

Benefits and Costs of Rural Land Titling: The International Experience

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I. Introduction

Scores of developing countries have embarked upon a program of establishing land administration systems and undertaking systematic rural land titling, involving land rights adjudication, registration, cadastral surveying and titling. Examples are Thailand, Laos, Cambodia, Indonesia, the Philippines, El Salvador, Honduras, Nicaragua, Bolivia, Guatemala, Kenya, Uganda, Ethiopia, and others. Such undertakings take a long time to implement and can be expensive as the cost of titling quickly escalates to an enormous expenditure, considering the millions of fragmented rural land holdings in a given region. The planning horizon in Thailand and Indonesia was 20 and 25 years, respectively. It cost about US\$300 million in Thailand over a period of five years.

Many land administration and land titling projects lose sight of the main purpose of the exercise and concentrate on the technical aspects such as surveying, mapping and preparation of and issuing titles. Land administration and titling are not about the sophistication of these activities nor are the technical aspects ends in themselves. Land administration and titling are about protecting land rights adequately and permitting those rights to be transferable efficiently, i.e., simply, quickly, securely and at low cost and maintaining the integrity of the cadastre by continuous updating of transactions in land rights as they occur (Williamson 2000). The success of a land administration and titling program is, therefore, the extent to which it fulfills these set of purposes - not the number of land titles it issues, notwithstanding that these numbers may be one of the indicators of successful implementation (UN International Federation of Surveyors Bogor Declaration on Cadastral Reform 1996).

The justification for rural land titling is the expectation that it will enhance tenure security, stimulate increased investment and resource productivity, encourage environmental protection, facilitate access to credit, promote the emergence of efficient land use-right markets and provide database that is valuable for land-use planning and taxation purposes. However, the international experience shows that land titling is neither a necessary nor a sufficient condition for the achievement of these desirable goals; nor can it bring lasting benefits unless a host of other conditions that make it work prevail as will be shown in this paper. This is because land titling is only one, albeit the most expensive, part of a complex process of land tenure and land administration (Pagiola 1999; European Union 2004).

Because funding available to any country to undertake long-term development programs is limited, policy makers need to weigh the benefits and costs of land titling *vis-à-vis* other socio-economic development programs. It is imperative that a long-term vision is developed and land administration systems that are affordable and sustainable are

devised. This has significant bearing on choosing the most appropriate options available: for land adjudication and land registration procedures, and cadastral surveying technologies. This national conference is, therefore, timely and crucial for the future development of land administration systems in Ethiopia.

This paper first presents the theoretical framework for the potential benefits of rural land titling. It then reviews the literature on the empirical evidence of the benefits and costs of land titling from the international experience¹ and draws conclusions and implications for the Ethiopian situation.

2. The Theoretical Framework

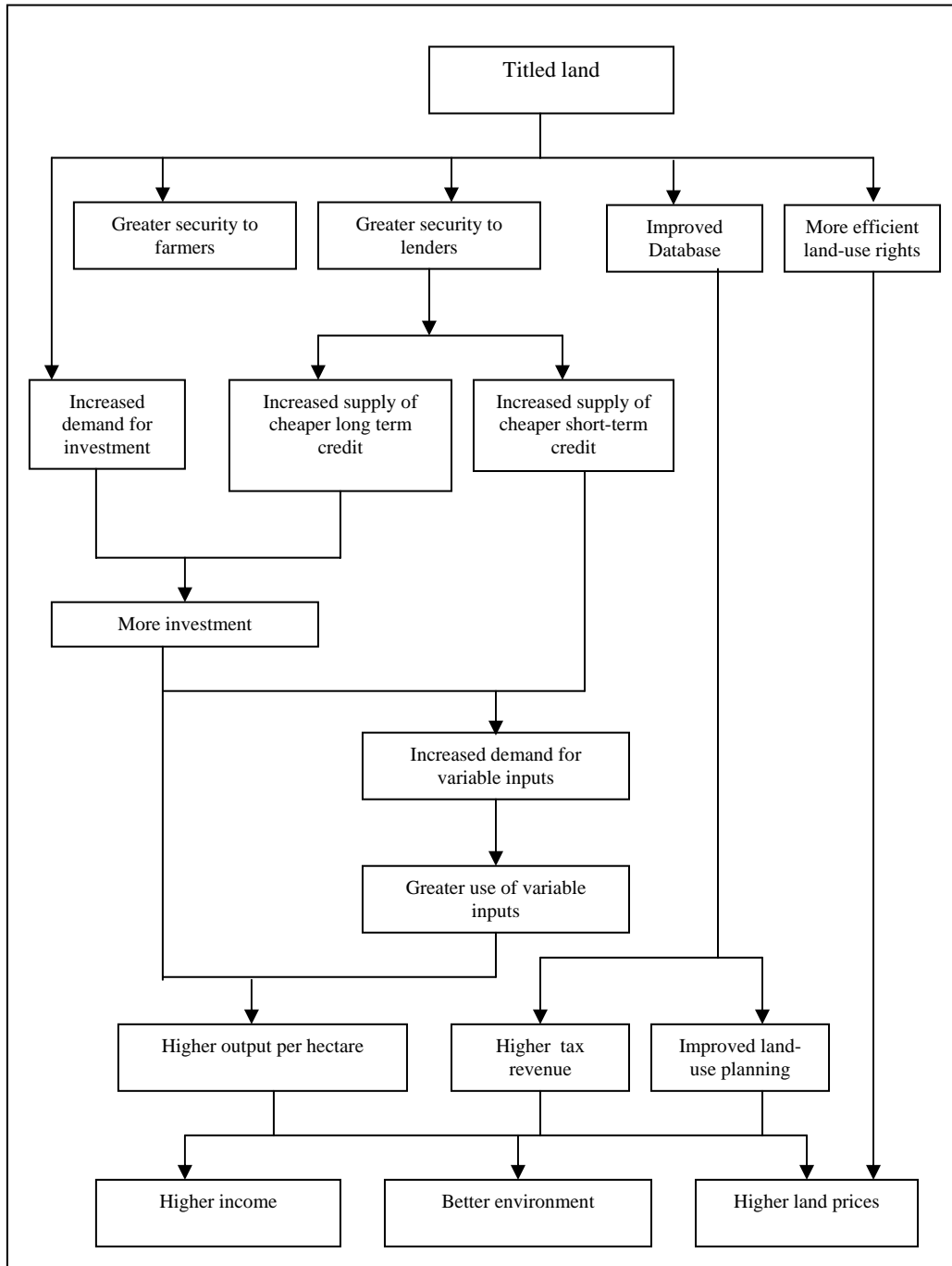
Potential benefits from land titling may be derived through four channels that Pagiola (1999) refers to as effects of security, collateral, land (use-rights) market and land information (See Fig. 1).

