

Political Economy of Land Acquisition and Holdout

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- Land acquisition for industrial growth becomes a *political issue* in some cases, perhaps more so in LDCs, generating **controversy** in terms of compensation, coercion, etc.
- Political interference was evident in several instances of attempted land acquisition in *India* (Chakravorty, 2013, OUP):
 - ① The Vedanta project in Kalahandi, Odissa, seeking to develop an aluminium factory.
 - ② Nandigram agitations in West Bengal (Banerjee, et al., 2007).
 - ③ Singur in West Bengal (Sarkar 2007, Ghatak & Banerji 2009, Ghatak, Mookherjee, Nath, 2013).
 - ④ Building a steel plant by Posco in Orissa (Chandra, 2008).
 - ⑤ Building a steel plant and also a power project in Khuntia district of Jharkhand (Basu, 2008).
 - ⑥ Building an international airport along with air cargo hub at Gagret in the Una district, Himachal Pradesh (Panwar, 2008).
- In *Bangladesh*, differences between local and state politicians often result in land disputes (Pons-Vignon & LeComte, 2004).

- One begins to see some common patterns in many of these (Chakravorty, 2013):
 - ① Land acquisitions are often *initially spearheaded by interest groups*, e.g. Gana Unnayan O Jana Adhikar Sangram Committee (both Nadigram and Singur), and the Save Niyamgiri Group (Kalahandi), among others.
 - ② *Later political parties join/take over the movement.*
 - ③ The positions taken by political parties seem to depend on whether they are in power, or in opposition:
 - *The ruling party often takes a pro-acquisition stance* - the Left Front in both Nandigram and Singur, the BJD and its ally in Vedanta.
 - *Whereas the opposition often takes an anti-acquisition stance* - the TMC and the Congress in both Nandigram and Singur, and the Congress in case of Vedanta.
 - ④ The pro-acquisition *ruling party often seems to co-opt the government machinery*, including the bureaucracy and the police in the process.

The Framework

- We develop a framework that tries to model some of these aspects:
 - There is a buyer who is interested in acquiring plots for project implementation.
 - The economy is beset with **bureaucratic corruption**, which in turn creates a role for **political interference**.
 - Thus acquisition is mediated, at least partially, by two parties, one *For*, and the other *Against* land acquisition (standing for both activist groups, as well as political parties):
 - 1 The F and the A parties contest over land acquisition.
 - 2 Greater the number of sellers acquiring land via party F, greater its chances of winning, when the project goes through.
 - 3 Further, in case of land acquisition going through party F, it helps those sellers selling via party F in resolving various bureaucratic problems associated with land sale.

- *Research questions:*

- ① Can there be holdout/inefficiency in equilibrium given that the framework does not allow for strategic complementarity, or asymmetric information?
- ② What is the impact of changes in corruption on
 - the extent of land acquisition, and
 - efficiency?

The Economy

- Consider an economy populated by a unit mass of sellers holding *identical* plots of land yielding a non-negative return v to their owners in their current uses.
 - Ghatak, Mookherjee, Nath (2013) argue that land heterogeneity was a key reason for refusing offers in Singur.
- A buyer B wishes to set up a project that yields a revenue of $V(x) = \lambda x$, where $0 \leq x \leq 1$ is the fraction of plots acquired, and λ is the productivity of land in the project.
 - there is no complementarity in plot size, unlike Ghatak & Mookherjee (2014), and Roy Chowdhury & Sengupta (2012).
- Land acquisition faces *bureaucratic corruption* - any land sale involves a transactions cost of $r_l \geq 0$, with the buyer bearing a fraction β , and the seller a fraction $1 - \beta$ of this cost.
 - β is exogenous - we abstract from any possible dependence β may have on x .
- The project is economically viable even after accounting for this bureaucratic corruption

$$\lambda - v - r_l > 0.$$

The Economy: Outside interference

- There are two 'parties' with opposing incentives, F and A.
 - F typically represents the ruling political party, which might co-opt the local bureaucracy.
 - Whereas A comprises political parties in opposition, or interest groups (or a combination of the two).
 - The transactions cost r_l can be bypassed only if the sale is mediated by party F.

