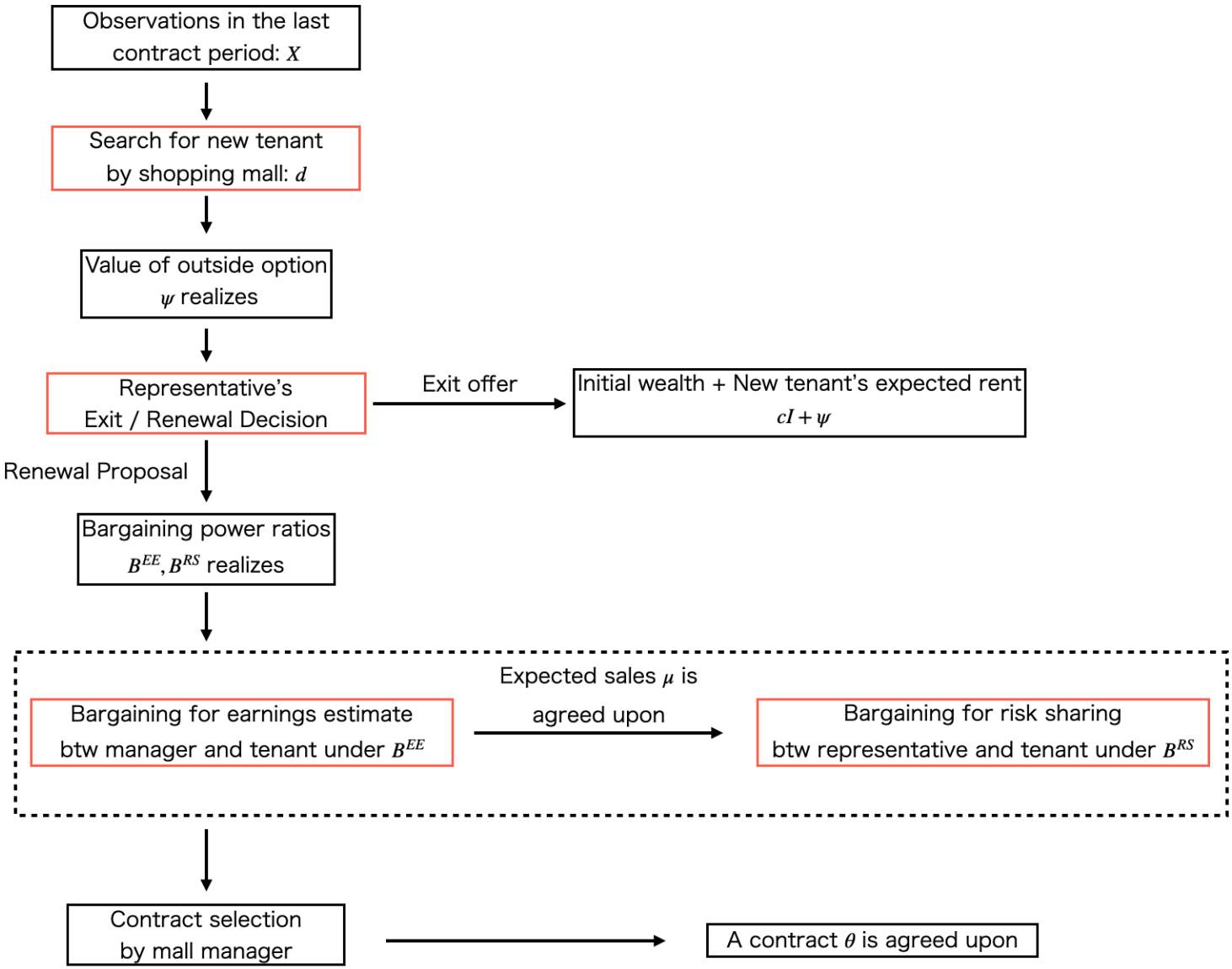
Nash-in-Nash Solution for Interrelated Bargainings





- Outcome of first bargaining (left figure) affects the bargaining frontier of the second bargaining (right figure)
- *Nash-in-Nash solution*:
  - Different bargaining powers are given: their ratios are B^{EE}, B^{RS} for each
    - $B = \frac{\text{Bargaining power of Mall}}{\text{Bargaining power of Tenant}}$
  - First bargaining is solved in expectation of the following outcome

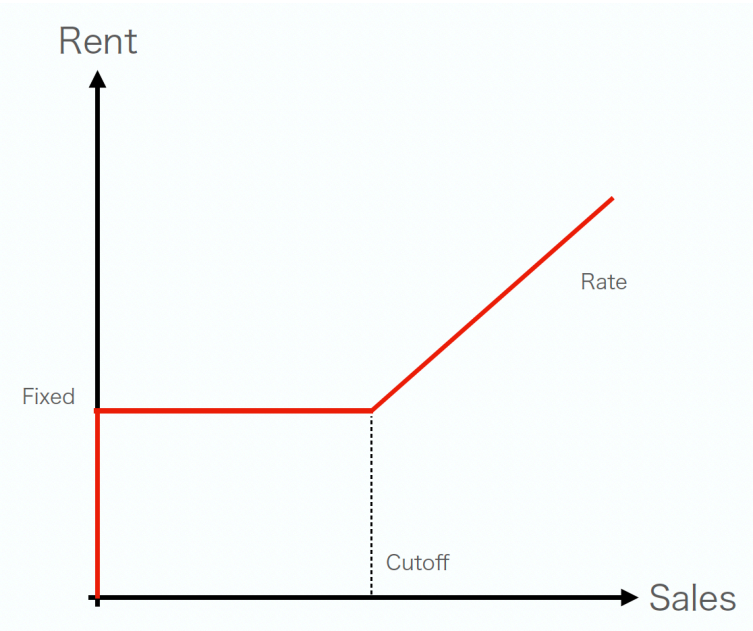
Model Overview



Rent Structure

- Θ is the parameter space of mixed-type contract: $\theta = (f, b, r) \in \mathbb{R}^3_+$
  - f is Fixed, b is Base, and r is Rate
- The monthly rent is computed as follows

$$R(S; \theta) = f + r \times \max\{0, S - b\}$$



Preferences

- Tenant, denote by T: $U_T(S;\theta) = -e^{-\rho_T(S-R(S;\theta))}$
- Representative, denoted by R: $U_R(S;\theta) = -e^{-\rho_R(I+R(S;\theta))}$
  - I is the initial wealth of the shopping mall
- Manager of the mall, denoted by M, sticks to the realized sales information:
  - Reference point: $\hat{u}_R \equiv U_R\left(\hat{\mu};\hat{\theta}\right) + \frac{1}{2\lambda}$
    - $\hat{\mu}$ is average of realized sales in the past contract period
    - $\hat{\theta}$ is the past contract terms
    - $\frac{1}{2\lambda}$ is a bias term: Mall's average expectation for a renewal
  - $U_M(\mu,\theta;X) = \mathbb{E}_{S\sim N(\mu,\sigma^2)}\left[U_R(S;\theta)\right] - \lambda\left(\mathbb{E}_{S\sim N(\mu,\sigma^2)}\left[U_R(S;\theta)\right] - \hat{u}_R\right)^2$
    - When $\mathbb{E}\left[U_R\right]$ = "reference point", M feels best
    - Deviation from the reference point reduces the utility