The Security Effect. The theory is that rural land titling increases security of tenure thereby removing disincentives to investment in land and protection of the environment. Because landholders have long-term security, they would be willing to invest their labor and capital in land improvements with long gestation periods (farm buildings, irrigation, timber and tree crop planting, terracing, bunding, manuring), resulting in improved agricultural productivity, enhanced environmental protection, increased farmers' income and higher standard of living and welfare.

The Collateral Effect. Titled land can be used as collateral that facilitates access to institutional finance for investment in land and farm operations that will improve land productivity, increase income and enhance environmental protection, reinforcing the benefits mentioned under the security effect. However, this may not materialize unless land values are high and other conditions that are supportive of this effect prevail. Farmers may be unwilling to invest in rain-fed agriculture due to the risk of drought, or if there are no good markets for farm produce that assure reasonable returns to their investment. Bankers may not lend to rural land holders if these risks prevail, land holdings are highly fragmented, land values are low, and in case of default, they cannot dispose the land collateral because there is no vibrant land-use rights market due to social pressures or regulations against sales or restrictions on other types of land rights transfer.

¹ In this regard, the seminal empirical research conducted in the early 1990s under the auspices of the Land Tenure Center, University of Wisconsin and the Agricultural and Natural Resources Department of the World Bank, financed by USAID and the World Bank, respectively (J.W. Bruce and S. Migot-Adholla eds., 1994. The World Bank) and the impressive research of Feder *et al.* (1988) in Thailand, the most successful land titling program in the Third World, provide invaluable insights into the African and East Asian experience.

Fig. 1. Potential benefits from land titling (Adapted from Pagiola 1999)



The Land (use-rights) Market Effect. The theoretical argument for this effect is that land titles provide unequivocal proof of ownership of use-rights, thus providing enhanced security that improves the functioning of the land-use rights market by reducing transaction costs and increasing the investment potential it opens up. Tenure security may remove the fear of farmers being dispossessed by the tenant or by their own community if they rent out their land and/or seek off-farm employment. Furthermore, land titling can foster foreign direct investment (FDI) that needs land for development². All these will facilitate the transfer of land-use rights to more efficient users and hence lead to reallocation of land to its most productive use. However, land titling may not create vibrant land or land-use markets if there are statutory prohibitions or social pressures against alienating land outside the community or inoperable restrictions are placed on the size, manner and duration of renting land.

The Information Effect. Land titling yields considerable database on size of holdings, land use and productivity that are useful for taxation and land-use planning purposes. Titled land information provides a basis for fair and equitable land tax assessment and collection that can reduce corruption and provide an incentive for effective land use. The database is also very useful for land-use planning of particularly peri-urban areas and common pool resources such as pastures, wetlands, forests and steep hill and mountain sides.

3. The Empirical Evidence on the Benefits of Land Titling

The available empirical evidence on the international experience shows that the benefits of land titling are not so straightforward. Situations exist in which land titling has produced the expected benefits mentioned above. There are also situations where land titling resulted in benefits that are insignificant *vis-à-vis* their costs or, worse still, in negative socio-economic impacts.

