History of Land Concentration and Land Reforms[1]

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Introduction

Most of the work on the relationship between farm size and productivity strongly suggests that farms that rely mostly on family labor have higher productivity levels than large farms operated primarily with hired labor (see Binswanger et al. 1995) for a review of the literature). If that is so, why do extraordinarily unequal distributions of ownership and operational holdings persist in many parts of the world? Why have markets for the rental and sale of agricultural land frequently not reallocated land to family farmers? Why is land reform necessary to change these land ownership distributions?

The great variations in land relations found across the world and over time cannot be understood in a simple property rights and markets paradigm. Section 2 explains the idealized sequence of the emergence of property rights: Increasing land scarcity leads to better definition of rights, which are become tradable in sales and rental markets. The outcome should be the allocation of land to the most efficient uses and users. Yet this often did not happen, as great observed deviations from efficiency demonstrate. Instead rights over land and the concentration of ownership observed historically across the World were outgrowths of power relationships (Section 2). Landowning groups used coercion and distortions in land, labor, credit, and commodity markets to extract economic rents from the land, from peasants and workers, and more recently from urban consumer groups or taxpayers. We describe the variety of land relations and their consequences for the efficiency of agricultural production. We then examine how these power relations emerged and what legal means enabled relatively few landowners to accumulate large landholdings.

Because land ownership distribution has often been determined by power relationships and distortions, and because land sales markets do not distribute land to the poor (the key point of section 5), land reform has often been necessary to get land into the hands of efficient small family owners. The nature, successes and failures of reform are discussed in section 3. The social cost of failing to undertake reform, including losses in productivity as well as peasant revolt and civil war, are also considered. If land sales markets could allocate land from inefficient large owners to small family farmers, land reform would not be necessary. Showing why sales markets are often not capable of facilitating these efficiency-enhancing transfers - covariance of risks, imperfections in credit markets, distortions in commodity market and

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subsidies to large farms are among the reasons - is the topic of Section 5. In Section 6 we draw implications for land reform policies.

The emergence of property rights in land

The critical issue in land-abundant settings is access to labor, not land. At low population densities, there is no incentive to invest in soil fertility, and because fertility is restored by long tree fallow, ownership security is not required to induce investment. When population densities rise, fallow periods are gradually shortened until the land is continually cultivated. Then plows, manure, artificial fertilizers, and other labor-intensive investments are required to maintain soil fertility (Boserup 1965, Ruthenberg 1980, Pingali et al., 1986). As discussed by Boserup (1965) private rights to land emerge in and gradual process that exhibits great regularity (figure 1, arrows 1 to 4):

Virtually all the systems of land tenure found to exist before the emergency of private property in land seem to have this one feature in common: certain families are recognized as having cultivation rights within a given area of land while other families are excluded .... "Free" land disappears already before the agricultural stage is reached. Tribes of food collectors and hunters consider that they have exclusive rights to collect food and to hunt in a particular area....

Under the system of forest fallow, all the members of a tribe .... have a general right to cultivate plots of land.... As long as a tribe of forest-fallow cultivators has abundant land at its disposal, a family would have no particular interest in returning to precisely that plot which it cultivated on an earlier occasion. Under these conditions a family which needed to shift to a new plot would find a suitable plot, or have it allocated by the chief of the tribe.... But the situation is apt to change with increasing population, as good plots become somewhat scarce. Under such conditions, a family is likely to become more attached to the plots they have been cultivating on earlier occasions... Thus, the attachment of individual families to particular plots becomes more and more important....

As long as the general right of cultivation has not lost all its importance a sharp social distinction exists in rural communities between cultivator families on one hand and families without cultivation rights on the other, the latter group consisting of strangers, whether they be slaves or free... Under both long- and short-fallow systems the land lying fallow at any given time is at the free disposal for grazing by domestic animals belonging to families with cultivation rights.... . The cultivators' communal rights to use fallow land for grazing will usually survive long after the general right to clear new forest land has disap¬peared... . (Boserup 1965, pp 79-86)

Boserup's discussion makes clear that property rights in land are not simple and are rarely unrestricted. As land becomes more scarce, general and inheritable cultivation and grazing rights are complemented by rights to resume cultivating specific plots after fallow (arrow 2), to inherit specific plots rather than just general cultivation rights, to pledge or rent out the plots, to use them as collateral in informal credit transactions, and to sell them within the community (arrow 3). When the right to sell includes sales to members outside the community (arrow 4), the last vestiges of general cultivation and communal rights are lost and private property rights are complete. General rights survive only as grazing and

collection rights on communal grazing areas and forests.

Even where communal land rights prevail, as in indigenous communities of the Americas, or tribal communities in Asia and Africa, families have strong specific land rights. These rights provide substantial "ownership" security as long as the plots are farmed by individual family units (Noronha 1985; Downs and Reyna 1988). Land rental and sales usually occur within the community, especially among close kin. While the internal rules and structures of these systems exhibit a bewildering variety, all communal systems have one thing in common: Sales to outsiders are either forbidden or subject to approval by the whole community. Under communal tenure family-owned plots can be used only for pledging in informal credit markets and not as collateral in formal credit markets.

Aggregating land and extracting tribute and rent

History has few examples of the uninterrupted transformation of general cultivation rights to land into owner-operated family farms (along arrows 1 to 4 in figure 1). Nearly always, there has been an intervening period under a class of rulers who extracted tribute, taxes or rent from cultivator families (arrow 5). The landholdings of these overlords (referred to here, for expositional simplicity, as manorial estates, whatever the cultural or historic setting) were allocated temporarily or as permanent patrimony, along with the right to tribute, taxes, or rent (in cash, kind, or corvée labor) from the peasants residing on the estate. Frequently, peasants' freedom to move was restricted by bondage or by prior claims to land by members of the ruling group. The rights of the ruling group were acquired and enforced by violence or the threat of violence and institutionalized in tradition, custom, and the law and order forces of the state. The rights took numerous forms and left historical legacies in the distribution of land. Again, Boserup (1965) says it best:

Above the group of families with cultivation rights is usually found an upper class of tribal chiefs or feudal landlords who receive tribute from the cultivators... . Usually the position of a cultivator with regard to his rights in land does not change because a feudal government imposes itself and levies taxes and labor services. The cultivator families continue to have their hereditary cultivation rights, ... and redistribution of land by village chiefs may continue without interference from the feudal landlords. Nor does land become alienable by sale; grants of land by overlords to members of the nobility and others are simply grants of the right to levy taxes, and do not interfere with the hereditary cultivation rights of the peasants. In other words, the beneficiaries of such grants do not become owners of the land in a modern sense.... (ibid, pp. 82-84)

The evolution of agrarian relations

Favorable agricultural conditions generate the potential for rent-seeking rent or surplus and provide an incentive for groups with political and military power. Under simple technology there are no economies of scale in farming and independent family farms are economically the most efficient mode of production except for a very limited set of plantation crops (see section 4). Compared to large farms based on hired or tenant labor, owner-operated family farms save on supervision costs of labor or eliminate the inefficiencies and supervision cost constraints associated with tenancy. Therefore where peasants

can establish farms of their own, they can escape paying tribute, taxes or rent, and they will out-compete the landlord. Extracting tribute or labor requires coercion or economic distortions.

Coercion **-** As Boserup (1965) points out, "Bonded labor is a characteristic feature of communities with hierarchic structure, but surrounded by so much uncontrolled land suitable for cultivation by long fallow methods that it is impossible to prevent the members of the lower class from finding alternative means of subsistence unless they are made personally unfree" (p.73). Four ways have traditionally been used to tie labor to large farms: slavery, serfdom, indentured labor contracts, and debt peonage.