Summary of Theoretical Analysis

- Assumption: $B^{RS} = \frac{\rho_T}{\rho_R}$ from Roth and Rothblum (1982)
  - More risk averse mall = Weaker in the bargaining for risk sharing
- Affine contract and mixed-type contract have the same bargaining set
  - Explicit bargaining frontier and Nash-in-Nash solution Go to example
- Byproduct: the model is *incomplete*
  - There are the set of equilibrium mixed-type contracts
  - For empirical analysis, we need to estimate *contract selection rule*
- Both R and T like higher $\mu \rightarrow$ Over optimistic contract if fully delegated
  - Optimal institutional design: the authority over μ is left to the manager
- Fundamental conflict in the bargaining for earnings estimate:
  - T likes higher μ / M dislikes too much deviation from the past realization
  - Stronger mall = Smaller μ

Risk Sharing: Bargaining Frontier

- Frontier is obtained by solving the below maximization: for every u_R

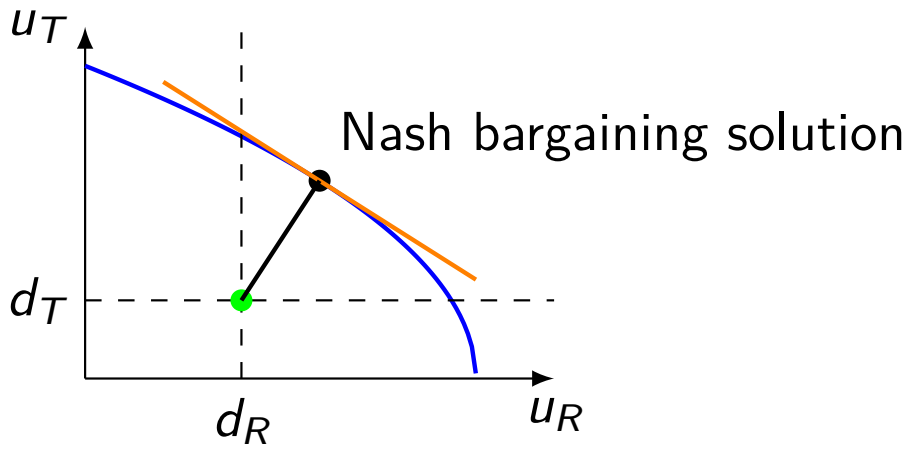
$$\max_{\theta \in \Theta} \mathbb{E}\left[U_T(J + S - R(S;\theta))\right]$$

$$\text{s.t. } \mathbb{E}\left[U_R(I + R(S;\theta))\right] \geq u_R.$$

- Issue: R includes a kink, making it challenging to solve analytically
- Solution:
  - Affine contract and mixed-type contract have the same bargaining set
  - Solve the same maximization in the space of affine contract
- Byproduct: the model is *incomplete*
  - There are the set of equilibrium mixed-type contracts
  - For empirical analysis, we need to estimate *contract selection rule*
- The bargaining frontier

$$F(u_R) = -e^{-\rho_T\left(I+\mu-\frac{\rho_T\rho_R}{\rho_T+\rho_R}\frac{\sigma^2}{2}\right)}\left(-u_R\right)^{-\frac{\rho_T}{\rho_R}}.$$