Impact on Tenure Security. Lack of land titles should not be equated with tenure insecurity. To begin with, land tenure security is a matter of trust among members of the rural community and with their local and national governance. If non-titled informal tenure rights are recognized by these parties and upheld, it may not be necessary to engage in expensive land registration, cadastral surveying and titling. The mere fact of providing title does not increase tenure security, if it is not accompanied by such trust (Roth *et al.* 1989; Okoth-Ogendo 1989).

For centuries, customary land tenure systems in much of the Third World, particularly in Asia and Sub-Saharan Africa, have provided relatively secure land rights without formal titling (Bruce *et al.* 1994). Lack of formal land titles may not be the cause of tenure insecurity. Land grabbing by the elite, disputes with neighbors over boundaries, disputes with relatives over inheritance claims, expropriation of land by government agencies with or without adequate compensation, land redistribution as experienced in China and in Ethiopia under successive governments may be major sources of insecurity whether or

² MIGA and IFC have reported that land insecurity is a major disincentive for DFI in Sub-Saharan Africa (Bachmann 1996).

not one has titles to land. For those who rent land, tenure insecurity may arise from very short lease periods and the uncertainty of being adequately compensated for improvements on land at the expiry of the rental period. For landholders, restrictions on the amount of land they can rent out, on the period of the lease, on the rent obtained and on residency requirements create tenure insecurity. The fear that tenants may lay claims of use right on the land they are renting may also contribute to tenure insecurity. Such risks discourage land users from making long-term investments. In situations where land users are fearful of such threats that instill tenure insecurity among them, land titling will not solve the problem. Rather, removing altogether or reducing these risks may have greater impact.

After studying the effects of customary tenure in Burkina Faso, Matlon (1994) concluded that under conditions of low demographic pressure, low level of technologies and low market orientation, indigenous systems of land tenure for crop production perform adequately. However, there is increasing evidence that customary tenure systems tend to break down under conditions of increased population pressure and commercialization of agricultural production. The success of the 1959 land registration program in the Kigezi district of Uganda is attributed to such development (Roth *et. al.* 1989). In Ghana, Kasanga (2002) notes the breakdown of customary tenure as peri-urban agricultural land is rapidly converted into urban use and as forests under the custody of chiefs are commercially exploited. Chiefs and family heads in Ghana who are custodians of communal and family lands had peacefully coexisted for ages, recognizing and respecting their land boundaries and administering land fairly and equitably. Unfortunately, in numerous cases, such harmonious relationships have turned adversarial and fair land administration became corrupt as soon as real estate developers or agricultural and industrial investors showed up on the scene. Boundary claims erupted among chiefs and family heads and the prolonged time it took to resolve such disputes over land claims discouraged real estate developers and investors.³ Land titling in such situations will yield significant benefits.

Alternatively, land titling can have negative consequences by disrupting customary tenure systems. This is true particularly in pastoral areas, where allocating land-use rights to groups and individuals can introduce rigidities that restrict mobility and land use that worsen pastoralists' vulnerability to drought (Wilson and Thompson 1993; Behnke 1994; Mearns 1997).⁴ Moreover, cadastral surveys and titling have been used as a means to dispossess or deprive pastoralists or seasonal users of land resources that are critical to their system of production and survival (Bruce 1989; Besteman 1990). Titling programs

³ Author's personal experience of living in Ghana for almost eight years.

⁴ As a student at Alemaya in the early 1960s, the author witnessed the Issas from the lowlands around Dire Dawa, Shinelle, and Errer trekking their livestock all the way to the Fafam Plains. They climbed the Dengego Mountains and the hills around Harar town and down the slopes to Babile into the Fafam plains, a distance of some 150 km. This shows that strengthening the community arrangements for sharing resources in times of disaster is critical to the survival of pastoralists rather than introducing rigidities with exclusive rights that may preclude such long distance movement to access grazing resources.

can result in increased insecurity and inequity if the process is politically manipulated in favor of the wealthy and politically powerful. If the process is complex and information about the procedures is scant, accessibility is difficult and costs are high, vulnerable groups like women, orphans, the elderly and the disabled can be and often are disadvantaged. Such negative impacts have occurred with serious social conflicts in Ghana (Goody 1986); Guinea Bissau (Bruce *et al.* 1994); and Mauritania (Park *et al.* 1991). Senegal abolished tenancy in 1964 and substituted the State as the new landlord and issued land titles. The new restrictions on transfer of land-use rights introduced caused resentment and insecurity among landholders, despite the titling of land (Golan 1994). Land titling is often associated with reduction of land disputes. However, in Kenya, Migot-Adholla *et al.* (1994) found that, in fact, most land disputes occurred after land registration and titling.

On the other hand, holders of titled land in an irrigation scheme in Somalia felt more secure and their land had higher value than those with legally unrecognized customary tenure (Roth *et al.* 1994). In Peten, Guatemala, Pagiola (1999) reported that improved security appeared to be a major benefit of titling land. In the highly successful and lauded case of rural land titling in Thailand, Feder *et al.* (1988) report that increasing tenure security was observed, particularly in reducing disputes, but was a relatively minor benefit for Thai farmers who already had fairly secure tenure arrangements under customary law.