Meillassoux (1991), shows that for merchant slavery in which the slaveholders purchase, rather than capture slaves, they must produce for the market to finance the slaves. In areas with sparse populations of hunters and gatherers and with ties to external markets, such as in the United States' Southeast, the East Coast of Brazil, and the South African Cape, large farms had to import slaves as workers (arrow 6). The native hunter-gatherers were too few to provide a steady labor supply, or simply moved away.

Large farms in areas with access to abundant labor reservoirs in Asia, such as the sugar islands of the Caribbean and Mauritius, Ceylonese (Sri Lankan) and Assamese tea plantations, Malaysia, Sumatra, and South Africa were able to rely on indentured labor instead of slaves (arrow 7). The workers had to be indentured to prevent them from establishing plots of their own. In order to cover the costs of brining the workers, maket production was necessary.

Serfdom or bondage could be used to produce primarily for local consumption in somewhat more densely populated regions (arrow 5). Overlords obtained the right to tie subsistence-oriented populations to the land and to extract tribute or labor services. This pattern arose during feudal periods in Western Europe, China, and Japan, and pre- and post Columbian America, and survived in Eastern Europe until the late nineteenth century (Blum 1977).

Debt peonage or bonded labor, survived in many areas even under high population densities. Where manorial estates had to compete with mines for labor and therefore faced acute labor shortage, as in Guatemala and Mexico in the nineteenth century or in South Africa in the twentieth century, vagrancy laws kept a pool of potential workers in prison for a variety of petty offenses (see annex 1). In South Africa the rights to prison labor could even be purchased.

Economic distortions **-** To get free peasants to move to the manorial estate required lowering welfare or profits in the free peasant sector. This reduced the peasants' reservation utility - expected utility from family farming – and shifted their labor supply curve to the right. This was achieved through four mechanisms that are summarized in annex 1:

- Reducing the land available for peasant cultivation by allocating rights to "unoccupied" lands to members of the ruling class only, and thus confining free peasant cultivation to infertile or remote areas with poor infrastructure and market access. Farm profits and welfare of free peasant lands were thus reduced by the higher labor requirements on poor land, by increased transport and marketing costs, and by increased prices for consumer goods imported to the region.
- Imposing differential taxation by requiring free peasants to pay tribute, hut, head or poll taxes (in cash, kind, or labor services) while often

exempting workers or tenants in manorial estates or taxing them at much lower rates. Such systems were used widely in Western Europe during the feudal period, in ancient Japan, China, India and the Ottoman Empire, and by all colonial powers.

- Restricting market access: As long as free peasants can pay tribute or taxes in kind or cash and have equal access to output markets, taxation alone may be insufficient to bring forth a supply of workers or tenants. Market access was restricted by setting up cooperative or monopoly marketing schemes that buy only from the farms of the rulers. The prazo system in Mozambique combined rights to labor and tribute from peasants with monopolies on inputs and outputs. In Kenya the production of coffee by Africans was prohibited outright until the 1950s. European monopolies on sales of tobacco in Zimbabwe and Malawi were directly transferred to large farms after the countries gained independence.
- Confining agricultural public goods and services (roads, extension, credit) to the farms of the rulers or subsidizing these farms directly was another means of increasing their profits relative to peasant farms.

The combinations of distortions used to establish manorial estates under conditions of low population density have been remarkably similar across continents and over time (annex 1). The most common pattern was to combine restrictions on land use with differential taxation. Sometimes the four types of distortions were supplemented by coercive interventions in the labor market - vagrancy laws, debt peonage, and agrestic slavery are examples - to make it easier to retain workers or tenants on manorial estates. The earliest recorded incidence we found was in the Arthasastra in the fourth century B.C. Groups with widely different cultures, religions, and ethnic backgrounds - Ottomans, the Hausa and Fulani in Africa, the Fujiwara in Japan, and all European colonial powers - imposed such systems on people of the same or different ethnic backgrounds when faced with similar material conditions.

Once a labor supply becomes available, large landowners can organize their operations either as landlord estates, with the entire estate cultivated by tenanted peasants, or as haciendas, with workers cultivating portions of the hacienda for their own subsistence as tenants or holders of usufructuary rights and providing unpaid corvée or labor services to cultivate the home-farm of the owner (see glossary). Landlord estates were prevalent in China, Korea, Japan, Eastern India, Pakistan, Iran, Egypt and Ethiopia. Haciendas emerged as the predominant form of manorial estates in Algeria, Egypt, Kenya, South Africa, Zimbabwe, Bolivia, Chile, Honduras, Mexico, Nicaragua, Peru, and other countries in Latin America, in the Philippines, in Prussia and other parts of Eastern Europe.

Interventions to Establish and Support Large Farms in Sub-Saharan Africa

Here we provide evidence on the establishment and evolution of large farm systems in sub-Saharan Africa. Evidence from Europe, North Africa and Asia can be found in Binswanger et al. (1995)

Angola - Land market interventions. In 1838 and again in 1865, all "unoccupied" land could be given as concessions to Europeans. "The settlers were given lands, seeds, tools, and slaves by the government, and measures were taken to ensure that their products could be sold" (Clarence-Smith 1979, 15). From 1907 to 1932, 98 square miles were set aside for native reserves and about 1,800 square miles were given to

Portuguese and other foreigners (Bender 1978).

Differential taxation and labor levies. After the abolition of domestic slavery in 1875, slavery continued in a variety of forms (Clarence-Smith 1979). Vagrancy laws passed in 1875 subjected all "nonproductive" Africans to nonremunerated labor contracts (Bender 1978). The laws were replaced in 1926 by native laws, which provided for payments of wages but retained the provision that all Africans had to work for European landlords or could be contracted by the state (Henderson 1980).

Kenya - Land market interventions. With the arrival of Europeans, all vacant land was declared to be Crown land and sold to European settlers at extremely favorable conditions. Much of the land continued to be farmed by African tenants, which were called squatters (Mosley 1983). Africans' land rights were limited to reserves and a formal prohibition of African land purchases outside the reserves was codified in 1926.

Differential taxation and labor levies. The British introduced a number of regressive hut and poll taxes in order to "increase the native's cost of living" (Berman 1990:509). To pay these taxes, Africans initially did not seek wage labor but increased production, mainly on tenanted land. Despite repeated requests from settlers to grant tax-exempt status to Africans working on European farms, such taxes had to be paid by workers as well, thus large estates based on wage labor remained relatively unprofitable as compared to tenancy. The squatter law of 1918 required tenants to provide at least 180 days a year in labor services to their landlord at a wage not to exceed two-thirds of the wage for unskilled labor. This ordinance was amended twice (in 1926 and 1939), both times increasing the minimum amount of labor services (to 270 days per year in 1939), limiting the area allowed to be cultivated as well as the amount of stock owned per tenant, and making eviction of tenants easier. Labor passes, which had been introduced in 1908, limited the mobility of Africans; leaving without the employer's consent was a criminal offense (Berman 1990).

Input and output market interventions. A dual price system for maize, adopted in the 1930s, reduced the returns African farmers could obtain for the same produce as supplied by their European counterparts and, in addition, unloaded most of the price risk on Africans (Mosley 1983). Grower associations that excluded Africans were formed for most of the important cash crops. High licensing fees kept Africans out of pyrethrum production, and they were prohibited outright from cultivating coffee (Berman 1990). During World War II, European farmers received direct subsidies to mechanize their farms (Cone and Lipscomb 1972).

Sokotho-Caliphate (present day Burkina Faso, Cameroon, Niger, and northern Nigeria) - Land market interventions. After 1804, land was granted to settlers by the caliphate government in the areas around defensive centers, the amount of land depending on the number of slaves owned. Thus "anyone with slaves could obtain enough land to start a plantation" (Lovejoy 1980).

