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**Research Article**

# Acquiring Land from Traditional Communities: Bottlenecks, Misallocation and Second-Best Considerations

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## Abstract

We discuss reasons why traditional rural communities may be reluctant to voluntarily relinquish their access to land despite being compensated at market prices, thereby limiting the scope for reallocating land to more productive uses in agriculture or urban development. Owing to financial market imperfections, insurance and collateral benefits of land ownership imply that welfare-optimal land allocations may not maximize productive efficiency, even if distributive or environmental considerations are ignored. We provide some suggestive evidence and discuss implications for land acquisition policy.

**Keywords:** structural transformation, land acquisition, misallocation, second-best policy

## INTRODUCTION

Structural transformation in the process of economic development involves the transfer of land from traditional smallholders to more productive large-scale farmers, industry, mining, infrastructure or real estate. Impediments to this process often arise from lack of well-defined land property rights and government or local community regulations of land sale and rental markets, e.g. in Sri Lanka (Emran & Shilpi (2020)), China (Adamopolous et al., 2022), Ethiopia (Chen et al., 2022) or India (Foster & Rosenzweig (2022)). In China and India, government efforts to speed industrialization by acquiring land from traditional rural communities have encountered widespread protests (Cao et al. (2008), Ghatak et al. (2013), Liu et al. (2014)). When traditional farmers hold on to land, the adverse productivity consequences are compounded further by low levels of rural–urban migration that result in low supply of labor in urban areas (de Janvry et al. (2015) and Headey et al. (2014)).

A growing literature on 'misallocation' has highlighted these impediments to structural transformation. Misallocation is measured by departures from productive efficiency owing to the presence of 'wedges' or factor price distortions (Hsieh & Klenow (2009), Restuccia & Rogerson (2017)). In principle, these wedges could arise either from imperfections in markets or market institutions (weak property rights, imperfect financial markets or externalities) or from suboptimal government policies (resulting from ignorance, ideology, rent-seeking or political constraints). Most of the misallocation literature, however, highlights the role of suboptimal policies. By using productive efficiency as a measure of welfare, it implicitly presumes that in the absence of suboptimal policies, the economy would achieve a first-best allocation. Moreover, land is valued only on the basis of its productivity. This ignores other possible sources of value of land to traditional rural communities that could arise owing to the role of land as a source of insurance or credit access. This literature also abstracts from possible environmental spillovers, effects on social capital and other non-pecuniary benefits relating to quality of life or cultural identity.

In this paper, we discuss how non-productivity sources of land value could cause welfare optimal policies to diverge from maximization of productive efficiency in a second-best economy characterized by imperfect financial markets. We show that these considerations apply even if distributive equity or environmental sustainability are ignored. It indicates the need to trade off non-productivity sources of benefits provided by land to traditional rural communities against the gains resulting from productivity improvements when land is transferred to industrial and urban uses. We provide some empirical evidence in support of the importance of these non-pecuniary benefits of land ownership. We also draw some empirical implications of our analysis as well as challenges in the context of formulating land acquisition policies.

The plan of the paper is as follows. Section 2 provides a stylized example to illustrate the main theoretical points. Section 3 cites empirical evidence that traditional rural communities value land not just as a productive asset. Section 4 then discusses related difficulties associated with estimating these benefits and designing suitable government policies for land acquisition.

## AN EXAMPLE

Consider an economy with four agents and two plots of land. A plot of land can be assigned to one agent; agents who are not assigned to a plot work on an urban labor market.

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Agents $h, l$ belong to a traditional farming community with productivities, respectively, $h$ and $l$, with $h > l$. They also obtain an additional non-pecuniary benefit of $v$ from land. To keep the example simple, we abstract from the source of the non-pecuniary benefit or presence of any externalities.[1] Hence, if the land plots are allocated to the traditional agents, they earn utility of $v + h, v + l$, respectively. Otherwise, they earn a fixed payoff of $w$ from the urban labor market.

Agents $H, L$ are 'modern,' who utilize land in a more productive way (e.g. by using modern seeds and mechanized techniques, cultivating high-value cash crops rather than subsistence crops, or building a factory), earning, respectively, $H$ and $L$, where $H > L > h > l$. They obtain no non-pecuniary benefit from land. Like traditional agents, they earn $w$ if they are not assigned to a plot.