The Economy: Early Offers

- The buyer initially works through party F, specifying a plot price $q \geq 0$ and a fraction $0 \leq k \leq 1$ of the plots that he wishes to buy through party F, which then approaches a fraction k of the sellers with this price offer.
 - So we abstract from contiguity issues, unlike Ghatak and Ghosh (2011), Marcin, Roy and Roy Chowdhury (2017?).
- If k sellers agree to the buyer's offer (intermediated by party F), then F wins the *interference contest* against A with probability $\pi(k) = k$.
 - $\pi(k)$ can be interpreted as the Tullock contest success function, with party F's conflict input being k , and that of party A being $1 - k$.
 - We do some robustness analysis using general $\pi(k)$ and $V(x)$ to show existence of holdout.

The Economy: Post-contest Activity and Payoffs of the buyer and sellers

- If Party A wins the project is scrapped.
- If party F wins, then these k sellers sell their plots at a price q , and party F ensures that the transactions costs r_l are waived.
- The remaining $1 - k$ fraction of sellers then jointly enter a bargaining process with the buyer that results in a Nash-bargaining outcome on the residual surplus, generating a plot price q_b .
 - We do robustness check on what happens if this stage is not there, or if party F gets involved in this stage as well.
- The buyer's payoff, conditional on F winning, is

$$\lambda - (q + r_P)k - (1 - k)(q_b + \beta r_l),$$

while the payoff to an early seller is q and that to a late seller is $q_b - (1 - \beta)r_l$.

The Economy: Party F's payoff

- Party F asks for a political rent of r_P per seller conditional on success:
 - Fighting A at the contest stage is costly for party F, both because of opposition from A, as well as because coordinating k sellers is costly, generating a cost of $C(k)$ for party F, with $C(k)$ being increasing and convex in k , in particular let $C(k) = ck^2$.
- Party F cares not only about its *political success*, captured by the project's success probability $\pi(k)$, but also its net rental gains $\pi(k)kr_P - ck^2$. Thus the utility of F is given by

$$\gamma\pi(k) + (1 - \gamma)[\pi(k)kr_P - ck^2], \quad (1)$$

where $0 < \gamma < 1$ measures how politically important it is for F to win the political contest.

The Economy: Party A's payoff

- Party A selects c , which ensures the degree of opposition it provides.
- Increasing c is costly for A and for simplicity we assume that the marginal cost of doing so is constant at $\alpha > 0$. Thus lower values of α makes opposition easier. Higher α means:
 - Better rule of law as that makes it harder for A to interfere with the exchange rights of landowners.
 - A has a smaller presence and influence in the area under consideration.
- The utility of party A also has two parts, the direct political returns from stopping the land acquisition process and the costs incurred in doing so. Thus A's utility is given by

$$\delta(1 - \pi(k)) - (1 - \delta)\alpha c, \quad (2)$$

where $0 < \delta < 1$ is an index of A's anti-acquisition conviction.

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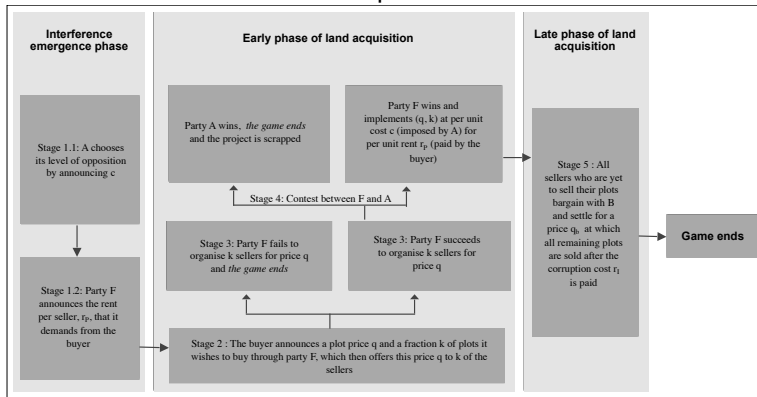


Figure: Timeline of the game Γ_{α, r_l}

Equilibrium size of Holdout (HO)

- We say there is holdout of size $1 - k$ if all sub-game perfect equilibria involve the project being scrapped with a probability of at least $1 - k$.

Proposition (1)

Consider the subgame starting at the early phase of land acquisition, taking the political positioning as given.