Differential taxation and labor levies. Slaves which made up some 50 to 75 percent of the local population were acquired by warfare, direct seizure, or as tribute from subjected tribes. Limited export markets and the relatively low price of slaves allowed relatively lenient treatment of slaves who enjoyed more rights e.g. the possession of heritable house-plots (Hogendorn 1977) and the right to self-redemption than the slaves acquired for cash by market-oriented plantations in the Americas. Land and

the absence of economies of scale meant, however, that slave owners had to take measures to prevent slaves from escaping and establishing their own operations (Hogendorn 1977). Eventually, these factors led to the demise of the large holdings (Hopkins 1973).

Malawi - Land market interventions. In 1894, Europeans were allotted more than 1.5 million hectares, or about 15 percent of total arable land. Differential taxation and labor levies. Attempts to introduce labor tenancy on European-owned cotton lands were unsuccessful as farmers abandoned the land and fled to uncultivated crown land. The situation improved only as a law was introduced in 1908 which allowed Africans to gain a significant reduction in the head tax they had to pay by working for European cotton growers for at least one month a year. Africans' possibility to gain a similar reduction of the head tax by producing cotton on tenanted land, was, due to landowners' pressure, eliminated (Mandala 1990).

Mozambique - Land market interventions. Exclusive property rights in land and quasi-governmental authority, the institution of prazo, existed since the 17th century. In the 19th century such property rights were often granted to companies. The prazo-holder had to provide minimal public services, cultivate part of the property, pay quitrent and tithe, but could levy annual tributes (in cash, kind, or labor) on the local population and was endowed with a complete monopoly on all trade within and outside the area (Vail and White 1980).

Differential taxation and labor levies. Hut taxes were established in 1854. After 1880, at least half of the tax had to be paid to the local prazo-holder in the form of labor services (Vail and White 1980). Under the vagrancy law of 1899, all male Africans between fourteen and sixty years old were legally obliged to work. Contingents of migratory labor were often "sold" to other areas (such as South Africa) where labor was relatively scarce (Vail and White 1980). Vagrancy laws were repealed in 1926 -— at about the time many prazos were expiring— and the use of forced labor for "private purposes" (i.e. non-quota production) was banned. The labor code of 1942 instituted an obligatory labor requirement of six months for all African men.

Input and output market interventions. In 1892 all itinerant African trade within prazos was abolished, conferring a monopoly on prazo-holders of all commerce. Prazos turned into a kind of mini-state, each with its own closed economy and unlimited freedom for the prazo-holder to determine the terms of trade. As a consequence, African producers almost completely withdrew from cash-crop productions and the prazos became "private labor pools from which the companies, by direct force or by indirect manipulation of the economy, could compel the labor they required" (Vail and White 1980:132). Following their expiration about 1930, prazos were replaced by a "concession system". Concession holders received monopoly rights to purchase cotton and rice in return for enforcing Africans' work obligations and providing inputs and supervision (Isaacman 1992). Although exactions from Africans were still high, cultivation of all but sugar reverted to smaller scale units rather than large scale farms.

South Africa - Land market interventions. Native reserves were firmly established at the end of the 19th century, although they were legally defined only in 1912. For example in Transvaal in 1870, the area allocated to African reserves was less than a hundredth of the area available to whites (Bundy 1985). The Glen Grey Act (1894) restricted African land ownership

in the reserves to a parcel of no more than about 3 hectares and instituted a perverted form of "communal tenure" which banned the sale, rental, and subdivision of land in order to prevent the emergence of a class of independent African smallholders (Hendricks 1990). Various legal measures to discourage tenancy on European farms did not lead to the desired results. The Native Lands Act (1912) circumscribed the extent of African reserves and declared real tenancy on European farms illegal, forcing all African tenants to either become wage laborers or labor tenants on European farms or to move to the reserves.

Differential taxes and labor levies. Prior to state intervention on their behalf, very limited market production by European farmers was based on slaves or, after the prohibition of slavery in 1834, indentured labor. Masters and Servants Laws and the Mines and Workers Act (1911) restricted Africans' occupational mobility and excluded them from skilled occupations in all sectors except agriculture (Lipton 1985). Restrictions on mobility were reinforced and tightened by pass laws (influx controls) from 1922 and the establishment of labor bureaus to enforce the legislation from 1951 (Lipton 1985). More rigid pass laws also provided a flow of cheap labor for white famres. It is estimated that, in 1949, about 40 000 pass-law offenders were supplied to farms as prison laborers (Wilson 1971).

Input and output market interventions. European farmers were assisted by a large array of monopolistic commodity marketing boards and direct credit subsidies. In 1967, the amount spent on subsidizing about 100,000 white farms was almost double the amount spent on education for more than 10 million Africans (Wilson 1971).

Tanganyika (part of present day Tanzania) - Land market interventions. From the late 1890s until 1904 it was common practice to allocate several villages apiece to incoming German settlers.

Differential taxation and labor levies. A hut tax, to be paid in cash or labor services, was imposed in 1896. Village headmen were required to provide a fixed number of workers each day to provide labor for the settlers. Every African was issued a work card that obligated him to render services to an employer for 120 days a year at a fixed wage or else to work on public projects (Illife 1979). In 1902, the Germans introduced compulsory cotton production in certain coastal areas; it is widely accepted that this scheme was one of the main causes leading to the outbreak of the Maji Maji revolt in 1905 (Coulson 1982).

Input and output market interventions. Africans were excluded from credit by the Credit to Natives Ordinance of 1931 which required that an African have specific government permission before he could even request a bank to lend him money (Coulson 1982). Attempts by Africans to set up a marketing cooperative for coffee led to the attempt to outlaw traditional practices of coffee growing in 1937, a to riots. Settler-dominated marketing monopolies for African-grown crops were set up in the 1940s and creamed off most of the profits (Coulson 1982).

Zimbabwe - Land market interventions. Reserves for Africans in remote areas of often low fertility were established in 1896 although their boundaries underwent some changes until 1931 (Palmer 1977), when African land purchases outside the reserves and specifically designed "African Purchase Areas" were declared illegal.

Differential taxation and labor levies. While all Africans were subject to poll and hut taxes, specific taxes discriminated against cash rental and

share tenancy contracts from 1909 (Palmer 1979).

Input and output market interventions. Volatility and downturns in output markets were smoothed by government interventions such as increased land bank loans, debt moratoria (especially during the depression in 1930) and, after protracted lobbying by European producers, the establishment of monopoly marketing boards (for tobacco, dairy, pigs, and cotton) and the establishment of export subsidies. African maize and livestock producers were discriminated against by dual price systems. To ease the problem of land degradation in 1939, compulsory destocking was mandated; prices paid for African cattle were between one third and one sixth of the prices fetched for comparable European stock (Mosley 1983).

Conclusions

The examples discussed here all suggest that neither the establishment nor the continued existence of large farms was due to their superior economic efficiency and/or the presence of economies of scale in agricultural production. The establishment of large farms was due to government intervention in favor of large landholders via land grants and differential taxation. Withdrawal of these privileges led either to their disintegration into landlord estates or to a shift towards rent seeking and more subtle forms of support for large farms.

