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Markets: An Introduction

18.1. Introduction

The goal of the next few chapters is to look closely at the markets and institutions that deeply influence the lives of individuals who live in developing countries. In particular, we will study the markets for land, labor, credit, and insurance. Although we emphasize rural markets, at several points the discussion will apply equally well to informal markets in the urban sector.

Throughout this book, we stress the importance of information, incentives, and the existence of limits to contracts. These three features acquire importance in the context of missing or imperfect markets — the essential ingredient that complicates real economies. If all markets were perfect, we would only have to study the usual models of supply and demand, and be done with it. We would be comfortable with leaving the task of economic development up to that great anarchist — The Invisible Hand. But the Invisible Hand is invisible for a good reason: it doesn't exist.

An essential property of imperfect markets is that they are contagious: a market failure in some sector can lead to problems in other markets. The markets that we study in the chapters to follow are particularly interrelated, and often we discuss the lack of efficiency in one of these areas by invoking imperfections in another. This sort of reasoning will be new to some of you, because we have been brought up on a steady diet of perfect competition, and only recently has this focus started to change, at least in textbooks. (To be sure, competitive paradigm is still very useful, because it helps us to identify imperfections as departures from that paradigm.)

This short chapter serves as an introduction to the sort of world we are going to enter by providing an overview and by putting forward several examples that will fix perspectives. From the viewpoint of development economics, missing or imperfect markets represent a crucial step in our understanding of the economic problems of developing countries. They also lie at the heart of *informal institutions*, which are reactions to the market loopholes that cannot be filled because of legal, informational, or incentive constraints.

18.2. Some Basic Ideas

The basic ideas that drive our analysis are very simple. The lack of information, the need to provide appropriate incentives, and limits to contractual enforcement create efficiency failures. Often, an unequal distribution of income or wealth exacerbates these failures. We study these in concrete situations. Consider several examples.

Unobserved Actions. Suppose that you are a landlord who is leasing out land to a tenant. You expect your tenant to put some minimal effort into the land. Ideally, you write this into a contract: "our agreement requires that you work ten hours a day, with a break for meals." However, such clauses are useless if, say, you are an absentee landlord who lives in the city and you cannot observe what the tenant is up to. However, you could respond, "I don't *need* to see how hard the tenant is working. I can tell just by looking at what he produces." Can you? Many factors determine output: the hardworking or lazy tenant, the rains, crop damage caused by pests, and so on. How can you be sure that low output is due to laziness rather than bad luck? Thus your contracts must be suitably limited: the incomplete market here stems from lack of observability.

The problems of unobserved action lead to what is known as *moral hazard*—the danger that an agent will take actions in his interest and not in yours—and are fundamental to the study of contracts.[27]

Unobserved Types. A nongovernment organization (NGO) is lending to poor farmers. Although the NGO is not necessarily driven by profits, it would like to cover its costs of lending. The problem is that some borrowers are intrinsically bad risks, but the NGO cannot spot this by looking at a borrower's face and, moreover, past records are misleading or nonexistent. What can the NGO do? Two possibilities are to charge an interest-rate premium on the loan or to require suitable collateral. However, high interest rates will discourage good borrowers, whom the NGO would like to reach, and will not prevent bad borrowers from defaulting (indeed, it will further encourage them to do so). We have here a problem of *adverse selection*: one side of the market consists of certain types whom the NGO would like to weed out, but cannot, or at least it is limited in its ability to do so.