Utility is quasi-linear, i.e. if any agent receives (resp. makes) a financial transfer $t$, this adds (resp. subtracts) $t$ to (from) their payoff. However, utility is not fully transferable in the sense that there are constraints on the capacity of agents to make large side payments due to borrowing constraints, an assumption that is well justified in the context of developing countries. A different source of non-transferable utility could be the presence of wealth or income effects, which poses some interesting issues relating to misallocation, which we abstract from. We use a utilitarian welfare criterion that equals the sum of utilities of all agents.[2] In these respects, our model is quite standard, similar to the literature on second-best economies with financial market imperfections (e.g. Mookherjee (1997), Banerjee (1997), Holmstrom & Tirole (1998), Legros & Newman (2002), Banerjee et al. (2002)).

The two main assumptions are:

$$v + l > H \tag{1}$$

$$L - h > w \tag{2}$$

(1) implies that utilitarian welfare is maximized if and only if all land is assigned to traditional farmers, owing to the high non-pecuniary benefit accruing to them. (2) states that modern agents are (sufficiently) more productive than traditional farmers, implying that productive efficiency requires all land to be allocated to modern agents.

We first consider a 'first-best' setting. We define an unconstrained market equilibrium (UME) to be an allocation of land such that there exists no price $P$ that a non-owner can offer an existing owner, which would be accepted by the latter and would raise net utility of the former. In the absence of any constraint on $P$, 'willingness to pay' of non-owners coincides with 'ability to pay'.

It is evident that such an equilibrium must maximize total welfare, owing to the full transferability of utility. Assumption (1) implies that all land is allocated to traditional farmers in any UME. Assumption (2) implies this equilibrium does not maximize land productivity.

Now we introduce a financial imperfection, in the form of a restriction on financial transfers: an agent cannot transfer more money than he or she can earn. We define a Constrained Market Equilibrium (CME) to be an allocation of land such that there exists no non-owner of productivity $p$ who can offer a price $P \leq p$ to an existing owner, which would be accepted by the latter and would raise net utility of the former. The financial constraint imposes a 'wedge' between willingness to pay and ability to pay.

In the presence of such financial constraints, an allocation where both plots are owned by the modern agents is a CME. This owes to assumption (2), which implies that $h$, the highest price a traditional farmer can offer a modern agent, is smaller than $L - w$, the minimum price that the latter is willing to accept. This allocation generates higher productivity but lower total welfare compared with the allocation where all land is owned by traditional farmers. A land reform that reallocates land to traditional farmers would raise total welfare and lower productivity. Moreover, the allocation where land is assigned to traditional farmers is also a CME. The land reform thus shifts the economy from one CME to another, which raises aggregate social surplus.

Moreover, suppose we start with the allocation in which land is owned by traditional agents, and a new government that comes into office wants to raise productivity. It uses its power of eminent domain to pursue a 'modernization' program by acquiring land from traditional farmers. If the farmers are given a compensation equal to the 'market price' of $v+l$ (the lowest price that an existing landowner is willing to accept in the CME), some traditional agents (those with productivity $v + h$) must be worse off. Indeed, there exists no compensation that can be paid, which traditional agents would voluntarily be wiling to accept, that the government can finance by selling the acquired land to modern agents.[3] Traditional communities would then be motivated to participate in political protests against the policy.

Although this is a rather extreme and contrived example, it helps illustrates how the coexistence of large non-pecuniary sources of land valuation and financial imperfections can result in a second-best economy in which (i) welfare optimality may require land to be allocated in ways that do not maximize aggregate productivity and (ii) an unregulated laissez faire economy may result in welfare-suboptimal outcomes, which can rationalize regulations that lower productivity. It could also explain why land markets are thin despite large productivity gains that could result from land sales, or why traditional rural communities vigorously resist development programs that compensate their loss of access to land at market prices. The underlying argument does not rely on considerations of fairness or equity because the welfare criterion is the sum of utilities across all agents with no distributive weights. Neither does it incorporate concerns for sustainability because the model is static. It relies on the combination of non-pecuniary sources of land value and departures from the transferable utility framework, where willingness and ability to pay diverge.

Obviously, there may be many contexts where non-pecuniary sources of land value may not be as large as supposed in the example. If non-pecuniary benefits are small relative to productivity dispersion between traditional and modern agents, welfare optimality would entail the maximization of land productivity. How large non-pecuniary benefits are and for how many people is an empirical matter and can vary across contexts. What we wish to stress is the importance of evaluating such non-pecuniary benefits empirically and including them in social cost–benefit analysis of modernization programs to determine whether they are in the public interest and if so, the ways in which displaced communities need to be compensated. To the extent we are aware, the existing empirical literature on land misallocation seems to have devoted insufficient attention to this issue.

[1] In subsequent work, we will provide a fully micro-founded model of financial market imperfections where these non-pecuniary benefits will emerge endogenously.