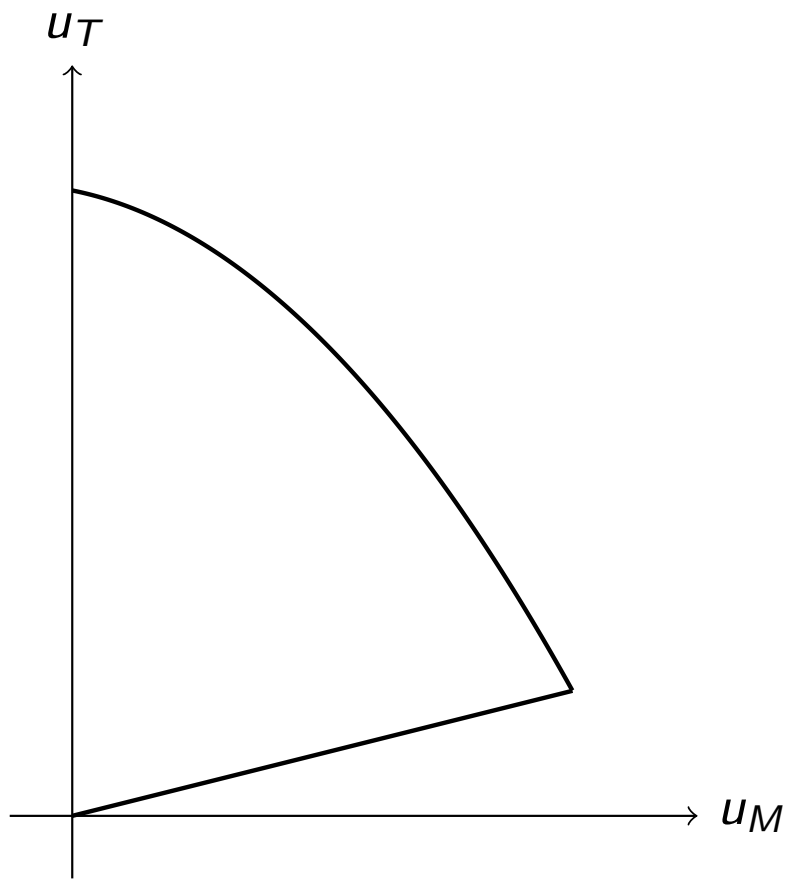
Risk Sharing: Nash Bargaining Solution



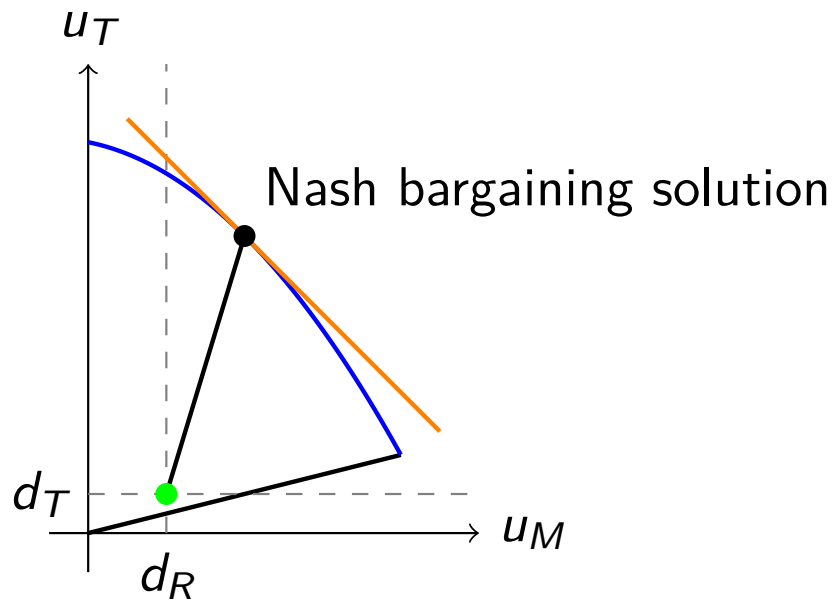
- Nash bargaining solution is determined by three objects:
  - Breakup point: $d_R = -e^{-\rho_R cI}$, $d_T = -e^{-\rho_T 0} = -1$
  - Frontier specified for each μ
  - B^{RS}: Assumption $B^{RS} = \frac{\rho_T}{\rho_R}$ (Roth and Rothblum, 1982)
- Both R and T like higher $\mu \rightarrow$ Over optimistic contract if fully delegated
  - Optimal institutional design: the authority over μ is left to the manager

Earnings Estimate: Bargaining Frontier

- Expected utility of manager: $u_M(\mu) \equiv u_R(\mu) - \lambda \left(u_R(\mu) - \hat{u}_{NR}\right)^2$
- Bargaining set = Locus: $\{(u_M(\mu), u_T(\mu)) \mid \mu \in \mathbb{R}_+\}$
  - For any $\lambda > 0$, there is some $\underline{\mu}$ such that $\frac{d}{d\mu} u_M(\mu) < 0$ when $\mu \geq \underline{\mu}$

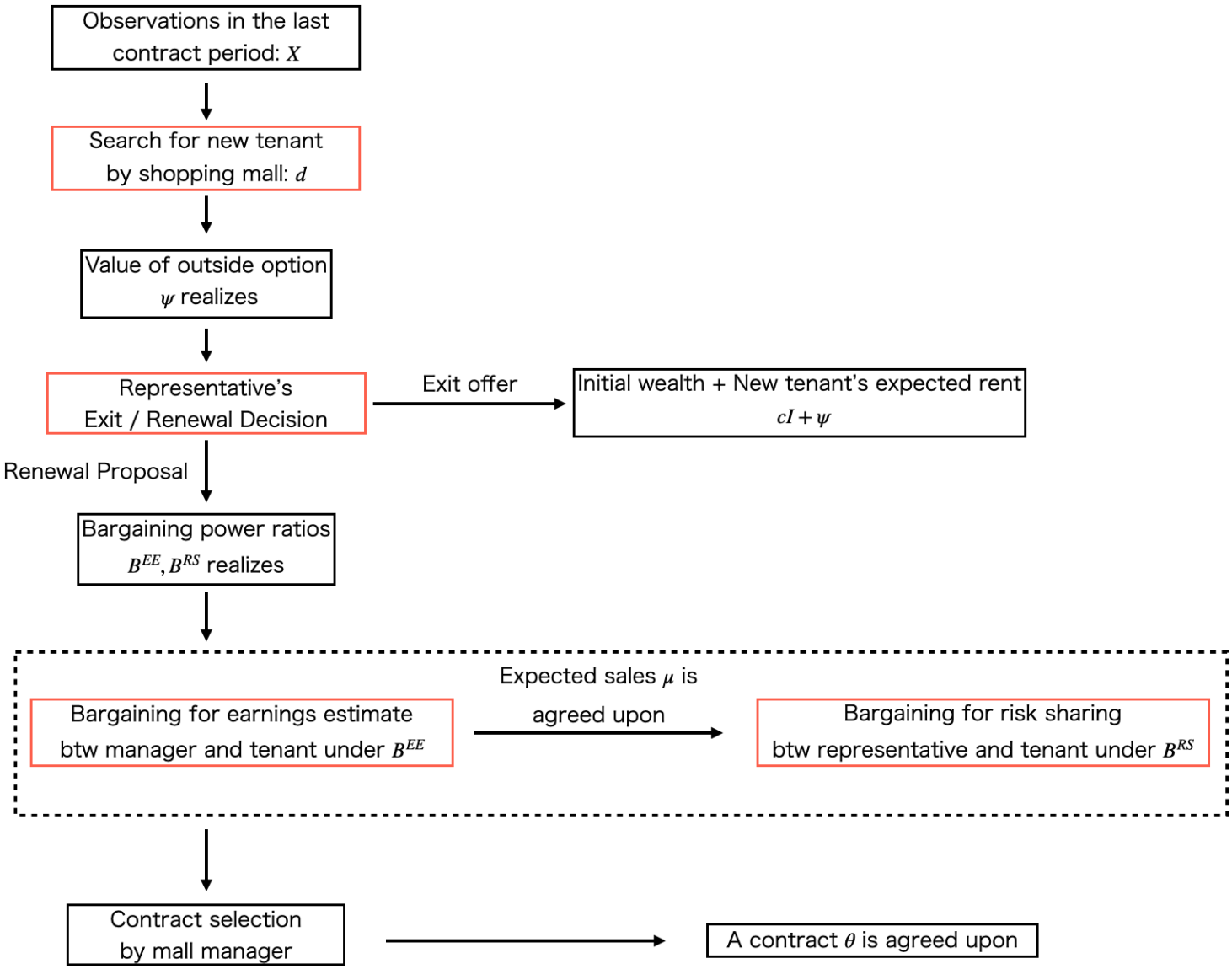


Earnings Estimate: Nash Bargaining Solution



- Breakup point is set to the same as before
- B^{EE} is exogeneously given (no assumption on the value)
- The model has explicit form of the surplus split: u_T, u_R and u_M