Limited Liability. The above considerations would pose less of a problem if a farmer or tenant's potential liability is "unlimited," in the sense that they can be made responsible for whatever it is that they owe, or are supposed to do. For instance, suppose that you are a moneylender advancing a loan. You suspect that the loan will be used in an investment project that is risky. If you are confident of getting your money back no matter what, you won't care. But if there is a serious risk of project failure, *and your*

[27] Let's continue with the landlord–tenant example. Suppose that you can indeed observe the tenant's effort perfectly. Can you now specify effort levels in a contract? The answer is: not always. For the contract to be enforced, a third party such as a court must be able to *verify* that a claim of low effort is indeed true, and such verifiability may be impossible. This sort of imperfection limits contracts as well, and may have odd implications. One of them is that you may now want to build up long-term relationships with the tenant, using your information about past effort to design a new contract in the future with implicit rewards and punishments attached to observed performance. In contrast, the pure theory of competitive markets would be insensitive to these factors: whether you continue with a new tenant or with the old one is of no consequence in that theory.

borrower has limited seizable wealth, then you will not get your money back in those events.

This very natural *limited liability* constraint can have sharp implications. Risky borrowers might accept terms from you that safe borrowers would not, because in effect, you bear the downside risk, not them. The pool of borrowers is thus contaminated in your eyes — a clear sign of adverse selection at work. Or it may be that borrowers who are thus insulated may want to deliberately over-invest in risky projects — moral hazard is at work this time. It is limited liability that allows unobserved types or unobserved actions to work their damage on the lender, and by extension, the capital market as a whole.

Limited Enforcement of Agreements. Consider a group of poor farmers who seek to insure one another against fluctuations in their own output. Farmer *A* may transfer money to farmer *B* when *A* has a good harvest and *B* does not. If both *A* and *B* honor this scheme, then both could be better off, but how is this mutual insurance scheme to be enforced when it comes *B*'s turn to pay (after having enjoyed, say, a couple of years of transfers from *A*) and he does not? Courts of law to enforce such agreements may be nonexistent (or incapable of suitable verification). Informal insurance must then rest on an implicit nexus of social agreement, coupled with the sanction and disciplining of deviators from the agreement.

Similar issues of enforcement will also arise in the context of credit markets. A loan may be *deliberately* defaulted upon. That limits the scope of loan terms that a lender will offer. We will have much more to say about such situations.

Limited Insurance for Risk-Averse Agents. The moral hazard problem outlined above comes from an unobserved action on the agent's part, such as the effort put in to produce output, or the care takes to nurture an existing project, or the deliberate choice of safe or risky projects. Because the action is unobserved, the contract itself needs to be designed to provide appropriate incentives. For instance, if an employer hires labor and is unable to monitor the laborer's activities, she might offer a contract that stipulates the payment of an attractive wage unless evidence accumulates regarding shirking; then the worker will be fired. That "evidence" may be indirect and sometimes inaccurate. For example, the worker may have worked hard but was just plain unlucky with workplace delays that were out of his control. It may be impossible to credibly convince the employer of that. Therefore, contracts based on indirect evidence *create uncertainty for economic agents who dislike uncertainty*. This lack of insurance constitutes an inefficiency. But it is an inefficiency that the employer can do little about: to provide appropriate incentives she must often pay different amounts for success and failure, even though these outcomes could be loosely linked to the efforts of the laborer.

Short-term Versus Long-Term. Long-term relationships can overcome some of the adverse selection or moral hazard problems by allowing the employer (landlord, lender) to design *dynamic* incentives. For instance, she might alter the terms of future tenancy contracts depending on past outcomes, just as your auto insurance company might do with your premium following a history of claims. We will see examples of dynamic incentives in the chapters to come.

Additionally, a long-term economic relationship can incentivize the employer to take care of her employee's "capital stock": his health, his nutritional status, his capacity to work. Such solicitous interest ("we always make sure our servants get good medical

care!") is documented among the British upper class in Charles Booth's study of life among London laborers (Booth [1903, vol. 8: 219]). For instance, "the quality of food given to domestic servants...is usually very good, and in all but very rare cases greatly superior to that obtainable by members of the working-class families from which servants are drawn". Whether any of this owes to a domestic employer's innate generosity I leave you to judge.