Manorial systems have sometimes been interpreted as the outcome of an efficiency-enhancing contract between peasants and landlords: the landlords provide protection and other public goods (which are produced with economies of scale and require some specialization) in exchange for tribute or rent (North and Thomas 1971, for example). There are two major problems with this view. First, it ignores power, the asymmetry between contracting parties in access to weapons, laws, and public investment budgets. Second, the contract view ignores the likely competition in rent seeking between landlords, which would add to the deadweight loss associated with restrictions. Competitive rent seeking, the literature shows, is likely to result in the dissipation of the rent into such rent-seeking costs as competitive armies, arsenals, and fortifications, which provide no consumption value. Brenner (1985) argues that at the height of the feudal period, rents were completely dissipated into the costs of competing in the system. Periodic conflicts over the right to extract rent have caused destruction and decline in many flourishing kingdoms and empires, so the efficiency characteristics of the contractual system are only third or fourth best.

The major issue in land relations, then, is the evolution of the relationship between peasants and landlords over time. The best developed literature in this area relates to the demise of the manorial estate, corvée, and bondage and the emergence of capitalism in Europe. Dobb (1976) interprets the emergence of capitalist farming and the loss of rights to tribute as the consequence of increased population density alone, while Sweeney (1976) emphasizes the role of increased access to markets. Brenner (1985) shows that these explanations alone are inadequate, arguing the need to introduce the cohesiveness of the two groups and the strength of the coalitions they can form with kings or urban groups. Hilton (1977) also discusses these issues, as well as broader non-economic theories). In particular, Brenner stresses the importance of the cohesiveness of the peasant community in resisting attempts by the lords to increase the instruments available to them or the intensity of their use.

Success and failure in land reform

How does the manorial estate disappear? Again Boserup (1965) explains succinctly: "The process by which the feudal landlord tenure [the manorial estate] is abandoned may take different forms: sometimes the position of the feudal landlords in relation to the cultivators is weakened; they lose their power over all or most of the peasants and they end up as private owners of their home farms only [figures 1 and 2, arrows 8, 10, and 11]. In other cases, the feudal landlords succeed in their efforts to completely eliminate the customary rights of the cultivators, and they end up as private owners of all the land over which they had feudal rights, whilst the cultivators have sunk to the status of tenants-at-will. England, of course, is the classical example of this last kind of development" pp 79-87. Only in transitions of the first kind do the peasants end up with the income from land, the land rent.

Since land reform involves the transfer of rents from a ruling class to tenant workers, it is not surprising that most large-scale land reforms were initiated by revolts (Bolivia), revolution (Mexico, Chile, China, Cuba, El Salvador, Nicaragua, Russia), conquest (Japan and Taiwan), or the demise of colonial rule (Eastern India, Kenya, Mozambique, Vietnam, Zimbabwe). Attempts at land reform without massive political upheaval have rarely succeeded in transferring much of a country's land (Brazil, Costa Rica, Honduras) or have done so very slowly (Mexico from 1930).

The outcome of land reforms has been conditioned by three factors: whether the system was a landlord estate or a hacienda system, whether reform was gradualist with compensation or took place all at once, and whether the reform was undertaken in a market or a socialist economy. We consider the first two factors in the context of the third, the type of economy.

Reform in market-based economies

In transitions from landlord estates to family farms (figure 2, arrow 7) the organization of production remains the same family farm system. The only change is that ownership is transferred from large landlords to tenants who already farm the land and have the skills and implements necessary to cultivate their fields. Government involvement has often been substantial, ranging from a ceiling on the size of landholdings and the amounts to be paid for the land to the establishment of financial obligations of beneficiaries. Many reforms, that followed this pattern provided stronger incentives for tenant-owners to work and invest in their farms and led to increases in output and productivity. The resulting systems have had great stability. Since the end of World War II, landlord estates in Bolivia, large areas of China, Eastern India, Ethiopia, Iran, Japan, Korea, and Taiwan have been transferred to tenants in the course of successful land reforms.

Theoretically, the productivity gains associated with such reforms come about because of improved work and investment incentives associated with increased security of tenure. Empirical evidence shows that the reform of landlord estates led to considerable investment, adoption of new technology and increases in productivity (Callison 1983; Koo 1968; King 1977; Dorner and Thiesenhusen 1990) and that costs to the government of complementary investments supporting the transition in ownership structure, such as infrastructure, housing, training in management skills, were low because the structure of the smallholder production system was already in place.

By contrast with the relatively smooth transition from landlord estates to family farms, reform of hacienda systems has been very slow and difficult. The outcome has frequently been the emergence of large owner-operated Junker estates (arrow 10). Junker estates produce a wide variety of crops and livestock products using a hierarchy of supervisors, permanent workers who sometimes are given a house and garden plot, and external workers hired on a seasonal or daily basis. Junker estates are less specialized than plantations, which produce and process a narrow range of crops, and less capital-intensive than large-scale commercial farms.

Expansion of the landlord's home farm at the cost of land cultivated by tenants would be associated with losses in efficiency. Therefore, rational landowners would not establish Junker estates unless induced to do so by such external constraints as the threat of land reform or restrictions on tenancy. Anticipating such reforms, landowners often tried to reduce their exposure to expropriation by evicting tenants. The early rounds of land reform in Prussia gave freehold property rights to hereditary tenants, requiring them to give between one-half to one-third of their hereditary land to the Junkers as compensation for the loss of their corvée services. Fearing that further land reform would include tenants at will or holders of nonhereditary usufruct rights, the Junkers evicted many of the remaining tenants and reverted to cultivation with hired labor.

In Latin America, ever since the Mexican Revolution in 1910, land reform movements have legally enshrined the principle that land belongs to the tiller and that indirect exploitation of the land through tenants constitutes a cause for expropriation. The Brazilian Land Law of 1964 puts a low ceiling on rental rates and crop shares and conveys permanent usufruct rights to tenants after a few years of tenancy by protecting them from eviction. Similar provisions exist in some land laws in Asia (Chuma and associates 1990). Restrictions on tenant cultivation in South Africa had different roots - they were imposed to make tenancy less attractive to Africans who were needed as workers in the mines. Whatever the motivation, these legal restrictions on tenancy induced owners of haciendas to evict their tenants, and to expand home farm cultivation using hired labor.

The lack of competitiveness of Junker estates with the more efficient smallholder sector made Junker estates an unstable form of production relations and led to intensive lobbying for protection and for subsidies to introduce and expand mechanization. By substituting subsidized capital for labor, the Junker estate was transformed into a large-scale mechanized commercial farm (arrow 11) that no longer depended on large amounts of labor. Intensive mechanization of large commercial farms reduces the potential for land reform since there are not enough families with farming skills and implements available on these capital intensive farms to result in the establishment of efficient small farms able to rely on low-cost family labor. A similar result can be achieved by converting haciendas or Junker farms to livestock ranches, which require very little labor.

That Junker estates emerged only in response to pending land reform and tenancy restrictions supports the view that there are no technical economies of scale in un-mechanized agriculture and that the incentive problems associated with supervising hired or corvée labor far exceed the efficiency losses associated with long-term whole-farm tenancy contracts. To compete successfully with family farms, Junker estates had to find ways to reduce their

labor costs or to increase their revenues. Landowners often sought to secure rents from the expanding urban and industrial sectors through trade barriers and subsidies for mechanizing production (de Janvry 1981). Examples include the German Zollverein at the end of the nineteenth century (Gerschenkron 1965), tariffs on beef imports in Chile in 1887 (Kay and Silva 1992), and selective price support to products from large-scale units in Kenya, Zimbabwe, and South Africa (Deininger and Binswanger 1993).

Subsidies for mechanization led to the transformation of nearly all Junker estates into mechanized commercial farms (arrow 11). Huge sums were provided either through direct mechanization subsidies, as in Kenya, or through cheap credit, as in South Africa, Zimbabwe, and virtually all of South America, where real interest rates were even negative (Abercrombie 1972). Mechanization eliminated the need to rely on hired labor and resulted in widespread tenant evictions even in countries with cheap labor - hardly an optimal transformation from a social point of view.