[2] This is different from the normative criterion of Pareto efficiency, owing to restrictions on side payments.

[3] Otherwise, aggregate welfare must rise, which contradicts (1).

We also wish to highlight the important role of heterogeneity of non-pecuniary benefits of land. If for instance, there was an attribute such as proximity to valuable amenities or scenic views that all agents value in the same way, such attributes would be factored into land market prices. In that case, compensation for acquired land at market prices would incorporate such (uniform) non-pecuniary attributes. Heterogeneity of non-pecuniary valuations, on the other hand, imply that intra-marginal owners in a market equilibrium value the land more than the market price. Hence, compensations based on the latter would be inadequate to prevent the intra-marginal owners from being adversely affected by the acquisition.

Moreover, valuation heterogeneity need not be tied to specific plots of land (e.g. those of particular personal or cultural value) and may apply more generally to land as an asset that provides benefits apart from its expected productivity. Financial market imperfections may be the source of 'non-pecuniary' benefits of land. For instance, land access may be an important source of insurance to traditional communities if formal insurance markets as well as public safety nets are missing. Ownership and cultivation rights would allow farmers to self-insure against crop price shocks resulting from covariate weather risks. Land ownership may promote access to informal risk-sharing networks by limiting outmigration or turnover of local residents. Alternatively, land may be valued as collateral, which enhances access to formal credit. In such second-best economies, measures of misallocation need to trade off losses of insurance or collateral benefits of land to rural communities against the productivity benefits resulting from reallocation of land to modern agents. Moreover, it suggests that modernization programs need to be supplemented with public safety nets that protect groups that lose access to insurance and other non-pecuniary benefits.

This gives rise to the question whether there is any empirical evidence regarding the existence of non-pecuniary sources of land value for traditional communities and whether these can be quantified. We turn to this in the next section.

## EVIDENCE OF NON-PRODUCTIVITY SOURCES OF LAND VALUE

Anthropological and sociological literatures highlight the role of cultural factors that imply a strong emotional attachment of farmers to their land, as well as land as a source of status and political power (see, e.g. Baldwin et al. (2017) and the World Bank, 2007). Even if we restrict attention to economic factors, the insurance and social safety net values that land provides to farmers are likely to be important (World Bank (2007)). The insurance value of land has been explored in several recent studies. For example, Santaeulalia-Llopis and Zheng (2019) provide evidence from rural China over the period 1989–2009 to show that income growth was accompanied by a decrease in consumption insurance, especially with respect to village-level shocks to permanent income. The transmission of these shocks to consumption at least tripled over this period, implying that rural household welfare grew more slowly than incomes. Attanasio et al. (2022) show that the decline in insurance was more pronounced in areas with a higher percentage of population working in agriculture, engaging in temporary migration, with more collective enterprises and where these enterprises spent more on local public goods. These studies find that the decline in consumption insurance in rural China was aggravated by a decline in public transfers through the fiscal mechanism. However, in urban areas, public transfers (such as pensions and disability insurance) helped prevent a similar deterioration in consumption insurance.

These studies suggest but do not directly establish that the fall in consumption insurance was related to the transfer of land from agriculture to non-agricultural uses. Because land was not individually owned in China, the transfer of land out of agriculture did not involve a transfer of land ownership. It did, however, diminish cultivation rights of farmers, which may have made them more vulnerable to food price shocks. Increased migration and the decline in collective enterprises may also have weakened local risk-sharing networks.

Promsopha (2015) examines the hypothesis that land assets constitute a source of insurance, using data on land sales and transfers in Vietnam from a 2006 household land survey. Individual land rights were created by a 1993 land reform, which legalized land transfers through sales, rentals, loans or gifts. She finds that among households that transferred land during 2001–2006, those with more stable incomes were more likely to sell rather than transfer through some other means. The relevant components of 'stable income' that accounted for this relationship consisted of household income, education and housing wealth. On the other hand, conditional on these components, she does not find evidence that the likelihood of selling land was significantly affected by household savings, access to private insurance or credit.

Promsopha does, however, find evidence that the likelihood of land sales increased after adverse shocks, suggesting its role as a buffer against such shocks. The phenomenon of distress sales in adversity is one manifestation of the insurance role of land and has been found in many other contexts (see, e.g. Ruben & Masset (2003) and World Bank (2007)). The role of insurance has also been highlighted by authors seeking to explain why rural–urban migration in India and Bangladesh is low despite the existence of substantial urban–rural wage disparities (Munshi & Rosenzweig (2016), Lagakos et al. (2023)).