Similarly, the abhorrent tradition of slavery had a perversely beneficial by-product. Because employers could *own* slaves, they treated slaves as a capital good and invested in them, particularly in the spheres of nutrition and health (see Chapter 13). Contrast this with a more enlightened world in which no employer has unlimited rights over his employees: an employee can legally break a contract at any time. In consequence, employers may have little incentive to invest in their employees in the form of adequate nutrition or on-the-job training (though to be sure, this is not a call to reinstitute slavery!).

In what follows, these ideas will be applied again and again to different situations that involve land, labor and credit markets. Our explorations will always be based on the presumption that informal institutions, agreements and norms are spontaneous creatures of the need to account for informational failures, or the need to provide adequate incentives to economic agents, or the need to make sure that contracts that cannot be enforced by law are somehow enforced by substitute arrangements. The study of informal institutions will help us resolve or at least understand some apparently puzzling observations. For instance:

Why do landlords often ask for a share of their tenant's crop instead of a fixed payment, which would save them the task of verifying and measuring output?

Why might loan forgiveness be optimal even from a lender's narrow perspective?

Why do some lenders advance loans at low, even zero rates of interest?

Why might an employer pay a worker *strictly* more than his next best option?

18.3. Distribution and Markets

18.3.1. Land and Labor. Imagine an agricultural society with several individuals who make their living in it. To put matters in the starkest way possible, suppose that agricultural production is carried out by means of only two inputs: land and labor. Very soon we will extend the story to include more inputs of production, as well as a credit market. But as our story unfolds, it will also become clear that "land and labor" serve as a parable for any two inputs which are unevenly held by people, but need to be efficiently matched in productive activity.

Let's continue for now with our literal focus on land and labor. Just as we conceived of an income distribution (see Chapter 10), we may think of a *land distribution*, where we replace pesos of income with acres of land. Typically, the distribution of land is unequal: large plots of land are often concentrated in the hands of a few, whereas a majority of individuals have little or no land at all. Landowners with small plots are often called small holders or small farmers, whereas people with no land at all are the landless.

Similarly, there is a distribution of labor endowments. A little introspection reveals that the distribution of land holdings is likely to be far more unequal than the distribution of labor endowments. Hence, we may expect that in the absence of any sort of input market, families are left to cultivate their land with very different labor-land ratios: small holders have excessive family labor, whereas owners of huge tracts of land have to leave most of their holdings uncultivated for want of labor.

You will therefore not be surprised to learn that a market for inputs is likely to emerge under these circumstances. Either individuals with excess labor will seek employment with large landowners, or land will be leased (or sold) to small holders, or both.

The labor market will typically function with large farmers who hire the labor of those with little or no land for a wage. Under this scenario, the agricultural market clears by allocating labor from those who have little land to those who have a lot. The end result looks like a setting in which large plantations hire large amounts of labor and this labor is monitored by hired supervisors or the owner(s) of the farm.

On the other hand, land could "move" to join labor. Barring outright sales, which are generally impossible because people who have little land are poor to begin with, this would happen with land leases or tenancy contracts. These involve tracts of land passed temporarily from landlords to tenants in exchange for rent or perhaps a share of the crop. Under this arrangement, to be contrasted with the plantation scenario sketched above, the end result is a relatively equal *operational* distribution of land, with many tenants.

It won't be a surprise to learn that the real world displays a bit of both scenarios. In almost all agrarian societies, we can observe a fair amount of land rentals and activity in the labor market as well. However, if we've been brought up on the competitive markets diet, this might be a bit puzzling. Why do we need *both* markets to function when it seems that one is a perfect substitute for the other? Is it not the case that labor "moving" to join land for a wage is the same as land "moving" to join labor for a rent?

Indeed, you would be perfectly justified in raising this question if markets were perfectly competitive, if production exhibited constant returns to scale, and there were no uncertainty. For instance, a labor market would generate equilibrium wages to labor. What's left would be rent to the landlord. By constant returns to scale, all rents per acre must be identical across landlords.[28] Now a tenancy contract for the same level of rent must yield, as a residual, the same income as the equilibrium wage to a laborer.