Model Overview



Continuation Decision

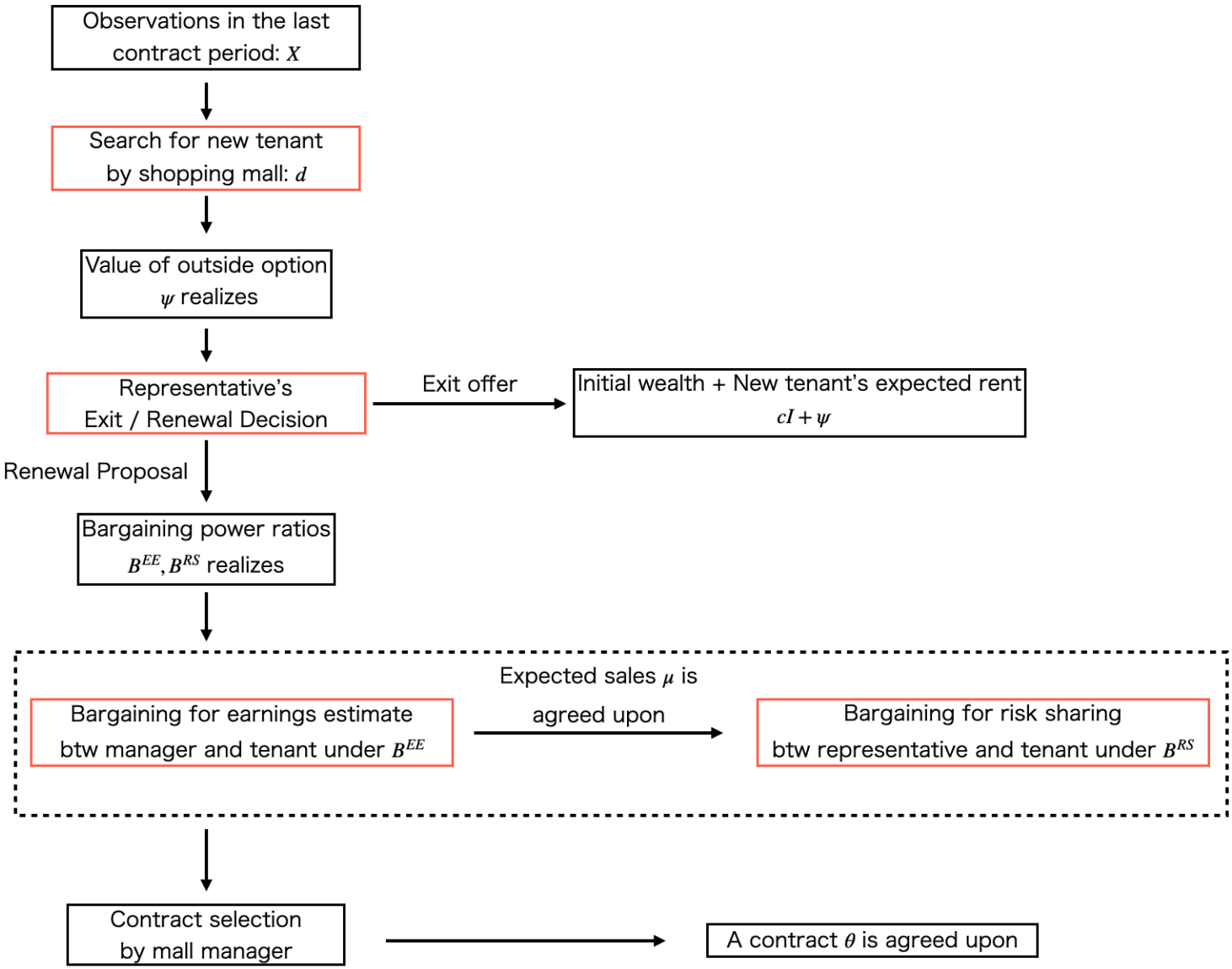
- Representative decides either termination or continuation
- "Expected surplus from renewal" vs "Value of outside option"

$$\mathbb{E}\left[u_R \mid \psi\right] > -e^{-\rho_R(cl+\psi)}.$$

  - ψ : monetary value of outside option
  - Expectation is taken w.r.t. B^{EE}: information gap between M and R

- Exit offer is almost non-negotiable Go to offer/outcome table

Model Overview



Value of Outside Option

- Search intensity (d): the count of the meeting with potential tenants
- d affects ψ

$$\psi = \tilde{\psi} + \beta_o d$$

  $\tilde{\psi}$ is the baseline value of outside option

- Endogeneity: Better outside option might decrease the search intensity
  - $\tilde{\psi}$ and d are simultaneously determined
  - No full model, just a correlation structure $\rightarrow$ *Control function approach*

Empirical Strategy

Tobit model

Variables

- An ongoing contract is denoted by a pair of i (tenant) and k (mall)
- Any contract is numerated with the contract number τ starting from 1
- Contract period (in months) is denoted by $T_{ik\tau}$
- Performance is measured for every months: $\tilde{X}_{ikt}$ for $t \in \{1, \cdots, T_{ik\tau}\}$
  - Main measure: *rank of sales per area within a mall*
- For an ongoing contract, we make a measure of performance:

$$X_{ik\tau} = \frac{1}{T} \sum_{t=1}^{T_{ik\tau}} \tilde{X}_{ikt}$$

  - the average of the performance measure during the contract period

Parametrization: Bargaining Power Ratio

- Logarithm of bargaining power ratio

$$\ln B^{EE}_{ik\tau} = X'_{ik\tau}\gamma + \varepsilon^{EE}_{ik\tau},$$

  - three variables relating with tenant; such as *rank of sales per area*
    - *area of the tenant*
    - *average of the previous sales per area*
    - *average of the previous ranking of sales per area*
  - Four variables depending on the shopping mall; such as *mall total sales*
    - *average of the previous mall total sales*
    - *average of the total number of tenants in the previous lease*
    - *average of the total number of customers in the previous lease*
    - *average of the monthly new tenant searches in the previous lease*
  - $\varepsilon^{EE}_{ik\tau}$ is unobserved factor