In some market economies haciendas were converted to communal family farm systems (arrow 11). Communal tenure was adopted first in Mexico's ejido system and later, under land reforms in Bolivia, Zimbabwe, and elsewhere. Beneficiaries were granted inheritable usufructuary rights, but constraints on land sales and rentals often prevented using the land as collateral for credit. Attempts to provide alternative sources of credit through special banks or credit programs proved ineffective (Heath 1992; World Bank 1991). In Mexico, recent constitutional amendment legalizes land rental and sales within all ejidos and allows each ejido to remove restriction on sales to outsiders, by a majority vote, effectively converting the ejidatarios to owner-operated family farms.

Reforms in socialist economies

Reform in socialist economies (figure 2, arrows 10, 11, and 12) has followed different paths. Landlord estates in the former Soviet Union, Vietnam, China and Ethiopia were initially converted into family farms (arrow 10), in much the same way as in market economies. All or some of the redistributed farmlands were later consolidated into single management units as state farms or collectives (arrow 13). In Algeria, Chile, East Germany, Mozambique, Nicaragua, and Peru, Junker estates or large commercial farms were converted directly into state farms (arrows 14 and 15). In most cases, workers continued as employees, with no change in internal production relations. Over time, the organizational differences between collectives and state farms tended to disappear.

To achieve efficient production collectives have to deal with two incentives problems. One is to provide incentives to workers, a problem often addressed by the adoption of piece-rate systems designed to reward labor at least partially on the basis of effort. The other incentive problem concerns investment and savings decisions, which are made jointly by the collective. Bonin (1985) shows that as long as equity financing is precluded and members cannot sell their share in the cooperative, the representative worker will not make efficient investment decisions. Mitchell (1990) also examines problems associated with the inter-temporal allocation of consumption and shows that the distribution of decision-making power between old (who would rather consume) and young (who prefer to invest) determines the rate of growth for a cooperative enterprise. McGregor (1977) provides a theoretical justification and empirical examples of

the tendency of cooperative enterprises to disinvest and to reduce membership in order to increase current consumption by members. Barham and Childress (1992) showed that Honduran collectives decreased their membership over time by about one fifth. Successful collectives tend to degenerate into capitalist enterprises (or wage-labor-operated state farms) by substituting cheaper wage laborers for more expensive members (Ben Ner 1984).

Thus, the problems associated with provision of workers' effort and intertemporal consumption proved at least as serious in collectives as in haciendas (Bonin and Putterman 1986; Putterman 1989). The poor performance of agriculture under a collective mode of production is well documented and it is not surprising that the expected increases in production from economies of scale were not usually realized (see, for example, Colburn 1990 for Nicaragua; Ghai, Kay, and Peek 1988 for Cuba; Ghose 1985, Wuyts 1982, and Griffin and Hay 1985 for Ethiopia and Mozambique, Lin, 1990 for China). Once given the chance to do so, members of collective farms often voted to redistribute plots to family-sized farms.

In China, agricultural output in the first six years after de-collectivization in 1978 grew by 42 percent (Lin 1992, Fan 1991, McMillan et al. 1989, Nolan 1988). Vietnam experienced similar productivity gains from breaking up large collective farms into tiny family units (Pingali and Xuan 1992). The family farms in these densely populated countries expanded the labor input and were able to reduce machinery and fertilizer use. Clearly, the incentive advantages of individual farming outweighed any efficiency losses due to the extremely small size and fragmentation of farms (Wenfang and Makeham 1992).

Under different conditions, as in Algeria and Peru (Melmed-Sanjak and Carter 1991), the privatization and breakup of mechanized state farms or collectives has been less successful. Mechanization of these large farms had occurred and had reduced the number of workers or tenants before their collectivization. When these collectives were turned over to their relatively few remaining workers, the resulting family farms were relatively large and unlike in China and Vietnam could not be operated efficiently without additional hired workers or high levels of mechanization. But hiring additional workers dilutes the incentives advantage of the family farm, and the farms had neither the access to subsidized credit nor the large amounts of equity needed to finance hired labor or the mechanization. To make reform work under these capital-constrained conditions and reap the efficiency benefits of family farming may require including more beneficiary families in the reform program than those employed on the highly mechanized farms, by resettling landless or near landless workers from outside the farms.

The social cost of delayed reform: revolts and civil wars

Maintaining an agricultural structure based on relatively inefficient hacienda systems is costly. In addition to the static efficiency losses, there are dynamic efficiency losses associated with the lack of incentives to invest in physical and human capital. Then there are the resource costs used in rent-seeking to create and maintain the distortions that support the large farms. In a competitive rent-seeking equilibrium these costs are equal to the rents. The distortions reduce employment in the sector, imposing an additional equity cost. Finally, the social costs of failing to reform have often included peasant uprisings and civil war.

Consider Brazil, where the emergence of an agricultural structure dominated by large farms owes much to a policy which --through subsidization of immigration to relive large farms' labor constraint in the late 19th century, various interventions to maintain high prices especially for coffee and sugar, and subsidized credit since the 1950s-- was continuously biased in favor of large farms (Graham, Gautier and deBarros 1987). The social costs of distortions in favor of large farms have been substantial. Between 1950 and 1980, agricultural value added in real terms grew at a remarkable 4.5 percent a year, land area expanded at 3.2 percent a year, but agricultural employment grew at only 0.7 percent a year (Maddison and associates 1993). Large-scale farms, assisted by large amounts of subsidized rural credit, mechanized and evicted most of their internal tenants and workers, many of whom migrated to urban slums or ended up as highly insecure seasonal workers (boias frias) (Goodman and Redclift 1982). An alternative growth path based on smaller family farms could have provided rural employment and self-employment opportunities for many of these people and gainfully absorbed a substantial share of the rapidly growing population.

In many countries, protracted and violent struggles have significantly reduced the performance of the agricultural sector and the economy as a whole. While peasants have rarely been able to initiate radical class struggles or revolutionary movements, they have been important and sometimes the dominant movers of such struggles once they were helped to organize by outsiders (France, Russia, China). In addition, many revolutionary movements took refuge in remote areas of limited agricultural potential - sometimes designated "communal areas", "reserves", or "homelands"- where peasants have provided both active and passive support for guerrilla fighters. Many analysts have emphasized the important role of peasant discontent in incidents of regional and national violence (Moore 1966; Wolff 1968; Huizer 1972; Migdal 1974; Scott 1976; Skocpol 1979; Christodoulou 1990; Goldstone 1991; Kriger 1991; Wickham-Crowley 1991; Rueschemeyer et al. 1992). The losses from such conflicts are, of course, difficult to measure, but some notion of their magnitude can be gauged from the duration and intensity of such struggles, as these cases show:

- In Mozambique, peasants escaped from forced cultivation, vagrancy laws, and forced labor to inaccessible rural areas. Some of these areas were also centers of support for the Frelimo guerrillas from 1961 until independence in 1975 (Isaacman & Isaacman 1983). Land reforms which were initiated after independence, however, resulted in highly mechanized collective farms. The Felimo government did little to address the problems of the free peasant sector. The counter-revolutinoary Renamo movement in turn took advantage of the resulting peasant discontent. Peace was only achieved around 1990.
- In Zimbabwe, large scale eviction of some 85,000 families from European-owned farmlands during 1945-51, led to a general strike among Africans in 1948 and provided the basis for peasants' support of ZANU (Zimbabwean African National Union) guerrillas in 1964 (Mosley 1983; Ranger 1985; Scarritt 1991 and Kriger 1991). Guerrilla fighters took up the peasants' grievances and used the Tribal Trust Areas as bases to attack European farms. While a substantial settlement program after independence provided land to Africans, a number of shortcomings limited the success of this program

(see Deininger and Binswanger 1994). Policy distortions remained in place despite evidence that large farms are not more efficient than small holder farmers (Masters 1991). Land reform continued to be a major issue, and resulted in the poorly managed “fast track” land reform that contributed to the complete collapse of the Zimbabwean economy since 2000.

