Take it or Beat it: Bargaining with Govt under the shadow of Litigation

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Lecture 7

Market Value Vs Awards I

Consider a special case of:

- Property size is 1
- Both sides are equally competent
- Courts are neutral

$E(r^c \mid r, x, y) = \phi(r)(ax^{\frac{1}{k}} - by^{\frac{1}{j}})$, such that

- $\phi(r) = \delta r$, $\delta > 0$
- $a = b$ and $j = k$

Market Value Vs Awards II

That is,

$$E(r^c \mid r, x, y) = \phi(r)(ax^{\frac{1}{k}} - by^{\frac{1}{j}}) = \delta r(ax^{\frac{1}{k}} - ay^{\frac{1}{k}}).$$

So, given y and r, the O will solve:

$$\max_x \left\{ [\delta r(ax^{\frac{1}{k}} - ay^{\frac{1}{k}})] - \psi(x) - x_0 \right\}, i.e., \tag{0.1}$$

For given x, G solves:

$$\min_y \left\{ \lambda \left[[\delta r(ax^{\frac{1}{k}} - ay^{\frac{1}{k}})] + y_0 \right] + \psi(y) \right\}, i.e., \tag{0.2}$$

The Multiplier

The Multiplier denotes:

- The size/magnitude of the Property,
- Or, the compensation multiplier
  - Compensation is market value Plus a solatium, i.e.,
  - Under LAA 1894, $M = 1.3$ - market value plus 30% solatium
  - Under LARR 2014 $M \geq 2$

In any case, the owner is entitle to

- Total Compensation is $M \times r$, where $M \geq 1$
- The full offer by G will be $M \times r^O$,
- The total court provided compensation will be $M \times r^C$

The Multiplier I

Let Multiplier be M. So, given y and r, the O will solve:

$$\max_{x} \left\{ M[\delta r(ax^{\frac{1}{k}} - ay^{\frac{1}{k}})] - \psi(x) - x_0 \right\}, i.e., \tag{0.3}$$

For given x, G solves:

$$\min_{y} \left\{ \lambda \left[M[\delta r(ax^{\frac{1}{k}} - ay^{\frac{1}{k}})] + y_0 \right] + \psi(y) \right\}, i.e., \tag{0.4}$$

So, x^* and y^* solve the following FOCs:

$$M(\frac{a\delta r}{k})x^{\frac{1-k}{k}} = x$$

$$-M\lambda(\frac{-a\delta r}{k})y^{\frac{1-k}{k}} = y$$

The Multiplier II

We get

$$x^* = \left(\frac{aM\delta r}{k}\right)^{\frac{k}{2k-1}} \tag{0.5}$$

$$y^* = \left(\frac{a\lambda\delta rM}{k}\right)^{\frac{k}{2k-1}} \tag{0.6}$$

Note that:

$$\frac{ME(r^c \mid r, x, y)}{Mr} = \delta(ax^{\frac{1}{k}} - ay^{\frac{1}{k}}). \tag{0.7}$$

Therefore, from (0.7), (0.5) and (0.6), the equilibrium ratio is

$$\frac{E^*(r^c \mid r, x, y)}{r} = \frac{E(r^c \mid r, x^*, y^*)}{r} = \delta a(x^{*\frac{1}{k}} - y^{*\frac{1}{k}}). \tag{0.8}$$

The Multiplier III

Proposition

$$\lambda < 1 \Rightarrow \frac{d}{dr}\left(\frac{E^*(r^c \mid r, x, y)}{r}\right) > 0.$$

Show that:

Proposition

$$\lambda < 1 \Rightarrow \frac{d}{dM}\left(\frac{E^*(r^c \mid r, x, y)}{r}\right) > 0.$$

General Case (OPTIONAL) I

For the general case, i.e., when

$$E(r^c \mid r, x, y) = \phi(r)(ax^{\frac{1}{k}} - by^{\frac{1}{j}}),$$

where $j, k > 1$. x^* and y^* solve the following FOCs:

$$M(\frac{a\phi(r)}{k})x^{\frac{1-k}{k}} = x \quad (0.9)$$

$$-M\lambda(\frac{-b\phi(r)}{j})y^{\frac{1-j}{j}} = y \quad (0.10)$$

We get

$$y^* = \left(\frac{b\lambda\phi(r)M}{j}\right)^{\frac{j}{2j-1}}$$

$$x^* = \left(\frac{aM\phi(r)}{k}\right)^{\frac{k}{2k-1}}$$

General Case (OPTIONAL) II

Further

$$\frac{dx^*}{dr} = \left(\frac{aM}{k}\right)^{\frac{k}{2k-1}} \left(\frac{k}{2k-1}\right) (\phi(r))^{\frac{1-k}{2k-1}} \phi^{'}(r)$$

