Property Rights and Productivity of Resource Allocation in Developing Countries

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1. Introduction

Even though classical economists from Smith to Marx placed a lot of importance to institutions such as property rights that underpin a market economy, until recently there was relatively less focus on these. Assets such as land or capital were treated as an input in production with little focus on the ownership and contractual structure governing their use. This sometimes creates an impression from outside that Economics as a discipline is too focused on the abstract notion of the invisible hand of the market and its ability to coordinate the decisions of millions of individuals to achieve efficient outcomes, without looking deeper into how markets work. It is as if one is studying electrical lights without thinking about the wiring system that underpin it.

Such an institution-free view of the economy would be justified if institutions were well-developed everywhere and could be taken for granted. But from the Arrow-Debreu complete markets view of the economy or the "efficient markets" view of the Chicago-school, the discipline has come a long distance to the point that in modern treatment of markets in economic theory, it is customary to specify what is being assumed about institutional imperfections that underpin markets. For example, in the textbook version of the classic model, it is assumed that there is no problem of extortion – one does not have to worry about one's assets or output to be subject to threats of expropriation for private or state actors to be able extract surplus from oneself.

Most economic activity is not instantaneous – there is lag between investment and production, and production and income generation. Similarly, most economic transactions are not spot transactions, where one does not have to worry about contractual mechanisms to enforce the terms of the agreement. Rather, they are time-separated. For example, in the case of loan or rental contracts, what is traded is money or the use of an asset with a promise to deliver something at a later date. As a result, institutional mechanisms are needed that provide protection from opportunism, extortion, and deliberate defaults on existing agreements. An entire range of formal institutions, such as laws, property rights, contracts, and regulation, as well as informal institutions, such as the role of reputation, repeated relationships, conventions, and social norms are precisely mechanisms that try to minimize the potential frictions that arise in economic activities such as investment and production as well as rental and sales of assets

In the institutional approach to development economics in which Pranab Bardhan played a pioneering role, property rights play a central role. In the earlier era with growth theory focusing on a representative agent as in a Robinson Crusoe economy (where human interactions are a moot point) or standard price theory in the context of competitive market economies with an implicit assumption of perfect institutions, not much attention was paid to the topic of property rights. As an example of an institution that governs one of the most important forms of resource allocation, the topic is clearly central to the research agenda that seeks to study how institutions affect economic development.

Property rights refer to rules, regulations, and customs governing *non-human* productive assets (e.g., land, livestock, natural resources, real estate, machinery, intellectual property like patents, brand name) regarding [1] :

a) Use rights - their use in productive activity
b) Contractual rights - claims to current and future streams of income generated from them via their use in economic transactions. This includes compensation for inputs complementary to the asset in production (e.g., capital) through pledging, mortgaging, profit-sharing; or, letting others use it via renting out or tenancy.
c) Transfer rights - transferring them to another party, in the form of sales, gift, or bequest.

Property rights are an example of an institution using the classic definition provided by North (1990). Namely, they are a set of rules of the game, or more formally, humanly devised constraints in the contexts defined above that shape economic interactions, and in consequence, affect economic incentives.

For property rights to play a critical role in economic outcomes, there must be a) some imperfections relating to it; and b) a variation in these imperfections across settings that allows us to compare alternative scenarios in terms of economic efficiency. Much of the literature on property rights characterizes imperfections from a "perfect" system of property rights as a friction, analogous to transport or trade costs, transactions costs, informational asymmetries, externalities, that affects economic activity through a number of mechanisms. Of course, there is the important question what determines these frictions in property rights.

By property rights economists typically refer to *private* property rights, a key feature of which is to be able to legally exclude others from using a good or asset, as well as transfer and exchange rights. Implicitly, economists typically refer to *formal* property rights that are regulated and enforced through a modern legal system. However, other forms of property rights are important in many societies. One example is *collective* or

[1] Property rights regarding human assets are possible in theory and has been observed in practice via pre-modern coercive institutions such as slavery, and indentured labour. Modern legal systems also rule out voluntary servitude.

communal property rights which tend to be informal. In the case of common property resources, such as a lake or a forest, individuals have use rights but do not have the right to exclude others from using it. Also, in traditional societies, even when use rights are private, they are governed by community-based mechanisms based on customary law. For example, traditional land rights in Africa often require that the lineage or tribal authority has jurisdiction in this domain. There also tend to be strong restrictions on exchange and transfer rights. Another important theme in the literature on property rights in development is the interaction between formal and informal property rights.