- In Guatemala, communal lands were in effect expropriated in 1879 by a law giving proprietors three months to register land titles after which the land would be declared abandoned. Most of the "abandoned" land was then allocated to large coffee growers who evicted traditional rightholders. Redistribution attempts in 1951-54 were reversed following a military coup in 1954, when virtually all the land which had been subject to land reform was returned to the old owners and farms expropriated from foreigners were allocated in parcels averaging more than 3,000 hectares (Brockett 1984). Since then, there has been a repeated pattern of suppression and radicalization of resistance. Suppression of the cooperative movements of the 1960s led to formation of the guerrilla army of the poor (EGP) in 1972, with its main base in Indian highlands. Peasants responded to a wave of government-supported assassinations in 1976 with the formation of the committee for peasant union (CUC) in 1978. Government massacres of protesting peasants followed (Davis 1983). While peace was restored in the early 1990s, over 50 years after the first attempt at reform, continuing peasant demonstrations signal the cost of failure.
- Smallholder land in El Salvador was similarly appropriated. A decree of 1856 stated that all communal land not at least two-thirds planted with coffee would be considered underutilized or idle, and would revert to the state. Communal land tenure was abolished in 1888. Sporadic revolts led to such countermeasures as the 1888 "security tax" on exports to finance rural police forces, a 1907 ban on rural unions, and the creation of a National Guard in 1912 (McClintock 1985). Areas where land pressures were particularly severe emerged as centers of the revolt of 1932, during which some 10,000 to 20,000 peasants were killed (Mason 1986). Guerrillas promising land and other agricultural reform gained considerable support in rural areas, in particular, following the tenant evictions in the cotton growing lowlands during 1961-70. These evictions led to a 77 percent decline in the houseplots available to tenants, as the number of tenants dropped from 55,000 to 17,000. Violence continued to escalate until 1979, when reform-minded officers engineered a coup and introduced land reform in an attempt to preempt a shift in popular support to the FMLN-FDR guerrilla forces. Narrow eligibility rules sharply limited the number of beneficiaries of land reforms and more than a decade of civil war ensued. The peace accord of 1992 mandates additional land reform.
- In Colombia conflicts over land between tenants and large-scale farmers at the frontier escalated from isolated local attacks in the early 1920s to more coordinated tenant actions by the late 1920s. While various kinds of reform legislation were considered during the 1930s, the law finally passed in 1936 vested rights in previously public lands with large landlords rather than the tenants cultivating the land (Le Grand 1982). A series of tenant evictions followed, leading to a quarter century of violence (1940-65) during which guerrillas recruited support from peasant groups. Land reform

legislation in 1961 and 1968 regularized previous land invasions, but did nothing to improve the operational distribution of land holdings. Far fewer peasants benefited from the reforms than had previously been evicted (Zamosc 1989, deJanvry and Sadoulet 1993). Peasant land invasions intensified during the early 1970s, leading to the declaration of a state of emergency after 1974. Regional mobilizations, strikes, and blockades flared up again in 1984, indicated that the conflict was not yet resolved. Indeed violence and conflict, partly fueled by the unresolved land question, continues until today.

- Much of the rural support for the Shining Path guerillas in Peru can be traced to the exclusion of most of the highland Indians from agricultural benefits and the benefits of agrarian reform of 1973, which benefited primarily the relatively few workers in the coastal area. As a result of the guerilla activity, more than half the departments in the country became virtually inaccessible to government forces (McClintock 1984), and public investment in these regions has halted. Poor economic management during the 1980s and continued activity by Shining Path have led to capital flight and economy wide decline. It was only under the Fujimori regime that the power of the Shining Path was finally broken.

Other countries that have experienced prolonged conflicts over land include Angola, Chile, and Nicaragua. While the policies that created and maintain dual land ownership distributions do not necessarily lead to violent struggle - other intervening factors are likely to be important - they clearly played a significant role in many cases.

Credit, policy distortions, and land sales markets

Are Junker estates and large mechanized farms economically more efficient than smaller, family-operated holdings? If they are not, equalizing the ownership distribution or breaking up collective or state farms into family farms would enhance both efficiency and equity. A huge literature has emerged on this topic which is summarized in Binswanger et al. (1995). Suffice it to say that, with few exceptions, superior productivity and profitability of family farms over large commercial farms (in the absence of subsidies and distortions), has survived even until today.

This leads to the second central question for land reform: if large operational holdings are usually less efficient than family farms, why do large landowners in market economies not rent or sell to family farmers? The rental market has historically been the most important mechanism to circumvent the diseconomies of scale associated with large ownership holdings. Yet the history of land reform shows that long-term rental of entire farms often implies a high risk of loss of land to tenants, and long term tenancy is no longer an option. Short-term rental of parcels of land cannot create small family-operated holdings. If tenancy is no longer an option, what then prevents large owners from selling their land to family farmers?

Covariate risks and imperfect credit markets

The immobility land makes land a preferred form of collateral in credit markets. Credit can be used both for production inputs as well as for consumption loans that can serve as insurance substitutes when harvests fall short. Thus the collateral value of land is

useful both for production as well as an insurance substitute. As discussed, if land ownership provides access to credit and helps in risk diffusion, the buyer has to compensate the seller for the utility derived from these services of land (Feder and associates 1988). Therefore, where land has collateral value, its equilibrium price at given credit costs will always exceed the present discounted value of the income stream produced from the land. If a buyer were to mortgage the land to pay for its purchase, he could no longer use it for production credit. With imperfect insurance markets, only un-mortgaged land yields a flow of income or utility, the present value of which equals the land price. A buyer relying on credit therefore cannot pay for the land out of agricultural profits alone. Thus land sales are likely to be financed out of household savings.

This need to purchase land out of savings tends to make the distribution of landholdings more unequal: In particularly good crop years savings would be high for all farmers, and there would be few sellers and many potential buyers of land. Good years are thus not good times for land purchases. In bad crop years, farmers would have little savings with which to finance land purchases, while at the same time many would want to sell land to finance consumption or repay debts. And in particularly bad periods - say after consecutive harvest failures - moneylenders would be the only ones in the local rural economy with assets with which to buy land, namely their debt claims. Many borrowers would be unable to service these debts and the moneylender could foreclose on them. Moneylenders would prefer to take over such land, since the price of land would be lower than average in bad years. So, in bad crop years land would be sold mainly to moneylenders as distress sales, or to individuals with incomes or assets from outside the local rural economy. We should expect, then, that in areas with poorly developed insurance and capital markets, land sales would be few and limited mainly to distress sales. Results from India and Bangladesh confirm this hypothesis.

Historically, distress sales have played a major role in the accumulation of land for large manorial estates in China (Shih 1992) and in early Japan (Takekoshi 1967) and for large landlord estates in Punjab (Hamid 1983). The abolition of communal tenure and the associated loss of mechanisms for diversifying risk are among the factors underlying the emergence of large estates in Central America (Brockett 1984).

We have seen that moral hazard, covariance of income, and collateral value of land imply absent insurance and imperfect credit markets. In such environments, land sales markets are likely to become a means for large landowners to accumulate more land. Even where markets for labor, current inputs, and land sales and rentals are perfectly competitive, weak intertemporal markets for risk diffusion may therefore prevent land sales markets from bringing about Pareto-improving trades and an efficient farm size distribution - an illustration of the theorem of the second best.