Parametrization: Value of Outside Option

- ψ basically captures the market demand for the retail space
- ψ is determined by three parts:
  - public information regarding the retail space, Z
  - search behavior conducted by the shopping mall, d
  - disturbance capturing the market's unobserved demand, $\tilde{\epsilon}^o$
- W : IV for search intensity $\rightarrow$ tenant specific performance measure
- Linear model (Petrin and Train, 2010, Wooldridge, 2015):

$$\psi_{ik\tau} = \left(Z'_{ik\tau}\gamma_o^{\psi} + \varepsilon^o_{ik\tau}\right) + \beta_o d_{ik\tau}$$
$$d_{ik\tau} = Z'_{ik\tau}\gamma_o^{d} + W'_{ik\tau}\delta + \nu^o_{ik\tau}$$
$$\varepsilon_{ik\tau} = \kappa\nu^o_{ik\tau} + \tilde{\varepsilon}^o_{ik\tau}$$

  - $\tilde{\varepsilon}^o_{ik\tau}$ is an exogeneous shock to the value of outside option
- Two random terms are i.i.d. joint Normal: $(\epsilon^{EE}, \tilde{\varepsilon}^o) \sim N(0, \Sigma)$

Estimation

- Estimation is conducted separately for the two shopping malls
- Two steps:
  1. Control function approach to make "reduced form" of outside option
  2. Tobit model to estimate all the parameters

Estimation: Control Function Approach

- Regression: $d_{ik\tau} = Z'_{ik\tau}\gamma_o^d + W'_{ik\tau}\delta + \nu_{ik\tau}^o$
- Obtain residual $\hat{\nu}_{ik\tau}^o$
- "Reduced form" equation for ψ is

$$\psi_{ik\tau} = Z'_{ik\tau}\gamma_o^\psi + \beta_o d_{ik\tau} + \kappa\hat{\nu}_{ik\tau}^o + \tilde{\varepsilon}_{ik\tau}^o$$

  - Treat $\hat{\nu}_{ik\tau}^o$ as an observed variable

Estimation: Tobit Model

- Likelihood function is constructed as in Tobit model:

$$\text{Likelihood} = \begin{cases} Pr(\text{observe contract } \theta_{ik\tau}) & \text{if continuation} \\ Pr(\text{exit}) & \text{otherwise} \end{cases}$$

- Maximize log-likelihood under the constraint of Nash bargaining solution
  - Expected sales $\mu_{ik\tau}$ is endogeneous

Identification

- Two sets of parameters
  1. Common across tenants within a mall
     - risk aversion of mall and marginal effects of covariates etc
  2. Contract-specific
     - Risk aversion of tenant: $\rho_{i\tau}$
     - Agreed upon expected sales (endogeneous parameter): $\mu_{ik\tau}$
- The first set is identified by the variation of exit offer
  - The second group is removed from the continuation decision
  - WHY?
    - Assumption $B^{RS} = \frac{\rho_T}{\rho_R}$ eliminates ρ_R from the decision
    - Cooperative approach allows me to parametrize $B^{EE}_{ik\tau}$ determining $\mu_{ik\tau}$
- The second set is identified by conditions of Nash solution
  - Two agents $\rightarrow$ Two surplus expressions $\rightarrow$ Two conditions