In this essay, I will focus mainly on exogenous variations in property rights, and their impact on resource allocation via different mechanisms. I will draw on and extend the conceptual framework developed in Besley and Ghatak (2010), and focus on work done over the last decade since that article was published.

While I will not deal with the issue of endogenous property rights, some conceptual points should be noted. An important approach to the question of endogenous property rights is that of optimal or efficient allocation of property rights (e.g., Hart, 1995). The premise of this literature is clarifying the relationship between contracts and property rights. Both specify a set of decision rights: rights to take some actions and rights to exclude others from taking some actions. In a world with perfect contracting, a rental contract is effectively equivalent to a change in ownership because these rights can be specified for every foreseeable contingency. According to the celebrated Coase theorem (Coase, 1960) in a world with complete information and zero contracting costs, resource allocation will be the same independent of the allocation of property rights, even in the presence of externalities. However, in a world with costly contracting, owning and renting are not the same as not all uses of the asset can be specified up front for all eventualities. A corollary of this is the idea that property rights convey residual rights of control over an asset to the owner (Hart, 1995). These rights represent a source of freedom to the owner, i.e. to decide to do what he or she would like with the object subject to any constraints on the right. This will also affect his incentives to invest in enhancing the value of the asset, as well as those of other individuals who might have contractual rights to use the asset. The property rights theory of the firm assumes absence of borrowing constraints so that optimal assignment of property rights is typically efficient. However, there is a literature on tenancy that emphasizes the role of borrowing constraints in the determination of property rights (Mookherjee, 1998, Banerjee et al 2002). In this case, the initial distribution of property rights can have efficiency consequences and therefore reforms in them (e.g., land or tenancy reform) can have productivity consequences.

In this essay I discuss various theories relating property rights to economic outcomes (section 2), review recent empirical evidence in support of various mechanisms that theory highlights (section 3), discuss the emerging research agenda (section 4) and offer some concluding observations (section 5).

2. Theories of Property Rights and Economic Outcomes

What are the various mechanisms through which property rights affect economic outcomes? In general, property rights affect resource allocation by shaping the incentives of individuals to carry out productive activity involving the asset, undertake investments that maintain or enhance its value, and also, to trade or lease the asset for other uses. The key channels explored are (Besley, 1995, and Besley and Ghatak, 2010): a) security of property rights reduces the risk of expropriation and consequently, improves the likelihood, that individuals can realize the fruits of their investment and efforts; b) distortion of resource allocation due to private efforts in protecting property rights which, from the economic point of view, is unproductive; c) gains from trade so that assets are put to their most productive use by facilitating separation between ownership and use (e.g., by rental markets); and d) supporting transactions by overcoming frictions in other markets, e.g. relaxing borrowing constraints by facilitating pledging of assets against default.

This is not an exhaustive list. There are some other potential channels through which property rights may affect resource allocation. For example, more equal property rights may improve certain aspects of resource allocation related to gender - e.g., women may have greater say in household matters if they inherited parental property in the same footing as men, and empowerment of women and improvements in some development measures (e.g., children's human capital) are well known. They can also interact with various behavioural aspects of how individuals make decisions, for example, by potentially affecting beliefs of individuals about themselves or how the world works. For example, Di Tella et al (2007) showed that squatters in Buenos Aires who received property titles, reported beliefs that are more favourable to a "free market" view. However, better property rights also give more options to individuals, and in the presence of behavioural biases, that may also cause them to make unwise impulsive decisions, e.g., selling off an asset prematurely. This suggests that the welfare effects of property rights reforms can be quite subtle.

Whether it is affecting people's beliefs or empowering certain groups, to the extent these encourage effort and enterprise or investment in human capital, these could be additional channels through which changes in property rights can affect resource allocation. Other than these specific effects, there are also *general* effects via individual's experiencing an increase in their *effective* wealth and also, a reduction in uncertainty in their economic lives, and both of these effects could affect certain economic decisions and outcomes along standard channels.

These are individual level effects of property rights. At the economy-wide level, improvements in property rights lead to the following systemic effects, beyond the simple aggregation of individual effects listed above: a) reduce the deadweight losses and misallocation of resources connected with imperfect property rights; b) by allowing separation of ownership from control it would affect the nature and distribution agency costs (e.g., the distribution of production units using the asset such

as farms), and the depth and nature of rental and asset markets ; c) foster development and functioning of other markets, particularly credit markets, by allowing mortgages; d) facilitating greater competition in all sectors by shifting from a network-based to a rule-based system that is likely to facilitate entry; e) affect the distribution of wealth as well as the inter-generational evolution of the wealth distribution, by having an impact on whether assets can be transferred from parents to children.