Impact on Increased Investment. Does rural land titling via enhanced tenure security result in increased investment and improved productivity? In Thailand, titled land had higher capital stocks of 56-250% and use of labor, draft power, and fertilizers and pesticides increased, respectively by 8-15%, 25-39%, and 23-34% compared to untitled land, resulting in higher output and productivity. Such a high investment impact was facilitated by ready access to institutional finance and the existence of potentially profitable opportunities during the economic boom Thailand was experiencing in the late 1980s and 1990s (Feder *et al.* 1988). Increased investment and higher output and income were also realized on titled land in Costa Rica, Brazil, Ecuador and Paraguay (Feder and Nishio 1998). In China, higher tenure security increased investment (Yao 1996) and farmers applied more manure and labor obtaining higher yields on plots to which they had more securely defined use rights (Jacoby, Li and Rozelle 1998). With this experience, the Chinese government changed its laws in 1999 to strengthen security of land-use rights by increasing rural land lease to 30 years and eliminating land redistribution.

Conversely, in Niger, Gavian (1993) reported that tenure security had little effect on long-term investment because there were simply no opportunities for such investment, although it had a positive effect on manuring. Likewise, Migot-Adholla *et al.* (1994) found that land titling in Kenya did not lead to increased investment and productivity.

Impact on Access to Credit. Titling land can provide bankers with certified evidence of landholdings. In the presence of profitable production enterprises with reduced risk such as irrigated cash crops and an active land-use rights market, bankers can hold titled land as collateral for lending. Farmers with titled land in Thailand obtained as much as 500%

more institutional credit than those with untitled deeds (Feder *et al.* 1988). In a number of countries in Latin America (Bolivia, Chile, Honduras and Paraguay), farmers with title deeds had easier access to bank financing (Munoz 1993). On the other hand, land titling contributed little to increasing access to credit in Guatemala (Pagiola 1999) where agricultural production was less commercialized. Likewise, there was a weak correlation between titled land and credit in Rwanda, Senegal, Uganda, and Somalia in the smallholder sector. This was the case even in Kenya where many farmers have titled lands and a higher degree of commercialization of agriculture had occurred. Institutional credit to the smallholder sector was mostly confined to short-term working capital. (Bruce and Migot-Adholla 1994). For most smallholders in Sub-Saharan Africa, access to institutional finance is very limited due to the risky nature of rain-fed farming, limited opportunities for profitable investment and lack of an active rural land-use rights market. It will be some time before the rural economy and financial system develops to the extent that titled land as collateral can enable farmers' access to institutional credit.

Impact on the Development of the Land (Use-rights) Market. There is empirical evidence in Thailand that, although functioning land-use rights markets existed before land titling, they seemed to be more active in areas where land titling had been implemented and that values of titled lands were higher than untitled lands. Land titling led to higher land values also in the Philippines, Indonesia, Honduras, Brazil and Peru (Feder and Nishio 1998). In developing land-use right markets, it is important to avoid introducing rigidities with the purpose of controlling the transfer of land-use rights. Statutory provisions to prohibit sharecropping and forcing households to fully or partially self-cultivate their holdings and limiting the duration of renting out their lands to very short periods leads to inefficient exploitation of land and stunting the land-use rights market. Those who have labor but no land and those who have land and insufficient labor to work it should be able to exchange their comparative resource endowments to fully exploit them. In Mexico, prohibition of land renting had a far reaching and undesirable impact on equity and efficiency of land use. It left large numbers of landless workers without a chance to access land while at the same time leaving it with owners who did not have the labor to work it (Deininger 2005). Requirement of residency to hold rural land-use rights introduces inefficiency in the land, labor and capital market. It also discourages voluntary consolidation of economically sub-optimal sizes of land through transfers via rent and sharecropping and the migration of such holders of land to seek off-farm employment. Moreover, such controls do not prevent the unauthorized transfer of land-use rights, they merely create conditions for thriving black markets with the negative consequence of creating a fertile ground for rural administration officials to extort rent from the rural population. Dessalegn (2004) reports that rental markets operate in Ethiopia in spite of restrictions on land renting. However, such deals are made under the table with the insecurity they engender because they are not recognized officially.

Deininger (2005) reports that restrictions on land transactions in Sri Lanka reduced land values by 50%. This is a severe undermining of the value of the only asset, besides labor, that poor rural households possess.

Box 1. Conditions for Realizing Benefits of Land Titling

The international experience shows that several benefits that could be derived from land titling can be realized only if they are supported by other enabling conditions, ranging from favorable land sector policies and legal framework to functioning markets that facilitate commercialization of agriculture that improve the value of interest held in land.