- 1 *There is holdout if and only if the political rent r_P is significantly higher than the transactions costs, that is $r_P > r_I + \frac{\lambda - v - r_I}{4}$.*
- 2 *In case of HO, the extent of holdout in the early stage*

$$1 - k^*(r_P) = 1 - \frac{(\lambda - v) - r_I}{4(r_P - r_I)}.$$

- 3 *Thus the size of holdout $1 - k^*$ is increasing in v , but decreasing in r_I and λ .*

Equilibrium size of Holdout (HO)

- Why does not the buyer seek to acquire more plots in equilibrium?
 - Intuitively, r_P measures the marginal cost of acquiring one more plot at the early stage through party F.
 - Whereas the expression $r_I + \frac{\lambda - v - r_I}{4}$ measures the marginal benefit from doing so at $k = 1$. r_I , captures party F's contribution in reducing transaction costs, whereas $\frac{\lambda - v - r_I}{4}$ is a measure of party F's contribution in fighting A.
- Relatedly, why don't more sellers try to bypass the interference process and approach the buyer directly?
 - The benefit of doing so is that she can obtain a higher price, whereas the cost is that she will have to pay the corruption costs herself and increase the probability of the project getting scrapped due to opposition. In equilibrium these two are balanced.

- *Remarks:*

- Unlike the strategic bargaining framework, e.g. Cai (2003), Menezes and Pitchford (2004), Miceli and Segerson (2007), and Roy Chowdhury and Sengupta (2012), we obtain holdout despite there being *no complementarity* in the number of plots, and the bargaining *protocol being transparent*.
- Unlike Chatterjee and Samuelson (1983) and Myerson and Satterthwaite (1983), inefficiency is obtained under *complete information*.
- Unlike Ghatak and Mookherjee (2014) we do not focus on the issue of *compensation*.
- Unlike Collins and Isaac (2012), we do not allow for *contingent contracts*.
- In contrast to Ghatak and Ghosh (2011), Singh (2012) and Kominers and Weyl (2011), we do not examine *contiguity* concerns.
- Unlike Roy Chowdhury (2013), we do not allow for *hyperbolic discounting*. Ghatak et al. (2013) find evidence of temptation preferences in Singur.

Endogenizing Political Stance

- Next we endogenize the political stances of the parties.
- Apart from robustness, this has serious implications for the comparative statics results.

Proposition (2)

Let k^* denote the equilibrium fraction of land acquired through the intermediation of party F.

- If opposing land acquisition is not very costly for party A, so that α is low, and/or party A is very motivated, so that δ is large, then the outcome involves holdout, i.e. $k^* < 1$. Otherwise, there is no holdout.*
- In the early phase, land is sold at price $q = \frac{\lambda + v}{2} - \frac{r_l}{2}$.*
- In case party F wins the political contest, the late phase price $q_b = \frac{\lambda + v}{2} + r_l(\frac{1}{2} - \beta)$; thus $q < q_b$.*

Holdout with endogenous politics: Remarks

- *Remarks:*
 - Thus we obtain a theory of buyer induced holdout, where the buyer after balancing the trade-off between acquiring and not more via party F, optimally decides on $k^* < 1$.
 - The ease of political conflict, i.e. α , affects the extent of holdout, but does not affect sale prices.
 - The size of holdout is increasing in the productivity of land:
 - This is consistent with Ghatak, Mookherjee, Nath (2013) who find that landowners with irrigated plots, and those dependent on agriculture seem more likely to holdout.
 - This is also consistent with Chakravorty (2013) who argue that increasing land prices is a key element of land disputes in India.

Equilibrium size of HO: Intuition

- *Intuition for holdout:*
 - Recall that fixing the political stances, the equilibrium involves holdout whenever the per seller rent charged by party F, r_P , is significantly higher than the transactions costs, so that acquiring too many plots through F may be very costly for the buyer.
 - Why does not party F charge a lower rent though, given that doing so leads to a greater number of sellers joining party F, thereby increasing party F's political clout?
 - Whenever opposing is relatively inexpensive for A, and/or A is sufficiently motivated, A provides significant opposition to land acquisition, which in turn ensures that the pro-acquisition party, i.e. F, charges a high political rent. This in turn ensures that there is holdout.

Proposition (3)

Suppose that party A has low costs of opposition, and/or high motivation levels, so that there is holdout in equilibrium.

- (i) The magnitude of holdout, i.e. $1 - k^*$, is non-monotonic in the level of bureaucratic corruption, i.e. r_I ; increasing in r_I if $r_I < (\lambda - v) - \frac{\gamma}{1-\gamma}$, but is decreasing otherwise.*
- (ii) The magnitude of holdout decreases monotonically with a decrease in the ease of opposition, i.e. an increase in α .*

- *Remark:* Recall that with exogenous politics, a reduction in corruption necessarily reduces holdout (Proposition 1).

How do institutional changes affect the extent of HO?