3. Recent Evidence on the Effect of Property Rights

The key issue whether in micro or macro data is how to identify the causal effect of changes in property rights on investment or productivity. Omitted variables could be driving a simple correlation between the two: for example, better governance could be driving both secure property rights and a more investment-friendly environment. The other issue is that of reverse causality: investment itself could affect the nature of property rights. In Besley and Ghatak (2010) we review the empirical evidence in detail. Here I briefly discuss some of the more recent papers on this topic that were not covered in this earlier paper.

One interesting development in the recent literature has been the use of randomized control trials to tackle some of the identification-related concerns head on.

For example, Goldstein et al (2018) presents evidence on a land formalization program in rural Benin that was rolled on a randomized basis across 300 villages. Specifically, they examine the link between one of the aspects of better property rights, namely, land demarcation on on-farm investment behaviour. They find that households are likely to invest more in long-term crops. They also find that women are more likely than men to switch to a long-term crop, with the reason being their gain in tenure security frees up more labour for long-term crops. They also find that plots, especially those controlled by individuals with lower initial property rights, are more likely to be left fallow as there is less risk associated with leaving land fallow compared to earlier.

Another recent study that uses a randomized field experiment is by Burchardi et al (2019) revisits the question of whether having a greater crop-share improves the incentives of tenant farmers. For example, Banerjee et al (2002) showed how Operation Barga, a tenancy reform programme carried out in the Indian state of West Bengal in the late 1970s and early 1980s, changed tenancy arrangements and improved agricultural productivity. However, it was difficult to rule out the possible confounding effects of all other time-varying policies or aspects of the economic environment. The present study was carried out in collaboration with the branch of BRAC (Building Resources Across Communities), the well-known NGO of Bangladesh working in Uganda to induce randomized variation in real-life tenancy contracts. BRAC leased out plots of land to women from low socioeconomic levels who were interested in becoming farmers, effectively acting as a landlord. In the experiment, some tenants received a higher crop share (75%) and some a lower crop share (50%), which are the same as the modal pre-reform and post-reform crop-shares in the Banerjee et al (2002) study. Burchardi et al (2019) find that tenants with higher output

shares used more inputs, cultivated riskier crops, and produced 60% more output relative to those in the control group, effects that are very similar to those that the earlier study had found.

An interesting paper by de Janvry et al (2015) revisit the issue of how imperfect property rights can lead to a misallocation of labour in the form of guard labour. The paper studies the rollout of the Mexican land certification program from 1993 to 2006, and finds that households obtaining certificates were subsequently 28 percent more likely to have a migrant member. It also shows that even though land certification induced migration, it had little effect on cultivated area due to consolidation of farm units. This provides strong evidence on inter-sectoral misallocation of labour in the agricultural sector of developing countries and the potential gains from improving property rights in releasing labour that stays on in the rural sector to maintain their claims on land through continuous personal use instead of by land titles.

There has also been some recent work on how improved property rights in land facilitate leasing out and a more active rental market.

Chari et al (2019) analyse the impact of the Rural Land Contracting Law (RLCL) in China which gave farmers legal rights to lease their land while reaffirming the security of ownership rights. Exploiting the staggered timing of implementation of this reform across provinces they find that this led to a significant increase in land rental activity in rural areas, which took the form of reallocation of land toward more productive farmers, who in turn hired more labour. As a result, output and aggregate productivity went up by 8% and 10% respectively.

Beg (2019) study a reform that led to digitized records and automated transactions accessible to agricultural landowners and cultivators in Pakistan. Using the staggered roll-out of the programme the paper finds that the reform led to landowning families more likely to rent out their land and move to non-agricultural occupations. The paper finds evidence of a reallocation of land used for cultivation toward more productive farmers and an improvement of overall yield and lower dispersion of marginal products of land across farms.

Overall, the evidence in favour of the credit channel of property rights in settings where credit markets are not well-functioning seems weak (see Besley and Ghatak, 2010 and Galiani and Schargrodsky, 2011 for a review) and that picture has not changed much over the last decade. Deininger and Goyal (2012) use administrative data on credit disbursed and registered land transactions from 1995-2007 from the Indian state of Andhra Pradesh where there was shift from manual to digital operation of land registration records. They exploit the staggered implementation of this reform across the land sub registry offices in the state. Their main finding is that this led to a significant but quantitatively modest increase in credit access in urban areas, but not in rural areas.