Lack of land titles should not be equated with tenure insecurity. For centuries, customary land tenure systems in Asia and Sub-Saharan Africa have provided relatively secure land rights without formal titling. If non-titled informal tenure rights are recognized by communities and their administration, it may not be necessary to engage in expensive land registration, cadastral surveying and titling. These activities cannot be effective in the presence of factors that instill fears of tenure insecurity such as (a) land grabbing by the elite; (b) disputes with neighbors over boundaries; (c) disputes with relatives over inheritance claims; (d) expropriation of land by government agencies without adequate compensation; (e) land redistribution forced on communities by their administrators; (f) restrictions on the amount of land that can be rented out and short periods for land leases and rent controls; and (g) fear that tenants may lay claims of use right on the land they are renting. Land titling alone, without removing such fears or risks in the legal framework and land policy administration, will not establish robust land tenure security that forms the basis for derivation of other benefits.

Land titling cannot result in appreciable increased land investment and productivity in areas where the potential for profitable production of agricultural commodities is very low. Secure land title is a necessary but not a sufficient condition for accessing institutional credit. Institutional lenders will also look for other assurances such as the presence of an active land market that enables easy disposal of the land (land use right) collateral in the event of default and the ability of the land to generate a dependable stream of profitable income to fetch good demand in the land market.

The empirical evidence from Thailand, the Philippines, Indonesia, Honduras, Brazil and Peru shows that, although functioning land-use rights markets existed before land titling, they seemed to be more active in areas where land titling had been implemented and that values of titled lands were higher than untitled lands.

Land is a significant source of revenue for local and national governments. Titling of land provides sound information for fair, transparent and equitable assessment of land taxes that can generate significant fiscal benefits. The comprehensive tiling program in Thailand provided the basis for a substantial increase in the total amount of land revenue collected from US \$300 million in 1984 to \$1.2 billion in 1995 (Pagiola 1999). Information on land use that is generated by land titling is very useful for land-use planning and the management of common resources.

In contrast, in South Africa, there is evidence that land sales and land rent markets have been quite effective in allowing formerly disadvantaged households to gain access to land (Graham and Lyne 2000).

The Information Impact. The comprehensive titling program in Thailand provided the basis for a substantial increase in the total amount of land revenue collected from \$300 million in 1984 to \$1.2 billion in 1995 (Pagiola 1999). It suggests that although revenue from user fees remains limited, a well designed system of land administration and fair and equitable assessment of land taxes can have significant fiscal benefits. Land is a significant source of revenue for local and national governments. Property taxes will assume more significance as globalization reduces the revenues of states from import and export taxes. With increasing decentralization of governance, the establishment of more client oriented services and more transparent spending of tax revenues for the benefit of rural communities, the resistance to pay land tax will rapidly erode.

4. The Cost of Land Titling

Local and central governments incur considerable costs for embarking upon a land titling program, first in establishing and running a land administration infrastructure for the land registry by creating a new agency or restructuring an existing agency. This involves posting competent staff and providing them with office space, office and field equipment and transport facilities as well as further training. In many cases, technical assistance would also be required. Another major cost of rural land titling is the field work required to adjudicate land-use rights, surveying, registration and issuing titles to establish the cadastre. Once this is done the land registry has to be maintained and kept up-to-date which entails further cost. In fact, maintaining and updating the land registry is an essential part of a functioning land administration system. All the three sources of costs have to be considered in setting up and operating the land administration system.

It is easy for land administration systems to be overwhelmed by creating the cadastre and forget the necessity of updating it by registering changes in land-use rights arising from succession, divorce and gifting on an ongoing basis as they occur. Failure to do so would cause the cadastre to deteriorate rapidly and lose its relevance and usefulness. This has happened in Kenya and Uganda (Bruce and Migot-Adholla 1994) and there is a danger of this happening in Ethiopia unless corrective measures are taken immediately. The tendency is to keep postponing updating of the register until the first land titling exercise is completed. This may well take a lot of time, causing the cadastre to fall behind (Mitiku Haile *et al.* 2005; Berhanu and Fayera 2005). If provisions are not made to keep the cadastral system up-to-date, there is no justification for its establishment in the first place (Williamson 2000).

5. Comparison of Benefits and Costs of Rural Land Titling

From the foregoing analysis, it is important to weigh the expected benefits and costs of rural land titling programs in considering the scope of their design and implementation. While it may be easy to identify sources of the expected costs and quantify them, it is difficult to quantify the expected benefits, particularly when one is not certain *a priori* of

the emergence of the enabling environment (i.e., opportunities to invest in agricultural production; access to credit and thriving land rights markets). Economists have used an indirect method of assessing the quantum of net benefits that would justify the cost that would be incurred in a titling program. While the benefits of land titling would accrue in the future as a stream of annual net benefits, the costs have to be incurred upfront during program implementation. The present value of future annual net benefits discounted by the prevailing rate of interest (discount rate) can indicate the increase in net benefits that would justify the cost of titling; i.e.,