Results

Decompose bargaining power
&
Simulate fair contract

Mall 0 is more privileged but more risk averse

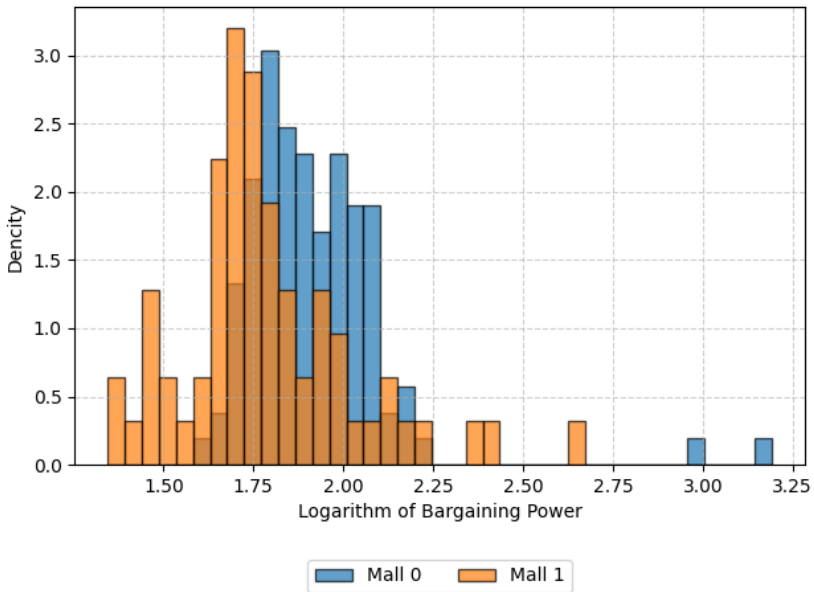


Figure: ln B^{EE}

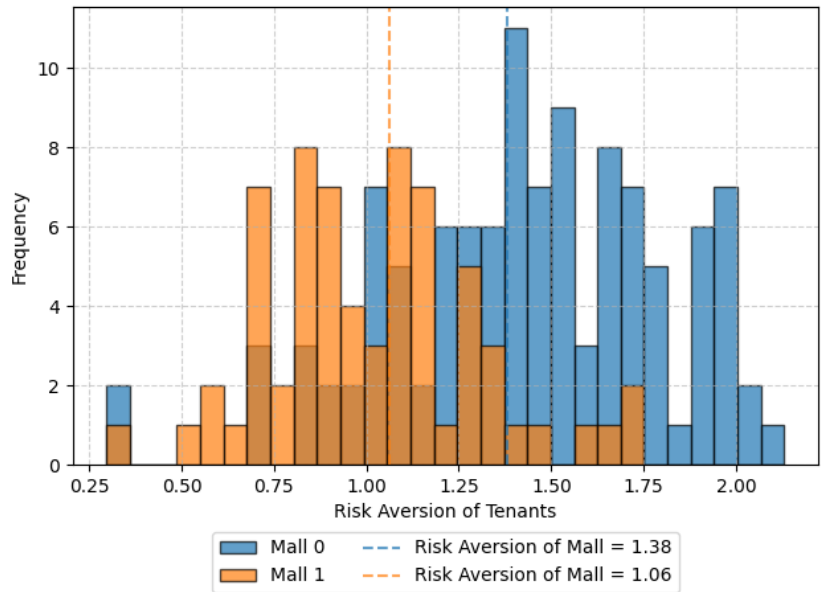
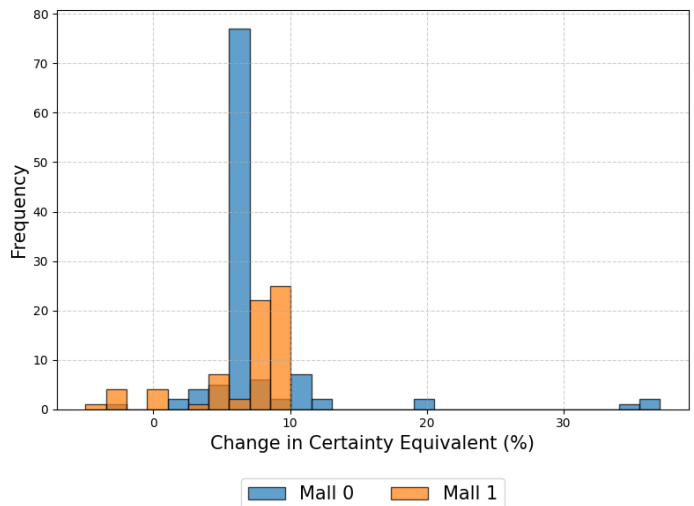


Figure: Risk aversions: ρ_T and ρ_R

- Mall 0 is more privileged due to high-traffic area
  $\rightarrow$ Earnings estimate is set to lower value
  $\rightarrow$ Commission component does not yield much rent
  $\rightarrow$ Mall manager emphasizes Fixed, i.e., she becomes more risk averse

What makes mall strong?

- Static characteristics
  - More number of total tenants in the mall
  - More number of total customers purchasing in the mall
  - Tenant located in the smaller retail space
- Time-varying characteristics
  - Tenant's lower rank in terms of sales per unit area within the mall
- Time-varying components are significant
  - Simulate static version of B^{EE}
  - Remove all the effects from time-varying variables from B^{EE}
  - Change in certainty equivalence relative to the actual surplus
  - About 10% varies by such variables



Inspection of Contract Selection Rule

- Empirical analysis on contract term = Estimate contract selection rule
- SUR model for the three parameters, Fixed, Base, and Rate

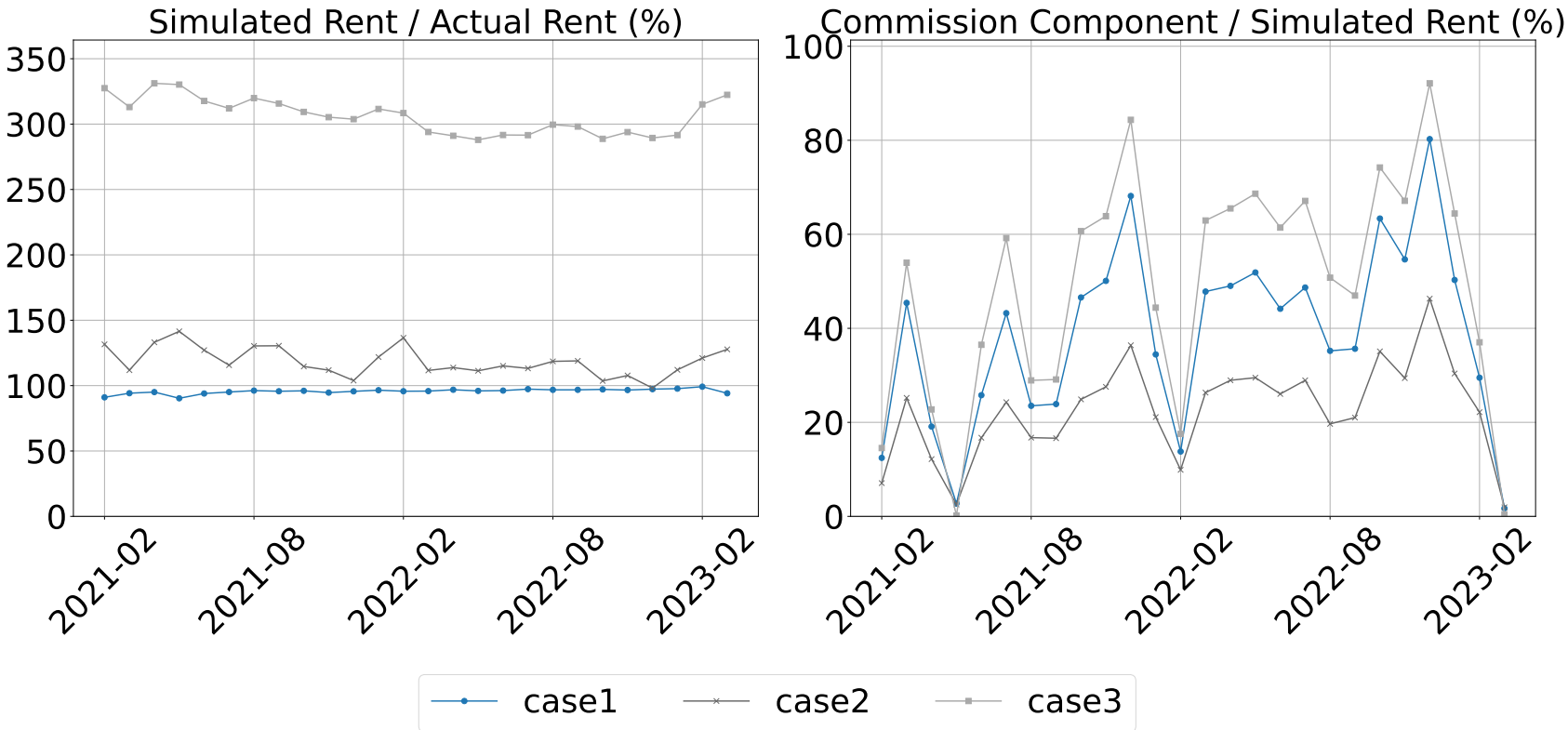
$$\begin{pmatrix} Fixed \\ Base \\ Rate \end{pmatrix} \sim \text{Bargaining Powers} + \text{Covariates} + \begin{pmatrix} \epsilon_f \\ \epsilon_b \\ \epsilon_r \end{pmatrix}$$