The impact of policy distortions

The existence of common policy distortions intensifies the failure of the land sales market to distribute land. Consider first an idealized case of competitive and undistorted land, labor, risk and credit markets. The value of land for agricultural use would equal the present value of agricultural profits. If the poor have to borrow to buy land at its present value, they will need to use the entire farm profits to service the debt, and the only income stream available for consumption is the

imputed value of family labor. Since the poor could get the same wage in the labor market, they are no better off as landowners than they would be as wage-laborers. If the poor would have to pay higher interest rates than wealthy borrowers, they would be even worse off after buying land.

We have seen that family farmers are often more efficient than large farms, therefore they might get an additional income from buying the land that we ignored in the last paragraphs. However, this advantage is normally more than offset by a number of factors and distortions that increase the price of land above the capitalized value of the such a higher agricultural income stream. The most important factors and distortions driving land prices up above the capitalized value of agriculture are the following:

- Even where there are no credit subsidies, large landowners have a transactions cost advantage in securing credit, and transactions costs may even block access to mortgage credit altogether for small borrowers. Where, in addition, there are credit subsidies they tend to be capitalized into land values, as shown by by Feder and associates (1988), and by Brandao and Rezende (1992). When Brandao and Rezende simulated land prices using results of econometric estimation for Brazil (1966-89), they found that six percent of the increase in land value was attributable to credit subsidies, and 28 percent to macroeconomic instability (inflation).
- In periods of macroeconomic instability, nonagricultural investors may use land as an asset to hedge against inflation, so that an inflation premium is incorporated into the real land price.
- With populations growing and urban demand for land increasing, the price of land is expected to appreciate, and some of this real appreciation is capitalized into the current land price.
- Many countries exempt agricultural income from income tax, and even where there is no general exemption, agricultural income is de facto subject to lower tax rates. These preferences will be partly or fully capitalized into land values. Since the poor pay no taxes and so cannot benefit from the tax break, they do not receive the corresponding income stream.

Where any of these factors pushes the price of land above the price justified by the fundamentals of expected agricultural profits, the poor have difficulty buying land, even if they are provided with credit on market terms.

Policy Implications for Redistributive land reform

Most redistributive land reform is motivated by public concern about the rising tensions brought about by an unequal land distribution. The common pattern is concentration of landownership among relatively few large owners in an economy where labor is abundant and land is scarce. Thus the masses of landless laborers and tenants who derive their livelihoods from agriculture receive relatively less income because their only asset is labor. Redistributive land reform can also increase efficiency, by transferring land from less productive large units to more productive small, family-based units. Yet, because of other market imperfections, land markets will not typically effect such transforma¬tions of ownership patterns. The value of the land to large owners may exceed the discounted sum of agricultural income smallholders can expect to receive despite their productivity advantages from lower supervision costs if there are

policy distortions favoring large owners or if the access of small farmers to long-term credit has already been exhausted by mortgage-based land acquisition.

Market values of land are determined in a way that prevents small farmers who lack equity from building up viable farms and improving their standard of living while repaying their land mortgage. Land reform schemes that require payment of the full market value of the land are likely to fail unless special arrangements are made. In the simplest case, beneficiaries soon default and the program ends. Many ambitious land reform programs simply run out of steam because full compensation of old owners at market prices imposes fiscal requirements that the political forces are unwilling to meet - that was the fate of programs in Brazil until the early 1990s, the Philippines, and Venezuela. Some programs attempt to avoid this problem by compensating landowners (with bonds) whose real value erodes over time. Not surprisingly, landowners oppose this thinly disguised confiscation, and such programs are politically feasible only in circumstances of political upheaval (Cuba, Japan, Korea, Taiwan or Vietnam). Another approach is to finance land purchases through foreign grants or from internal tax revenues or inflationary monetary expansion - or some combination.

Before any land redistribution program is introduced, the implicit and explicit distortions which drive land prices above the capitalized value of agricultural profits need to be eliminated. Otherwise, small farmers will continue to have an incentive to sell out to larger farmers since the environment would still favor large ownership holdings. The poor must be provided with either the land or a grant to help them buy it to compensate for their lack of equity. Credit to beneficiaries for land purchases can only play a subsidiary role. Removing distortions also lowers the amount of grant assistance needed by small farmers to support their acquisition of land.

The type large scale farms influences the gains to be expected from land reform. On landlord estates, would-be beneficiaries are already managing operational units so land reform addresses primarily the equity concerns of society, transferring the entitlement to land rents while leaving operational farm structure largely unchanged. With haciendas, the threat of land reform legislation often leads to the eviction of tenants and reductions in the resident work force. The large commercial farms that result are difficult to subdivide. They involve major changes in the organization of production. The resident labor force and external workers have little or no independent farming experience, and in many cases, neither the infrastructure nor the investments in physical capital provide an appropriate basis for smallholder cultivation.

The availability of technology and of competitive input and output markets thus becomes a crucial determinant for the potential of land reform to increase efficiency. Appropriate institutional arrangements are needed to ensure access to extension services, credit, and markets. Such institutions are especially important where land reform involves resettling beneficiaries on former Junker estates or large mechanized commercial farms. To reap the efficiency gains of family farming under these conditions seems to require increasing the density of family labor, and that may require resettling landless workers from outside. Reform of these systems is likely to be difficult, but where the alternative to reform is the perpetuation of large economic and social costs, including the possibility of revolt and civil war, the cost of failing to reform may be enormous.

Opinions are divided on redistributive reform of wage plantations in the classic plantation crops: banana, sugar, tea and oil palm. The fact that contract farming in these plantation crops is practiced successfully in many parts of the developing world indicates that converting plantations to contract farming is feasible. Indeed, Hayami, Quisumbing, and Adriano describe the successful conversion of even a banana plantation into a contract farming system in the Philippines, and strongly argue for bringing about more such conversions through a progressive land tax. The efficiency gains from lower supervision costs associated with such a step are likely to be offset, however, because of the genuine economies of scale in plantation crops.

Annex 1: Intervention to Establish and Support Large Farms

COUNTRY	LAND MARKET INTERVENTIONS	TAXES AND INTERVENTIONS IN LABOR AND OUTPUT MARKETS
ASIA: India (North)	Land grants from 1st century	Hacienda system; 4th century BC Corvee labor; from 2nd century
China (South)		Limitations on peasant mobility; ca 500 Tax exemption for slaves; ca 500 Gentry exemption from taxes & labor services; ca 1400
Japan	Exclusive land rights to developed wasteland; 723	Tribute exemption for cleared and temple land; 700
Java and Sumatra	Land grants to companies; 1870	Indentured labor; 19th century Cultivation System; 19th century
Philippines	Land grants to monastic orders; 16th century	Encomienda Repartimiento Tax exemption for hacienda workers; 16th century
Sri Lanka	Land appropriation; 1840	Plantations tax exempt; 1818 Indentured labor; 19th century
EUROPE: Prussia	Land grants; from 13th century	Monopolies on milling and alcohol Restrictions on labor mobility; 1530 Land reform legislations; 1750-1850
Russia	Land grants; from 14th century Service tenure; 1565	Restrictions on peasant mobility: - Exit fees; 1400/50 - Forbidden years; 1588 - Enserfment; 1597 - Tradability of serfs; 1661 Home farm exempt from taxation; 1580 Debt peonage; 1597 Monopoly on commerce; until 1830
S. AMERICA: Chile	Land grants (*mercedes de tierra*); 16th century	Encomienda; 16th century Labor services (*mita*); 17th century Import duties on beef; 1890 Subsidies to mechanization; 1950-60
El Salvador	Grants of public land; 1857 Titling of communal land; 1882	Vagrancy laws; 1825 Exemption from public and military services for large landowners and their workers; 1847
Guatemala	Resettlement of Indians; 16th century	Cash tribute; 1540 Manamiento; ca 1600 Debt peonage; 1877
Mexico	Resettlement of Indians; 1540 Expropriation of communal lands; 1850	Encomienda; 1490 Tribute exemption for hacienda workers; 17th c. Debt peonage; 1790 Return of debtors to haciendas; 1843 Vagrancy laws 1877
Viceroyality of Peru	Land grants; 1540 Resettlement of Indians (congregaciones); 1570 Titling and expropriation of Indian land; 17th century	Encomienda; 1530 Mita: Exemption for hacienda workers; 1550 Slavery of Africans; 1580
AFRICA: Algeria	Titling; ca 1840 Land grants under settlement programs; 1871 'Settlers' law' 1873	Tax exemption for workers on European farms; 1849 Credit provision for European settlers