$$PV = \sum_{t=1}^{\infty} B/(1+r)^t$$

Where PV is the present value

B is the stream of annual net benefits, and

r is the discount rate

t is the time period in years

In Thailand, where the cost of titling was \$39 per hectare, and the discount rate 10%, the net annual benefit derived that would justify the cost can be calculated by dividing \$39 by the discount rate. In other words, each hectare of land that is titled will have to yield an annual net income of \$4 into the distant future in order to justify the cost of titling it. This also shows the minimum annual tax that the government can put on land to recoup its investment fully. In practice, this is hardly the case as there are intangible social benefits and indirect economic benefits that would accrue to society that the private sector should not bear all the costs of land titling. Besides, setting high user fees or taxes on the initial land registration and titling discourages farmers from participating in the exercise willingly. Since second generation transactions stimulated by the development of markets for land-use rights and the sale of land-use right information (e.g., verification of titles or use rights, land-use information) can generate substantial revenue as observed in Thailand, governments usually set the initial fees for land titling at a minimal level to encourage land titling.

In Thailand, where all the enabling conditions for benefits of land titling to manifest themselves, an ex-post economic rate of return of 34% was obtained, which is very high by any standards (Pagiola 1999). A USAID-funded rural land titling project in Honduras yielded a 17% economic rate of return. This shows that the benefits of rural land administration systems with land titling programs can far outweigh the costs. However, in situations where the socio-economic environment is not so conducive for high production and investment opportunities, where there are limited access to rural finance, product and land-use rights markets, policy makers should weigh carefully and minimize the cost elements in designing the nature and scope of land administration programs and land titling in order to make it sustainable in the long-term. Reasonable users' fee should be set for second-generation transactions in order to cover maintenance of the cadastre and to recover in whole or in part the initial investment of land titling.

6. The Ethiopian Case

Let us now examine the costs and benefits of rural land titling in Ethiopia, beginning with the costs involved first. Except in the two weredas of Dessie Zuria and Gozamin⁵, first-level registration and certification of land holdings in the Amhara Region was conducted without geo-referencing and measurements of the perimeter of the plot. The traditional estimate of the plot size in *timad*⁶ was recorded. It is planning to conduct second level certification using actual measurement of the perimeter of a plot and geo-referencing it using GPS or total station equipment. The GPS method of surveying is not as accurate as the total station method. Indications are that it could be accurate within three meters. While such error is positional, errors involved in area estimation vary with parcel size. Considering the enormous cost differential with more precise measurement methods, such positional GPS errors can be tolerable for purposes of rural land holdings.

Costs of Rural Land Surveying.

According to field tests conducted by the Ethiopian Mapping Agency, the preliminary direct cost of demarcation of boundaries using five levels of technologies is shown in table 1.

Table 1. Comparison of cost of rural cadastral surveying technologies

No.	Method	Accuracy	Cost in Birr/ha* **	Application
1.	Rope only	---	13.00	Most rural areas
2.	Rope & HH GPS centroid reading	---	15.70	Most rural areas
3.	Hand-Held (HH) GPS corners reading	5 -15 m	80.40	Most rural areas
4.	Compass/Tape*		291.80	Inappropriate for all areas
5.	Total Station	0-1 m	117.41	High potential areas: - peri-urban, irrigation - resettlement, compensation; - commercial farming - investment purposes, etc.

⁵ The Amhara Region Environmental Protection, Land Administration and Use Authority has used the total station technology for its cadastral surveying in these weredas with the support of the Swedish International Development Agency.

⁶ One *timad* is the area of land a pair of oxen can plow in a day. It is used as the traditional area measurement in rural Ethiopia. On average, one *timad* is equivalent to 0.25 hectare.

6.	IKONS high resolution satellite data**	---	229.90	Applicable for all areas if cost contained
7.	DGPS (not in EMA study)*	0-1 m		High potential areas as in Total Station

Source: ELTAP 2006 (under preparation). Data compiled from the Ethiopian Mapping Agency testing of various survey technologies.

Note: * Determined to be inappropriate given time, cost and skills required.

** Cost can be brought down substantially if data (maps) can be ordered for large areas.

*** Cost per hectare includes cost of processing in the office (Birr 1.48/ha).

The costs shown in table 1 are the one-shot direct costs of land titling. They do not include the cost of the certificate and the annual maintenance cost once the cadastre is established. As can be seen, the direct cost of land titling escalates quickly as one moves up the technology scale. The cost of using handheld GPS with corners reading that produces parcel area is six times that of the traditional rope-only method, i.e., nine times more, using total station costs. Table 2 shows the enormous cost and time differentials of titling all rural land holdings (about 4.3 million ha) in the Amhara region with the total station method of surveying. In terms of time, using handheld GPS with corners reading and total station require 20% and 60% more, respectively, compared to the tape/rope only method.

Assuming a discount rate of 10% p.a., the implication of the costs is that the additional benefit one needs to get per year to justify the cost of titling by the traditional rope only method is Birr 1.30 per hectare (US\$0.15), while that of using the GPS and total station are Birr 8.04 (US\$0.93) and Birr 11.74 (US\$1.35), respectively. Policy makers should ask themselves whether land tiling using high precision and very expensive technologies of surveying are justifiable for rural land titling.