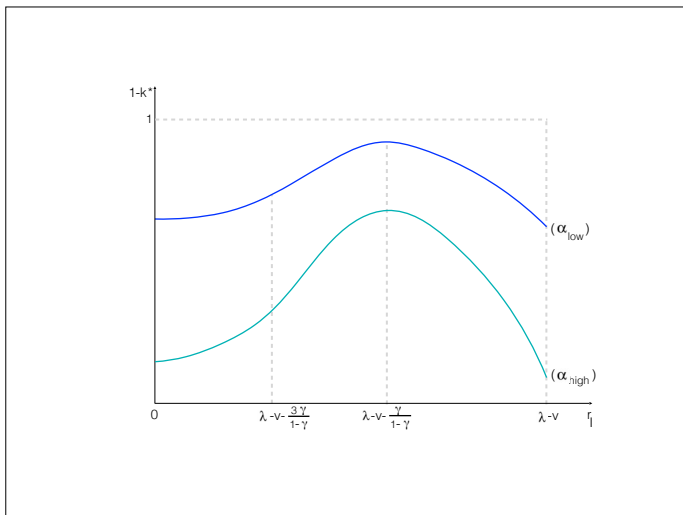


Figure: Effect of change in r_l and α on the degree of holdout $1 - k^*$.

- Why does the effect depend upon whether corruption is large or small to begin with?
 - Reduction in transactions costs r_I has two effects, one direct, one indirect:
 - *Direct*: it increases a seller's incentive to sell her plot.
 - *Indirect*: it makes it less attractive for the buyer and the sellers to work through party F. This in turn reduces party F's political clout in that a smaller number of sellers sell via political intermediation, making holdout more likely.
 - If corruption is large to begin with, so that the net returns from the project $\lambda - r_I - v$, and consequently the rental income of party F, is low relative to its motivation level, then the political considerations that drive the indirect effect dominates.
 - Thus, if party F, has no role in reducing r_I then we expect that the extent of holdout would be monotonic in r_I .

Equilibrium size of HO and land prices in HO

- *Remarks:*

- ① Our results identifies situations under which increased corruption may either improve or reduce efficiency in land acquisition.
- ② Regarding the effect of corruption on growth and development, there is support for both viewpoints in the literature, e.g. Bardhan (1997) and Svensson (2005):
 - One stream, e.g. Blackburn et al. (2006), Mauro (1995) and Murphy et al. (1993), among others, sees corruption as an essentially unproductive activity, and thus an obstacle to growth and development.
 - Another stream, e.g. Levy (2007), Egger and Winner (2005), Beck and Maher (1986), Leff (1964), Huntington (1968), Aidt (2009), suggest that corruption can allow agents to get things done in an economy plagued by bureaucratic hold-ups and bad, rigid laws.
 - In our framework, any positive effect of corruption comes through the political channel, as an increase in corruption can make party F more effective.

Some Testable Hypothesis

- Proposition 3 generates two testable hypotheses that can be taken to data, at least conceptually:

Hypothesis 1: An increase in bureaucratic corruption, i.e. in r_l , increases holdout if r_l is relatively small, but decreases holdout if r_l is relatively large to begin with.

Hypothesis 2: An increase in the ease of opposing land acquisition, i.e. a decrease in α , increases holdout.

Institutional improvements and the economic surplus

- Define the economic surplus

$$ES = U_B + U_S - (k^2 + \alpha)c,$$

where U_B is the buyer's utility, U_S is the aggregate utility of the sellers, and $(k^2 + \alpha)c$ is the cost of the political contest.

- *Example:* When both parties have balanced preferences, i.e. $\gamma = \delta = 1/2$, then
 - 1 ES is increasing in r_I if the political institutions are weak, and is decreasing in r_I otherwise;
 - 2 ES is increasing in α if the legal institutions are strong, otherwise it is decreasing in α .
- *Implication:* Identifying LDCs with weak institutions, this example suggests that in these economies an *improvement* in the quality of institutions may reduce economic surplus, so that even a benevolent policy-maker with a short-run horizon may not be interested in institutional reforms.

- The results are more nuanced if the preferences are unbalanced.
 - If A is extremely motivated, and party F is highly rent-seeking, for high degrees of legal weakness, $\frac{\partial ES}{\partial r_l} > 0$ if degree of political weakness is large and $\frac{\partial ES}{\partial r_l} < 0$ if degree of political weakness is small.