Matters are different if the foregoing conditions do not hold. For instance, if there is some increasing returns to scale (over a range at least), land will be rented in large chunks and the labor market will also be needed to allocate labor to the farmers of these large tracts of land. Similarly, in the presence of uncertainty, the operation of a single market may not be able to distribute the realization of random shocks in some efficient way over the population of landowners and laborers. Let's take a quick look at two examples (to be revisited) which together suggest that both markets are called for.

[28]With constant returns to scale, we can use per-acre production functions. Once the wage rate is known, the marginal product of labor is determined and so is the marginal product of land, which must be the (shadow) rental rate.

First, suppose that you are leasing out your land to a poor tenant. He will cultivate the land and pay you a fixed rent for its use every year. If the output from the land were perfectly certain, you could raise the rent until the money value of what the tenant was receiving from you (output value minus rent) was equal to whatever the tenant could get in his next best alternative.This is an efficient arrangement. Although there is a cost to you (in the sense that you have to compensate the tenant for his opportunity cost), there isn't any "transaction cost" over and above this amount.

But output from the land is generally uncertain. If the tenant is poor and risk-averse, this uncertainty has a cost *in addition to* the opportunity cost of the tenant. You will have to compensate the tenant for this cost. Land lease contracts in which the tenant is a residual claimant don't do a good job of this.[29] That suggests that an arrangement in which the landlord should *hire* the tenant instead — a labor market, in short — could do better. But just as the dent in a rubber ball will appear somewhere else if you try to push it into shape, the hiring of labor poses its own set of problems.

Specifically, instead of leasing out your excess land, suppose that you decide to cultivate it yourself with the help of hired labor. Labor is available at its opportunity cost, which is just the going wage rate in the village or region. Now, if labor can be costlessly supervised, then there are no additional transaction costs and the labor contract is efficient, just as the fixed rent was efficient for the land lease market. However, what if supervision is costly? In that case you must hire supervisors to adequately monitor labor or you must somehow provide laborers with an incentive to work. In the former case, the wages paid to supervisors (and perhaps the cost of supervising *them* as well!) are a measure of the transaction costs. In the latter case, the extra income premium paid to workers as an incentive would be the appropriate measure of transactions cost; more on this later.

The point of the two examples should be clear. As soon as we move away from the introductory textbook story of perfect markets, we run into transaction costs in different markets. Both land and labor markets have intrinsic incentive problems, and it is difficult to rely exclusively on any one of them. Whether a society exhibits a preponderance of land transactions or labor transactions therefore depends crucially on the relative magnitude of these costs.

Let us see if we can use these simple ideas to say something about the incidence of tenancy in economies with varying degrees of inequality in land holdings. Begin with the case where land is perfectly equally distributed. In such a case there should be relatively little mismatch between endowments of land and endowments of labor. Of course, different families may still have different family sizes, and this will serve as an impetus for transactions in land and labor, but on the whole, we would certainly expect the incidence of tenancy, as well as labor market activity, to be low.

This is the state of affairs in many African economies, as well as in societies where successful land reforms have occurred. Leading examples of the latter are Taiwan and Korea.

Now suppose that we conceive of greater and greater inequalities in land holdings. Picture in your mind a progressive "bowing out" of the Lorenz curve for land distribution. Now systematic discrepancies between labor endowments and land

[29]This is an inefficiency that could have been avoided if insurance markets were perfect. As always, the imperfections in one market can infect another.

endowments will arise. These discrepancies must be resolved by an increase in labor and/or land rental market activity. Farmers with more land relative to their endowment of family labor might consider farming the extra land with the use of hired labor. Alternatively, they might want to lease out the extra land to a tenant. The chosen alternative will depend on relative transaction costs in the two markets. In many situations, it will not be worthwhile to introduce a monitoring scheme for labor (such as the hiring of supervisors) unless a large number of laborers are to be hired. It may be better to simply incur the transaction costs associated with land leasing, which do not have this element of lumpiness of fixed costs to them. Thus tenancy may rise as the inequality in land holdings becomes moderately unequal. This situation is found in the developing countries of South and Southeast Asia, as well as in some parts of Latin America.