Table 2. Comparison of cost of titling using different rural cadastral surveying technologies (Amhara Region)

Type of measurement	Cost/ha		Cost of titling whole Region			Additional annual net benefits per ha required to justify cost		Time required	
	Birr	US\$	Birr million	US\$ million	Cost Ratio	Birr	US\$	In 8 hr. man-days	Time Ratio
Rope only	13.00	1.50	55.90	6.45	1.0	1.30	0.15	250,833	1.0
Hand-Held GPS with corners reading	80.40	9.27	345.72	39.88	6.2	8.04	0.93	304,583	1.2
Total Station	117.41	13.54	504.86	58.23	9.0	11.74	1.35	394,167	1.6

Note: Calculated by the author from data source of table 1.

Benefits of Land Titling

On the benefit side, one should ask which types of benefits would accrue from rural land titling in Ethiopia. Let us look at the benefits that can be derived from the land information, land-use rights market, collateral and security effects of land titling in the Ethiopian case.

The Information Effect. Although the use of the cadastre for tax purposes and spatial information for land-use planning is not widely practiced in Ethiopia, one can assume that the usefulness of such information would grow with development and would be invaluable in the future.

The Land-use Rights Market Effect. The current federal and regional laws and regulations circumscribe land-use rights so much and create such rigidities that the benefits of land titling to promote the development of land-use rights market are very limited. Land use right holders are restricted on the amount of land and the period for which they can give out their land for rent. Furthermore, there is a residency requirement stipulating that if land use right holders reside away from the area where the plot is located for more than 2 years, they will lose their rights to use the land. Such restrictions not only limit the amount of use rights placed on the open market, but also encourage a black market with distorting effects. The full benefits of land titling in creating a dynamic land-use market cannot be realized in the presence of such restrictions (Dessalegn 2004; Tesfaye 2003).

The Collateral Effect. Because land-use rights cannot be mortgaged in Ethiopia by law, the opportunities for profitable investment in the rural areas are very few and the rural financial system is underdeveloped, one can conclude that there will be virtually no benefit to be gained from the collateral effect of rural land titling in Ethiopia.

The Security Effect. The other sources of benefits from land titling that are discussed above yield little benefit in the case of Ethiopia. The major benefits and justification for land registration and titling, therefore, have to be realized from the security effect alone. Even here, despite the massive registration of rural land-use rights and issuing of millions of land certificates in the Amhara region, there is still considerable tenure insecurity because the fear of further redistribution of land like that of 1997 will occur at some point in the future lingers in the minds of the peasantry (Dessalegn 2004; Berhanu and Fayera 2005; Tesfaye 2003). Enunciating unequivocally in the regional proclamations that there will be no further land redistribution and conducting a public awareness campaign informing land holders of this policy and safeguarding it rigorously may yield immediate impact and could be more cost effective than land titling. Furthermore, the guarantees provided in the federal and regional proclamations that every individual over the age of 18 years will have access to rural land if he/she desires to engage in an agricultural pursuit engenders tenure insecurity in communities whose lands are fully occupied and used because this can be done only through subdivision and redistribution of land. Similarly, the inclusion, in regional land-use legislations, of threats to dispossess land-use rights of individuals in case of mismanagement without defining

precisely what actions or omissions constitute mismanagement engender tenure insecurity (Berhanu and Fayera 2005).

The above discussion shows that a number of statutory and regulatory rigidities in land administration and use policies need to be re-examined dispassionately in order to enhance the benefits of land registration and titling. The issue is not whether rural land should be owned privately by farmers or by the state. Arguments have been advanced that the land-use rights market can only thrive to the fullest if land is freehold under private ownership. This is not necessarily the case. If individuals have long-term leases that are secure and renewable upon expiration and are transferable through inheritance, leasing (sub-leasing) and mortgaging their use rights, these land rights may not be materially different from those enjoyed under private ownership.

7. Conclusions and Policy Implications

Rural land titling can be very useful because it is capable of generating significant amount of multiple benefits: (a) making rural land holdings secure for increased investment to enhance productivity and environmental protection; (b) facilitating access to institutional finance; (c) promoting the market for land-use rights; and (d) generating information for taxation and land-use planning purposes. However, such benefits will not accrue automatically as a result of a land titling program. They can be derived only if the socio-economic policies creating the environment in which land titling takes place are made conducive and add value to it. It can be highly beneficial in areas where land values are rising due to high population pressures (as in peri-urban areas) or where commercialization of agricultural production is occurring due to intensive use of land (e.g., irrigation, existing or new cash crops with high market demand). These situations create new demands for land and credit for financing land use right purchase or rent and development. Land-use policies should, therefore be carefully examined systematically and bottlenecks that impede the benefits of land titling from accruing should be reformed. Furthermore, in rural Ethiopia, where the level of economic development is not strong enough to allow the full benefits of land titling to accrue, policy makers should opt for simplified land registration procedures and inexpensive land surveying methods.