Some preliminary correlations from India

- Consider India, and assume that bureaucratic corruption (viz. r_I) is large enough to begin with.
- We look at the *correlations* between corruption (viz. r_I), the ease of opposition (viz. α) and holdout (viz. $1 - k^*$) in India.
- *Bureaucratic corruption*:
 - We proxy bureaucratic corruption by the *perception of corruption*, in particular that held by those below the poverty line in various Indian states regarding the respective land administrative departments.
 - This data is from the India Corruption Study - 2005, and the India Corruption Study - 2008, Transparency International India, with a number of districts within the states being selected for conducting the sample survey.
 - We take a simple average of this perception in the two years 2005 and 2008.

Preliminary correlations from India: The data

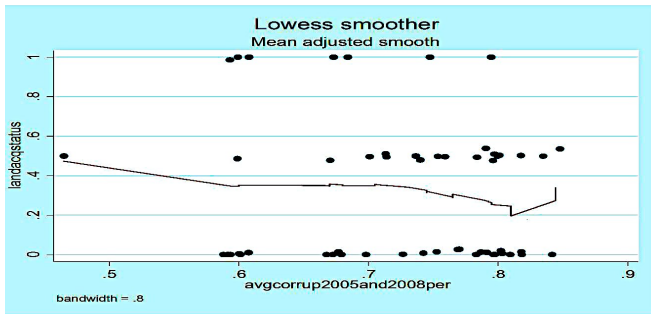
- *Ease of opposition:*
 - Proxy ease of opposition by the (log of) total number of deaths due to *political violence unrelated with land acquisition* across the concerned states and union territories between the years 1960 - 2004.
 - The idea is that if a state has a history of higher political violence, then institutions in these states are perhaps not effective enough in dealing with protests in general.
 - The data is from the India Sub-National Problem Set database, 1960 - 2004, from the Center for Systematic Peace, USA, 2005.
 - Use the number of NGOs and activist groups as a proxy of α ?

Some preliminary correlations from India

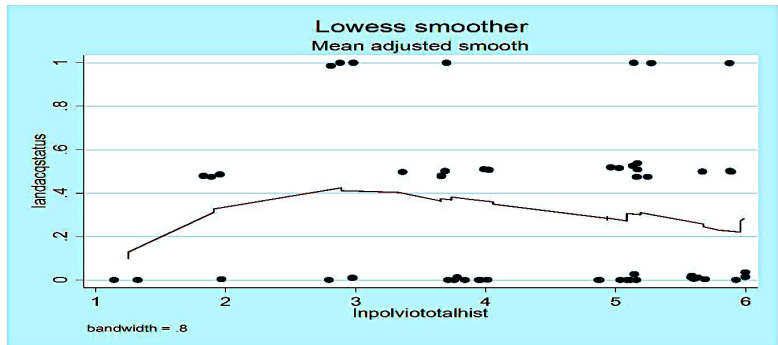
- We look at the pattern of land acquisition bids and their current status – successful, contested or failed – across 15 states and one union territory of India between the years 2006-2016.
- We draw on tables A1 and A2 in Chakravorty (2013) that collate instances of land acquisition that were *reported in the media* for the first time between the years 2006-2011.
- In July, 2016, we updated the cases that were reported as contested in Chakravorty (2013).
- The data shows that out of the 53 reported cases, land acquisition was successful in 27 and failed in 7 cases. As of now the other cases either continue to be contested, or there is little evidence to suggest that these have been resolved either way.
- We construct a discrete variable with 0 denoting success, 0.5 denoting contested, and 1 denoting failure in land acquisition.

Corruption and Holdout

- We use the locally weighted scatterplot smoothing (LOWESS) to decipher the correlations between holdout, corruption and ease of opposition in a non-parametric fashion.



Some preliminary correlations from India: Ease of Opposition



- ① Dropping late stage negotiations:
 - Holdout lessens, since sellers have less to gain by waiting, but the results go through qualitatively.
 - In this case, k and $1 - k$ can be interpreted as the number of individuals joining party F and A respectively.
- ② Party F gets *involved in the late stage negotiations*, helping with the transactions costs in return for a rent, to be shared by the buyer and the sellers - results qualitatively similar.

- Suppose F is coercive in that it imposes a cost $\chi > 0$ on any seller refusing to sell in early phase - results qualitatively similar.
 - 1 Coercion is never exercised in equilibrium, but the threat increases both r_P & c ;
 - 2 Sellers benefit from lower HO, but hurt by a fall in early prices q . Thus seller utility may fall.
 - Ghatak, Mookherjee and Nath (2013) show that in Singur those who sold land had a 33% reduction in income.