- Findings:
  - Privilege (Higher B^{EE}) leads to smaller fixed and higher base
    - WHY: Privileged mall is more pessimistic about earnings estimate
  - Contract selection rule itself is consistent with risk attitude
    - Mall 0 (Risk averse): Large volatility $\rightarrow$ Higher Fixed
    - Mall 1 (Risk loving): Higher average sales $\rightarrow$ Higher base and Higher rate

Counterfactual Simulation of Fairer Trade

- Situation:
  - Mall 0 potentially abuses its privilege when making contracts
  - Regulator enforces the fairer bargainings in renewal through warnings
- Question: How the amount of rent and its composition change?
  - Why is this an empirical question? $\rightarrow$ Two paths exist
    1. Weaker positions $\rightarrow$ Higher earnings estimate $\rightarrow$ Larger fixed rent
    2. Weaker position $\rightarrow$ Less risk averse $\rightarrow$ More commission component
- Scenarios:
  - Case 1: Replicate actual rents
  - Case 2: Mall 0's B^{EE} is determined in the same way as in Mall 1
  - Case 3: Case 2 + Mall 0's risk aversion is set to the same value of Mall 1

Counterfactual Monthly Rents



- Even in Case 2, the fairer situation does not always yield less rent
- In Case 3, I find sharp increase in commission component
- This increase could triple the amount of rent

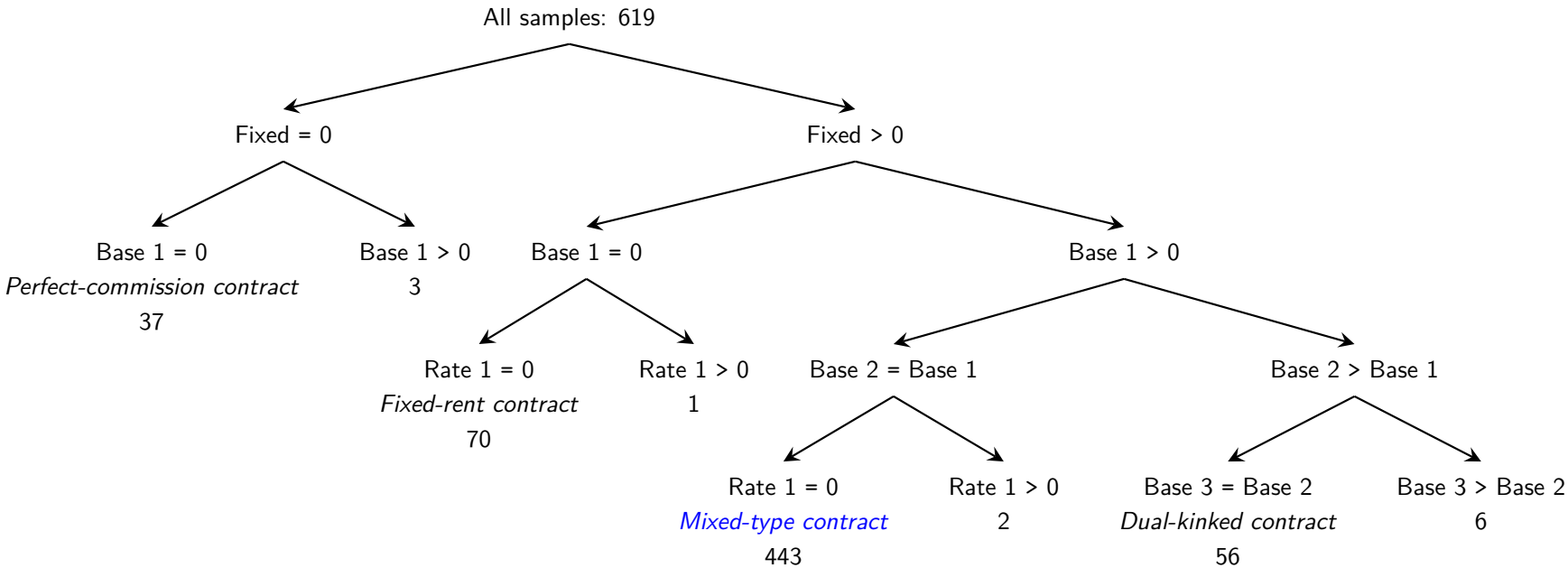
Conclusion

- I analyze tenant contracts in shopping malls
- I find that fair bargaining has a complex influence on contract terms
  - A weaker-positioned mall may adopt riskier contract terms
- Regulators must be cautious when intervening in contract negotiations
  - Such interventions may lead to unexpected changes in contract terms
  - ... and the following transfers among them