For most rural land holdings that are remote and where their values are low, the traditional method of land registration and titling without any measurements should be adequate. Here, the main sources of tenure insecurity are redistribution and boundary disputes. Unequivocal announcements by regional governments that there will be no further land redistribution and qualifying the provision that persons aged 18 years or older are entitled to a piece of land for their livelihood by excluding areas where land is fully utilized can increase tenure security much more effectively. The development and encouragement of using decentralized dispute resolution mechanisms to solve boundary conflicts without resorting to the court system and defining precisely what is meant by land mismanagement will also add to improved tenure security.

Box 2. Issues to be Re-examined for Enhancing Rural Land Tenure Security in Ethiopia

The following sums up the issues that need reexamination for enhancing rural land tenure security in the Ethiopian context:

1. ***Ban on Forced Redistribution of Land.*** The memory of redistribution of land in the recent past is one of the great sources of land tenure insecurity and anxiety among the rural population. Unequivocal enunciation in the regional proclamations that there will be no further forced redistribution of land and publicizing this widely will enhance tenure security much more effectively than land certification alone.
2. ***Qualifying the Right of Access to Land.*** The provision in the land laws that anyone aged 18 years and above has a right to get rural land freely can be applied only in sparsely populated areas. It is not possible to exercise this right in areas that are fully settled and utilized without redistribution of land. The provision should therefore be qualified to apply only in areas where unutilized land is available.
3. ***Creating a Fair Valuation and Compensation Regime for Land Taking.*** The fear of unfair valuation of land and lengthy and inadequate compensation for land taken under the powers of eminent domain and for private investors can create a high degree of tenure insecurity and anxiety among rural landholders. Addressing such fear in valuation and compensation laws and, more importantly, in applying these laws in a fair and equitable manner will be essential for tenure security.
4. ***Lifting Restrictions on Renting of Land.*** Restricting the amount of land to rent out affects adversely the disadvantaged such as old widowers and orphans who are not physically able to work their land. Furthermore, it limits the efficient reallocation of land resources from those who want to earn their livelihood from off-farm employment opportunities and still retain their land resources as a safety net in case the off-farm employment sours. Allowing longer term leases (e.g., 30-99 yrs) also encourages renters to engage in long-term investment and development. Lifting and/or easing such restrictions facilitates the creation of land use-right markets that assign economic value to and thus convert landholdings into valuable assets.
5. ***Resolution of Land Disputes via Community Arbitration.*** Resolution of land disputes through the formal courts is a lengthy and expensive process that should be avoided to the extent possible. Referring such conflicts to community elders for arbitration is by far faster and more effective. Land laws and regulations should therefore recognize and empower such modes of land dispute arbitration.

Box 2. Cont'd...

6. **Clear Provisions on Obligations of Landholders in Land Use Regulations.** The provisions on obligations of landholders to use land properly are couched in very vague terms such as “improper use of land” that lend themselves to administrative discretions that can lead to abuse of power and harassment of farmers. These terms should be clearly defined such that landholders and other stakeholders understand the terms and discharge their obligations rightly.
7. **Securing Pastoral Land-Use Rights.** Current rural land legislation seems to treat pastoral lands synonymously with settled agricultural lands without seeking different instruments and provisions to secure pastoral land use rights. Securing pastoral land use rights requires serious investigation on the traditional modes of land use security and the need for fresh approaches that can accommodate new socio-economic developments.
8. **Creating Public Awareness.** Rural landholders cannot exercise their rights nor could they discharge their obligations if they do not have adequate knowledge of these. Similarly, the judiciary and land administrators cannot uphold land laws and regulations and enforce them unless they are familiar with these. Other stakeholders such as investors, land renters, financial institutions and utility companies need to know land-use laws and regulations as well to properly discharge their responsibilities. To this end, concerted efforts need to be taken by regional states to create adequate public awareness on their land administration, land use, land valuation and compensation laws and regulations, using various media and fora.
9. **Institutional Capacity Building.** Enacting good land laws is not enough to result in fair and efficient land administration. One needs to establish a simple, workable and sustainable land administration system that is updated as changes in land rights take place on the ground. Adequate number and well trained staff need to be deployed to administer the system. They need to be provided with the necessary office and field equipment to carry out their tasks efficiently. There is need for a long-term vision of creating such a system. Significant political will and investment in human and logistic capacity is required to create an efficient, affordable and sustainable land use administration at the wereda and kebele levels.

Expensive land registration and titling using high-end surveying technologies should be reserved for areas where in the next 15-20 years, there will be rising land values due to population pressure (peri-urban areas), commercialization of agriculture (irrigated lands or introduction of high value enterprises like flowers, sesame, cotton, fruits, dairy, etc.) and resettlement areas. User fees, however minimal, should be introduced so that people value the certificates and the security they afford them. Perhaps, second level registrations could be charged higher fees to partially offset the initial investment in land titling and recover the costs of maintaining the cadastre and make it sustainable over the long-term.

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