Ghatak et al. (2013) examined a case study from Singur, West Bengal, involving consequences of land acquisition in 2006 by the state government from local farmers under its power of eminent domain for the purpose of leasing to an industrial house for building a car factory. Approximately 40% of landowners refused to accept the compensation offered by the state government despite compensation being set at 130% of market value. They were joined by renters, agricultural workers and local political activists in mounting highly visible political protests against the state government. Ghatak et al. (2013) collected data from household surveys in six affected villages, with six other contiguous villages where no land was acquired serving as a control. They found that household refusals of government compensation offers were partly driven by under-compensation resulting from misclassification of land types in the government's land records. However, the likelihood of refusal was also significantly higher among households whose livelihoods were less diversified (e.g. those more dependent on agriculture or labor), controlling for a large number of household and plot characteristics (such as land owned, education, soil type, plot location, irrigation status, selling rights). In interviews with surveyed subjects, those who refused compensations explained their refusal by describing anxieties associated with greater vulnerability to food price shocks, unemployment risk, increased requests from relatives and friends for loans and gifts and their own temptation to overspend from the cash compensation.

Although the evidence in these papers is highly suggestive of the role of land ownership or access to cultivation as a source of insurance, they are far from definitive. More research is needed to gauge the existence and magnitude of a safety net role of land for

traditional communities. Effects on local networks, social capital, quality of life and cultural heritage are even harder to identify and measure.

## IMPLICATIONS FOR LAND ACQUISITION POLICIES

The possibility that land may be valued beyond its role as a productive asset has many important implications for land policies.

The first question pertains to the estimation of suitable compensations for members of rural communities that lose access to land, which ought to include loss of access to insurance, credit and local networks besides income. These non-income benefits are often heterogenous and difficult to measure. Hence, they are unlikely to be incorporated in the prevailing market price of land or calculations of present value of future incomes generated by cultivation. For instance, the value of insurance benefits depend on risk attitudes and beliefs, which are subjective and vary from person to person. Vulnerability to loss of land also depends on the extent to which current users have skills that are specific to the locations or plots they cultivate, rather than in alternative locations or occupations. Even if there were no frictions in land markets, the equilibrium land price would mirror the value placed by the marginal seller of land, which will be smaller than the value of (intramarginal) owners who do not sell. Hence, the market price will be an underestimate of the losses that would be incurred by current owners who lose access to their land.

Owing to their heterogeneity and measurement difficulties, valuations of non-pecuniary benefits of land need to be elicited via procurement-auction or Vickrey-Groves-Clark–type of incentive-compatible mechanisms. The mechanism design problem is rendered difficult when landholdings are highly fragmented. For instance, in Singur, the proposed factory area of 997 acres required acquiring more than 16 000 separate plots (Ghatak et al. (2013), Table 7). They are compounded further by the existence of interdependent valuations owing to externalities (e.g. the value of one's own land depends on whether other landowners agree to part with their land to make way for the industrial project) and the need to ensure that properties acquired are contiguous (as needed by the new project) rather than scattered across many locations. The former problem has been studied in the context of auction design (e.g. Jehiel & Moldovanu (2001)), as well as in the holdout problem in problems of corporate control (see, e.g. Bebchuk et al. (2002)), whereas a possible solution to the contiguity problem has been discussed by Ghatak & Ghosh (2011). However, we are not familiar with any analysis that simultaneously integrates these different complications, either theoretically or empirically.

The externality problem also raises considerations of fairness. Even if market prices are used as a basis for compensation, at which point of time should market prices be calculated: before or after the project? Market prices are likely to rise after the project is approved and built, reflecting the higher productivity of the land resulting from the project. Previous owners would prefer to share in these capital gains rather than see them accrue entirely to the new owners. To the extent that the rising value of local properties results in a higher cost of living, linking compensation to post-project land prices may be a way to provide insurance against such increases.

Another substantive problem arises from existence of tenants and agricultural workers whose livelihoods are jeopardized when land is acquired (see Ghatak & Mookherjee (2014)). In Singur, more than a fifth of the households reporting being adversely impacted by the acquisitions were tenants and agricultural workers rather than landowners. It is difficult for the government to keep track of the identity of such members of the local population who are indirectly affected, quantify and compensate their losses.

Considerations of loss of insurance or employability of landowners with specific skills may also suggest the need to consider compensation packages that provide insurance against such risks. This may involve non-cash forms of compensation such as training for new occupations, costs of moving and adjusting to new locations and indexing of benefits to future cost-of-living indices. More generally, industrialization programs need to be bundled with improvements in public safety net mechanisms for both ethical and pragmatic reasons (i.e. minimizing political resistance).

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