Angola	Land concessions to Europeans; 1838, 1865	Slavery; until 1880 Vagrancy laws; 1875
Egypt (Ottomans)	Land grants; 1840	Corvee labor; from 16th century Corvee exemption for farm-workers; 1840s Land tax exemption for large landlords; 1856 Credit and marketing subsidies, 1920 and 1930s
Kenya	Land concessions to Europeans; ca 1900 No African land purchases outside reserves; 1926	Hut and poll taxes; from 1905 Labor Passes; 1908 Squatter laws; 1918, 1926 and 1939 Restrictions on Africans' market access; from 1930: - Dual price system for maize - Quarantine and force destocking for livestock - Monopoly marketing associations - Prohibition of African export crop cultivation Subsidies to mechanization; 1940s
Sokotho Caliphate	Land grants to settlers; 1804	Slavery; 19th century
Malawi	Land allotments to Europeans; 1894	Tax reductions for farm-workers; ca 1910
Mozambique	Comprehensive rights to leases under prazo; 19th century	Labor tribute; 1880 Vagrancy law; 1899 Abolition of African trade; 1892 Forced cultivation; 1930
South Africa	Native reserves; 19th century Pseudo-communal tenure in reserves; 1894 Native Lands Act; 1912 - Demarcation of reserves - Elimination of tenancy - Prohibition of African land purchases outside reserves	Slavery and indentured labor; 19th century Restrictions on Africans' mobility; 1911, 1951 Monopoly marketing; from 1930 Prison labor; ca 1950 Direct and indirect subsidies; 20th century
Tanganyika	Land grants to settlers; 1890	Hut tax and corvee requirements; 1896 Compulsory cotton production; 1902 Vagrancy laws (work cards); 20th century Exclusion of Africans from credit; 1931 Marketing coops to depress African prices; 1940
Zimbabwe	Reserves; 1896 and 1931	Poll and hut taxes; 1896 Discrimination against tenancy; 1909 Monopoly marketing boards; from 1924 - Dual price system in maize; - Forced destocking in livestock; 1939

Endnotes

[1.] Meillassoux (1991) distinguishes *merchant slavery*, were purchased slaves are used for market production, from systems of *aristocratic slavery* which regularly replenished a pool of domestic slaves through warfare and raids of subsistence-oriented peasant populations.

[1.] The temperate zones of the Americas (Canada, North Eastern US, Southern Brazil, and Argentina) escaped slavery because their products could not be exported competitively to temperate zone Europe until the advent of the steamship and the railroad at a time when slavery had gone out of style. The tropical and subtropical crops sugar, cotton, and tobacco faced no competition in European markets.

[1.] In Zimbabwe, Africans had been encouraged to cultivate maize through the "Master Farmer Program" in the late 1920s when European farmers found it more profitable to

grown tobacco and cotton. When those markets collapsed monopoly marketing and dual price systems were introduced and the Master Farmer Program was abandoned, with responsible officials publicly declaring that they had never intended to "teach the Natives to grow maize in competition with European producers" (Phimister 1988:235).

1. For more detail on Kenya, South Africa, and Zimbabwe, see Deininger and Binswanger (1994).

1. This "Junker path" has been described by Lenin (1974) who considered it to be part of a necessary differentiation of the peasantry. It has been extensively analyzed by de Janvry (1981) who was the first to show the compelling impact of "reformist" land legislation in Latin America on the elimination of traditional forms of labor relations and the expulsion of internal peasants.

1. deJanvry and Sadoulet (1989) argue that the threat of land reform and their ability to lobby in coalition with the urban sector for subsidies and provision of public goods led large landowners to mechanize and make the transition from haciendas to large mechanized commercial farms in Colombia (1961-68), Ecuador (1936-57), Peru (1964-69), Venezuela (1959-70), and in Chile (after 1972). In Ecuador, two separate stages can be distinguished. Widespread eviction of tenants and the formation of Junker estates, until 1957 was followed by a period of increased emphasis on the family-farm sector together with widespread mechanization (1958-73).

1. Ortega (1990) offers quantitative evidence for the decline of the collective sector throughout Latin America. In Peru, the absence of economies of scale led reform beneficiaries to effectively subdivide reform collectives by concentrating effort on their private plots and to press for legal subdivisions and individual land titles (Kay 1983; Horton 1972; McClintock 1981). Collectives failed in Zimbabwe and were soon abandoned in favor of a smallholder-oriented strategy (Weiner 1985). Similarly, collectives failed in the Dominican Republic and were replaced by cooperatives, with individually owned plots (Meyer 1991). Land reform cooperatives in Panama are highly indebted and use labor far below profit-maximizing levels (Thiesenhusen 1987). Algerian production cooperatives experienced low productivity, membership desertion, high use of mechanization, and considerable underemployment of the workforce (Pfeiffer 1985; Trautman 1985). The same pattern of declining output and transformation into a "collective Junker estate" has been observed in Mozambique (Wuyts 1985).

1. Quantitative estimates of this efficiency loss are scarce, but Loveman (1976) estimates that Chile could have saved roughly $100 million a year in agricultural imports during 1949-64 had the 40 percent of land left uncultivated by large landlords been cultivated.

1 Farmers in India experiencing two consecutive drought years have been found to be 150 percent more likely than other farmers to sell their land (Rosenzweig and Wolpin 1985). The implications of different insurance mechanisms on distress sales and the land ownership distribution are demonstrated by a comparison of the evolution of ownership holdings from about 1960 to 1980 in India and Bangladesh (Cain 1981). These villages were characterized by distinct differences in mechanisms of risk-insurance: In Maharashtra, India, an employment guarantee scheme operated throughout the period and attained participation rates of up to 97 percent of all households during disasters. Such schemes were absent after the major flood episodes in Bangladesh. 60 percent of land sales in Bangladesh were undertaken to obtain food and medicine. Downward mobility affected large and small farmers equally. 60 percent of the currently landless had lost their land since 1960 and the Gini coefficient of landownership distribution increased from 0.6 to almost 0.7. This contrasts sharply with the Indian villages, where

land sales for consumption purposes accounted only for 14 percent and were incurred mainly by the rich to meet social obligations. 64 percent of land sales were undertaken in order to generate capital for productive investment This suggests that the poor were not only able to avoid distress sales, but actually could acquire some land as rich households liquidated agricultural assets to be able to pursue non-agricultural investment.

[1.] Under circumstances of extreme poverty and landlessness redistribution of land can also enhance efficiency by improving the nutritional wellbeing and thus the productive capacity of the population (Dasgupta and Ray 1986 and 1987, Moene 1992).