- We develop a theory of buyer induced holdout, where the buyer given the political complexities (which in turn can be related to institutional weaknesses), endogenously decides on a sub-optimal level of acquisition.
- *Results:*
 - Holdout without geographic contiguity, preference irrationality and strategic bargaining.
 - Fall in bureaucratic corruption can increase holdout.
 - Improving institutions may reduce the 'economic surplus' in the short run.
 - Importance of endogenizing the political stance.
- *Future research:*
 - *Theory:* Incorporating contiguity concerns in a strategic bargaining framework. In the next step allow for political interference (Marcin, Roy, Roy Chowdhury, (2017?)).
 - *Empirics:* Do a better job of taking the two testable hypotheses to data.

Thank you!

Thank you!

Bureaucratic Corruption

- *Bureaucratic corruption* stems from several factors:
 - The requirement that land sale must go through bureaucracy (Chakravorty, 2013).
 - Weak property rights, in particular weak *exchange rights* in land transactions (Ghatak & Mookherjee 2014). Can be traced to out-dated land records, and poor land surveys, causing
 - improper identification of *de facto*, and *de jure* owners,
 - mis-classification of land quality (Ghatak et al. 2013), etc.
 - Accessing the law is costly.

Return

Political Interference

- *Political Interference*: Legal weaknesses in turn create a space for political interference: [Return](#)
 - The success of regional leaders may depend on successfully wooing immobile interests like landowners, workers, tenants, agricultural workers (Rodden and Rose-Ackerman, 1997).
 - Legal weaknesses can lead to actual/perceived inequities in the process of land acquisition, creating a space for activist groups seeking to redress these inequities. This in turn allows political parties to piggyback on such movements.
- Why is it the case that often the ruling party is in favour, whereas the opposition is against land acquisition?
 - The ruling party has to compete for mobile capital (since its relatively more accountable for industrialization, job creation, etc.).
 - Further, the ruling party may be in a better position to help reduce the high transaction costs associated with land sale.
- Political interference is *effective*, in that it may potentially stop (a) land transactions, and/or (b) implementing the project even if land is acquired.

Cases of land conflict in the process of industrialisation

- In China, in 2005 alone there were over 60,000 local disturbances provoked by attempts at acquiring agricultural land for residential or industrial use;
- In Kenya, during 2009 communal protests against the acquisition of 50,000 hectare of farmland for developing a bio-fuel plantation and manufacturing hub by an Italian company, Nilsri, scrapped the promising project;
- As of 2010, delays in land acquisition for industrial projects threatened investments worth USD 100 billion all over India in the near term;
- In Brazil's Rio de Janeiro, during 2011 protests against the acquisition of farmland delayed one of its most promising industrial projects, CISPA worth USD 40 billion.

Return

- Roy Chowdhury & Sengupta (GEB 2012):
 - Formal treatment of the holdout problem that focused on the strategic approach;
 - As land constitute complementary assets, the landowners who bargain later can extract a greater share of the surplus;
 - Landowners have incentive to wait until others have already done so, so that inefficiencies are likely.
 - *Finding*: Holdout is much more likely if (a) the bargaining protocol is non-transparent, and (b) complementarity is large.

Return

- Roy Chowdhury (JEBO 2013):
 - Landowners are present-biased, formalized as sophisticated $\beta - \delta$ preferences.
 - There can be holdout, as landowners, anticipating they will mis-use any income from landsale, will ask for a very large amount.
 - Next, introducing an NGO/party, we find the results depend on whether such activism creates a voice for just members, or every landowner.

Return

- Banerjee et al. (EPW 2007):
 - Private bargaining has many inefficiencies, largely driven by various transaction costs;
 - Increased Hold Up problems faced by the buyer;
 - So government's role as a mediator becomes crucial.

- Ghatak and Ghosh (2011):
 - Criticizes the new Land Acquisition Law and suggests an auction:
 - If Q plots are required, select an area of size $2Q$;
 - Ask each landowner to bid for a price for his land;
 - Buy from the first Q lowest bids at a price equal to the Q -th lowest bid;
 - Solve geographical disconnect by land redistribution and additional compensation.

Return

- Ghatak and Mookherjee (JDE 2014):
 - Land sale by a landlord with n plots, and having an independent tenant with sharecropping arrangements in each plot;
 - Ex-post probabilistic arrival of land-sale option;
 - Landowner's Dilemma: Take the risk of reducing share today to make more profits from land sale tomorrow but face the consequence if no offer arrives;
 - *Finding*: Any land deal must compensate the tenants, using ex ante efficiency criterion.

Return