There are several possible reasons for the evidence in favour of the credit channel to be weak. First of all, it is not easy for banks foreclose in the event of default given the political constraints and the imperfect legal system in developing countries in general. In rural areas, when land is used as collateral taking possession of land in the event of default is rare, given the social norms and values that people attach to land (Narayanan and Chakraborty, 2019). Second, most developing countries even the middle-level propertied classes don't find it easy to receive credit. For example, in Peru a minimum of two years of tenure in a formal sector job and a high wage is a pre-requisite for receiving loans from the formal sector. Indeed, Besley et al (2012) show theoretically that if credit markets are not competitive and borrowers are very poor, then even in standard models of borrowing under moral hazard, improved collateralizability of assets will not result in relaxation of credit constraints.

4. The Emerging Research Agenda

There are several ways in which the property rights literature is unique. First, it spans several subfields such as development economics or institutional economics more broadly, law and economics, finance, and contracts and organizations. Second, empirical research in it is active both with macro-level data as well as micro-level data, including the first set of RCTs, as we mentioned in the previous section. Therefore, this allows us to think about ways to combine insights from these different subfields, and also combine different empirical methods (e.g., using micro-data to calibrate aggregate models, as in Besley et al, 2012).

Despite the richness and the depth of the literature, there are many conceptual issues that deserve greater scrutiny, empirical questions on which we know little, and topics that are of great importance in current debates in public policy and yet there is relatively little research on (e.g., land acquisition for industry or property rights over natural resources). Below I discuss some of the questions, topics, and approaches that I find most interesting and expect more research to be carried out.

Use of more quantitative analysis : Given the difficulty of identification, we should do more quantitative analysis using a theoretical framework, as macroeconomists routinely do. More broadly, given the possibility of general equilibrium effects and the need to do welfare analysis in second-best environments, for which standard empirical methods are not best-suited, this “macro-development” approach (see Buera et al, 2015 for a survey of this approach on financial frictions and entrepreneurship) seems to be a promising avenue to pursue. To give an example, consider the papers mentioned above that have empirically explored the effect that collateral improvement has on credit contracts. The empirical estimates vary widely and the overall picture is not clear. Besley et al (2012) show that trying property rights reform in an environment where there is an additional distortion, i.e. competition is weak, can be quite a different proposition from doing so when competition is strong. This can

explain the rather mixed empirical findings from the regression evidence linking measures of credit market performance to property registration possibilities.

Greater focus on heterogeneous treatment effects in evaluating impact of property rights interventions : Heterogeneity across producers in characteristics such as wealth, access to other inputs and/or markets will tend to affect the marginal effect of an improvement in property rights. Besley et al (2012) shows that for low and high wealth individuals, the effect of improved property rights on improving access to credit will be limited: for the former, since they have very little wealth anyway and the for the latter, since they will have other means of accessing credit. Therefore, the effectiveness of a de Soto style property rights reform will depend on the distribution of wealth. Another important dimension of heterogeneity is gender. Goldstein et al (2018) find that female-managed landholdings in treated villages are more likely to be left fallow which is an important investment in long-term fertility of the soil. Women also respond to the change by moving production away from more secure plots of land to less secure ones, in order to guard those parcels.

Greater emphasis on complementary reforms: As mentioned several times, like any other intervention, in the presence of multiple distortions, reforming just property rights may not be effective at best, and can be counter-productive at worst. Besley et al, 2012 give an illustration of how very poor borrowers may become worse off due to greater threat of dispossession, without a sufficiently compensating increase in credit supply. In field work regarding land acquisition for industry in West Bengal with my research collaborators (see Ghatak et al, 2013) we found that that it is the poorer farmers who are most reluctant to give up their land. It seems that to this group of people with minimal exposure to the world outside agriculture, land is not merely an income-generating asset but among other things, an insurance policy, a pension plan, and a secure way to hold assets. This provides a clue as to why creating property rights that will facilitate a land market will not necessarily result in desired resource allocation away from agriculture to industry. A recent study by Bandiera et al (2017) show that asset transfer to the very poor is most effective when combined with training. Empirical work that assesses how property rights reforms work in combination of other intervention holds a lot of promise.

Moving beyond individual incentive effects to more economy-wide effects: Recall that in section 2 above, we listed a number of economy-wide effects of property rights (e.g., market development, fostering competition). There is very little work exploring these mechanisms. While this is suggestive, clearly we need cross-country, or within-country regional variation to understand these channels better. The identification problems will be as usual quite difficult and once again quantitative analysis could help.