This description is to be contrasted with situations of high inequality in land holdings, in which some farmers may hire so much labor that it pays to bear the fixed supervision costs. In such situations tenancy may be minimal or it may be *reversed*, with small landowners renting out to big landowners who are in a better position to bear the fixed costs of supervision. At any rate, very large farmers are likely to be large employers who farm their own land with the use of hired labor. There may still be a minimal amount of land under tenancy, but this is more likely to come from relatively smaller farmers. Agriculture in many Latin American countries reflects this kind of situation.

The use of land and labor markets therefore depends on the costs of market operation for each of these inputs. In the chapters that follow, we shall study these costs in greater detail.

18.3.2. Beyond Land and Labor. We've already observed that "land and labor" is a parable for a more general situation. The general idea is that markets for certain inputs spring up when there is some imbalance in the *ownership holdings* of those inputs. Thus if "land" is very unequally held while endowments of "labor" are relatively equal, we would expect institutions to emerge that equalize the actual use of these endowments. For instance, you could replace "land" by "financial capital" or "venture capital" and "labor" by "prospective entrepreneurs" or "individuals with ideas," and the same considerations would make an appearance.

But even in its literal form, our view of the rural economy as characterized by the use of just labor and land can be overly simplistic in a number of ways. The most of important of these can be lumped under a single heading: the existence of other agricultural inputs that might determine the functioning of the market for land and labor. For instance, a critical input is animal power. Then the ownership of bullocks becomes relevant. With this mental extension, we now have three sets of inputs: land, labor, and bullock power. Typically, the ownership of these three inputs will be distributed differently among the population. The use of input markets brings the ratios of these inputs into balance with one another, so that they can be used in an efficient way for cultivation. If one of these markets fails quite dramatically, the other two will have to compensate somehow.

The rental market for animal power, which functions badly if it functions at all, is particularly vulnerable. There are two main reasons for this market failure: (1) rented

animals may be overworked or otherwise mistreated, because the renter has no stake in these animals as a capital good and will therefore try to maximize current services and (2) animals are often used in time-bound operations, so that everybody in a village needs bullock power at the same time. Now if the bullock market fails, the other two inputs must kick in, and so it is not surprising to find that the operational distribution of land often follows the ownership distribution of bullocks. We can use this observation to qualify the analysis of the previous section. Instead of land being leased from land-rich families to land-poor families, the opposite might happen. Families with sizable bullock holdings will be in a position to lease land *and* hire labor.

At this point yet another market must make an appearance. This is the market for credit or capital. Notice that if this market is functioning smoothly, much of the earlier discussion becomes irrelevant. Bullocks, other inputs, and indeed land should all be possible to acquire, provided that their acquisition is profitable. A perfect credit market will make the necessary funds available, and our story of markets working to bring endowments into operational line can be largely dispensed with. However, if the credit market fails, the other markets will have to adjust accordingly. For instance, without access to working capital (which entails the purchase of other inputs such as fertilizer or pesticides), a farmer may be constrained to lease out part or even all of his land *and his labor as well*. In other words, the lack of a capital market might create a situation in which land *and* labor flow from those who have no access to capital to those who do.

In this increasing complexity it is best to keep a single rule of thumb in mind: the more flexible markets will attempt to adjust for the failings of the less flexible markets, bringing the "flexible" inputs into line with the "inflexible" ones. So, for instance, in a situation of restricted credit, land and labor markets are both likely to funnel inputs in the direction of those who have access to capital equipment or bullocks. Alternatively, if some of the capital equipment (say threshers) can be easily rented, then the "equipment rental" market will be relatively active. We see then that our simplistic story with just land and labor as inputs must be greatly qualified by the functioning of the credit market.

With this overview in mind, we now turn to a study of various factor markets.