Appendix

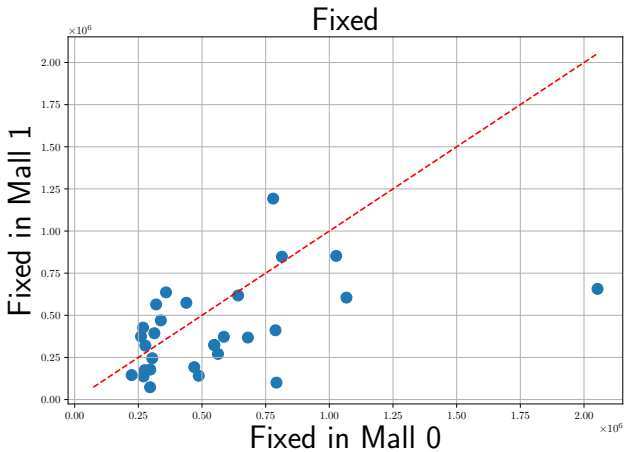
All Rent Structures

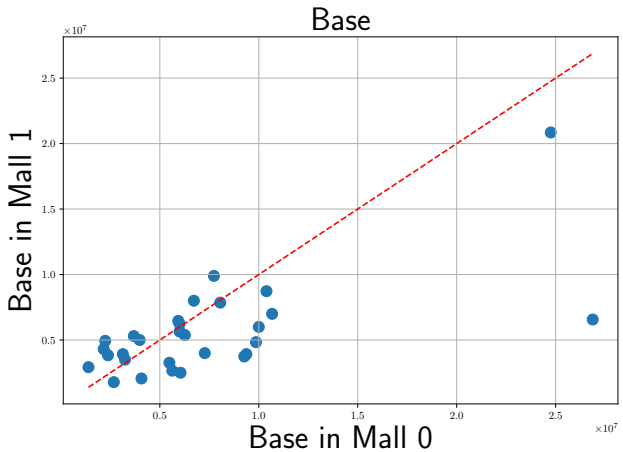
back to mixed type contract

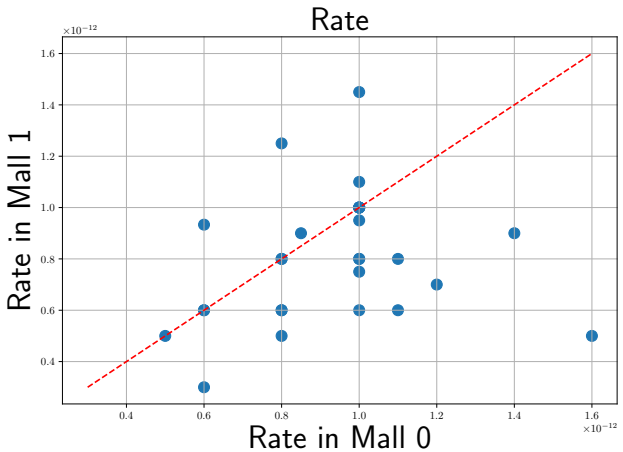


Common Brands

back to descriptive stats







Contract Type	1	2	3	5	6	7	8
Mall 0	2	0	10	58	2	1	2
Mall 1	7	1	11	44	0	7	0

Table: Distribution of Rent Structures of Common Brands by Malls

Obs. 3 : Little Concern of Moral Hazard

back to descriptive stats

- Regression: Sales $\sim$ Rate + Base + Fixed + Covariates
- A larger fixed rent amount is assigned to tenants with higher sales
  - *Selection* exists
- Sales remain unaffected by contract terms $\rightarrow$ Little concern of moral hazard

	(1) Level	(2) Diff	(3) Diff / Change
Rate	-0.063	-0.049	-0.180
	(0.219)	(0.222)	(0.374)
Base	0.069	0.000	0.000
	(0.206)	(0.000)	(0.000)
Fixed	2.839**	0.000	0.000
	(1.319)	(0.000)	(0.000)
Observations	197	197	156
Adjusted R^2	0.992	0.964	0.967

Example of Bargaining Frontier

back to model

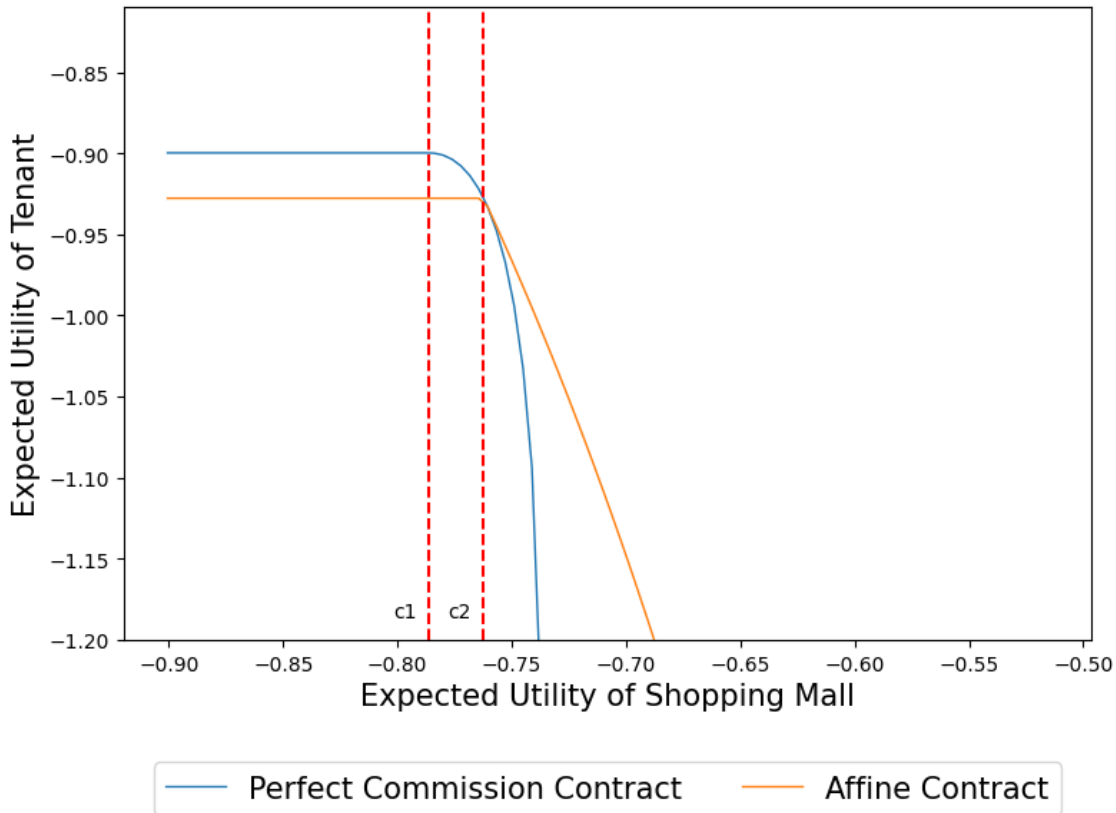


Figure: Pareto Frontiers for Perfect Commission Contracts and Affine Contracts

Note: Setting is as follows: $I = 1.0, J = 0.0, \sigma^2 = 2.0, \mu = 1.5$. The risk aversions are se
$\rho_T = 0.5$.

Exit Offer

back to model

Initial Offer \ Next Contract	exit	same	up	down	updown	TOTAL
exit	52	3	1	2	2	60
same	15	137	11	13	13	189
up	6	60	49	5	6	126
down	5	6	5	11	5	32
updown	1	1	3	5	9	19
TOTAL	79	207	69	36	35	426

Table: Initial Offer and Resulting Contract

Note: The table presents the relationship between the first initial offer (rows) and the resulting contract type (columns). Both the initial offer and the resulting contracts are categorized into five groups: exit, same, up, down, and updown. The numbers in the cells indicate the count of contracts corresponding to each combination of initial offer and resulting contract.

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