Better understanding of the interaction between formal and informal property rights : In the context of Africa, the traditional land tenure systems from being looked at as a barrier to modern system of property rights, are now viewed as often flexible, and complex, and compatible with agricultural investment in response to new economic conditions. Yet, there are gains from having greater security, as the work of

Goldstein and Udry (2008) and Goldstein et al (2018) shows. As a result, the focus of policy on land tenure has shifted from a simple emphasis on direct provision of land title to better integration of customary tenure with the formal land system. We need to understand better the inter-connection between these different systems of property rights.

Paying greater attention to property rights relating to natural and common property resources : Across the developing world, often conflicts over property rights take place over the attempt of businesses to use natural resources (e.g., forests, minerals) that clash with traditional livelihoods of communities. In this setting, from the political point of view, "property rights" often seems like a technical term for dispossession of poor people. While economic development does require a move way from low return to high return activities, one has to take into account traditional rights of communities over common property resources and think of designing appropriate compensation mechanisms (see, for example, Ghatak and Mookherjee, 2015, in the context of land acquisition using eminent domain).

Studying property rights and various market distortions in an integrated way: Often property rights and other market frictions are treated as independent factors (e.g., Johnson et al 2002). However, often they cannot be studied in isolation. For example facilitating savings through more secure property rights protection can help overcome frictions in borrowing (see Ghatak, 2015). Also, if land-lease markets are subject to frictions due to agency problems, then credit markets may be subject to the similar problems and improving property rights can solve both problems. As noted by Mookherjee (1997), if tenancy involves efficiency losses due to moral hazard, letting the tenant buy out the land using the credit market will not solve the problem, since the problem will simply get transferred from a landlord-tenant agency problem to a lender-borrower agency problem, unless the credit market is more competitive. Also, land in rural areas is an asset whose value may be higher than what might be indicated by its agricultural productivity. Because of imperfect insurance and credit markets, as well as the absence of a formal safety net and old-age support, the implicit value of land to farmers can be quite high and they may not want to sell even if property rights are improved. This suggests the need for more theoretical work to understand when different frictions are substitutes, when are they complements, and when they are two sides of the same coin.

Property rights and gender: Property rights for women is clearly one of the most important factors in economic empowerment of women. Gender discrimination is not just ethically undesirable, it also prevents efficient allocation of resources by depriving half the population from developing and utilizing their productive potential. In this context, understanding the mechanisms through which property rights affects the empowerment of women seems like a very promising area of research. There is some recent work on this, but the focus has been largely on the reform of an Indian inheritance law that stipulated daughters would have equal shares as sons in ancestral property, which turned out not to have increased the actual likelihood of women

inheriting property. Roy (2015) shows that this reform seems to have induced parents to compensate their daughters by giving them alternative transfers in the form of either higher dowries or more education following the reform. There is also some recent work (Anderson and Genicot, 2015) that shows that these inheritance law reforms have reduced the incidence of domestic violence and the suicide rates of women relative to men.

Political economy of property rights : As mentioned at the beginning, I have largely focused on various mechanisms through which "exogenous" changes in property rights affect economic outcomes. However, like all institutions, property rights are endogenous to economic, political and social forces. Political resistance to formalization of property rights in land often comes from the fear that will lead to dispossession. In a second-best environment, it is quite possible that inefficient property rights are chosen endogenously for political economy reasons. The political economy of property rights reform is therefore an important topic for future research.

5. Concluding Remarks

We are at an interesting juncture in terms of research in the effect of property rights on resource allocation, thereby providing important clues about how institutional reforms at the micro level can provide a robust platform for development. The first generation of studies that use randomized control trials are coming out, thereby overcoming some of the identification problems that plagued the earlier empirical literature. In this essay we have discussed the potential ways in which theory can be combined with evidence to provide a much richer understanding of mechanisms through which property rights affect economic outcomes.

This in turn would allow us to formulate better policies regarding how to reform property rights. Reforming property rights may help overcome one of the major constraints that has emerged in the context of industrialisation in recent times, namely transferring land from agriculture to industry. Theorists of industrialisation, such as Arthur Lewis, focused on capital and labour as the key resources, and concentrated on the movement of 'surplus' labour from agriculture to industry as key to capital accumulation and the process of industrialisation. As industry offers a much higher expected return than agriculture, the transfer of land to the former from the latter is expected to be smooth. Yet, we have seen, for poor farmers in India and other developing countries with minimal exposure to the world outside agriculture, land is not merely an income-generating asset but an insurance policy-cum-pension plan as well. Only a more secure system of ownership of land with a focus on protecting the most vulnerable small farmers, and enhancing their ability to buy and sell as well as lease in and out would help a more dynamic land market to emerge, which the literature on property rights suggest, is going to be important in facilitating the process of development.

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