$$\frac{dy^*}{dr} = \left(\frac{b\lambda M}{j}\right)^{\frac{j}{2j-1}} \left(\frac{j}{2j-1}\right) (\phi(r))^{\frac{1-j}{2j-1}} \phi^{'}(r)$$

$$\begin{aligned} \frac{dE^*}{dr} &= (\phi(r))^{\frac{1}{2k-1}} \phi^{'}(r) \left(\frac{a}{k}\right)^{\frac{2k}{2k-1}} \left(\frac{k}{2k-1}\right) \\ &- (\phi(r))^{\frac{1}{2j-1}} \phi^{'}(r) (\lambda)^{\frac{1}{2j-1}} \left(\frac{b}{j}\right)^{\frac{2j}{2j-1}} \left(\frac{j}{2j-1}\right). \end{aligned} \quad (0.11)$$

General Case (OPTIONAL) III

Proposition

$$[(1 < k \leq j \text{ and } a > b) \text{ or } (1 < k < j \text{ and } a \geq b)] \Rightarrow \frac{dE^*}{dr} > 0.$$

From (0.11) note that

- when λ is small $\frac{dE^*}{dr} > 0$ will hold, for a wide range of a, b, j and k.
- In fact, when λ is sufficiently small $\frac{d[\frac{E^*}{r}]}{dr} > 0$ will hold.

Payoffs: Symmetric Uncertainty

Let,
V_O^* denoted the expected net gains for O from litigation.

Let

$$r^a M = V_O^* = ME(r^c \mid r, x^*(r), y^*(r,\lambda)) - \psi(x^*(r,y^*)) - x_0.$$

The owner will accept the offer r^o only if

$$r^o \geq r^a.$$

Clearly, r^a depends on r. Whenever $\frac{dV_O^*}{dr} > 0$,

$$\frac{dr^a}{dr} > 0. \tag{0.12}$$

If there are no constraints to bargaining:

- The parties will bargain successfully .
- Payoffs of the O will increase with market value of property.

Prohibition of Reformatio in Peius

- The legal doctrine applies to the decision of appeal courts, especially in the civil law countries.
- The court decision should not put the appellant in a position worse than his position before appeal.
- As a result, it is the principle of 'appeal without fear'.

In India, Section 25 of LAA 1894 (amendment, 1984)

- mandates that the court award cannot be less than the LAC awarded compensation.
- litigation by the affected parties is risk-free venture.

Formally, let

r_{LAC} denote the compensation rate offered by the LAC.

Prohibition of Reformatio in Peius: Consequences I

Assume:

- No litigation efforts - no x and y
- Only fixed litigation costs

No Prohibition of Reformatio in Peius

The expected value of the court award, $E^{NP}(r^c)$

$$E^{NP}(r^c) = \int_{\underline{r^c}}^{\bar{r^c}} r^c f(r^c) dr^c. \tag{0.13}$$

Net gains to the Owner

$$E^{NP}(r^c) = \int_{\underline{r^c}}^{\bar{r^c}} r^c f(r^c) dr^c - x_0 \tag{0.14}$$

Prohibition of Reformatio in Peius: Consequences II

Proposition

In the absence of *Prohibition of Reformatio in Peius*

- *The executive award:* $r_{LAC}^{NP} = E^{NP}(r^c) - \frac{x_0}{2}$
- *There is no litigation.*

Under *Prohibition of Reformatio in Peius*, for given r_{LAC}, the expected value of the appeal court award is

$$E^P(r^c|r_{LAC}) = \int_{\underline{r^c}}^{r_{LAC}} r_{LAC} f(r^c) dr + \int_{r_{LAC}}^{\bar{r^c}} r^c f(r^c) dr^c. \quad (0.15)$$

Note that

- for all r_{LAC}, $E^P(r^c|r_{LAC}) > r_{LAC}$.
- Also, from (0.15) note that $E^P(r^c|r_{LAC})$ is an increasing function of r_{LAC}.

Prohibition of Reformatio in Peius: Consequences III

Since $E^P(r^c|r_{LAC})$ is the cost for the executive branch, it will minimize its cost by choosing $r_{LAC} = \underline{r}^c$.

Lemma

When the court applies the doctrine of *Prohibition of Reformatio in Peius*

1. *The executive award* $\underline{r}^c = r^P_{LAC} < r^{NP}_{LAC}$. *That is, the executive award is lower under the application of the doctrine.*
2. *There is litigation; the awardee will not accept the executive award.*
3. *Compared to the No-Reformatio in Peius case, both parties are worse off; the outcome is inefficient, due litigation costs.*