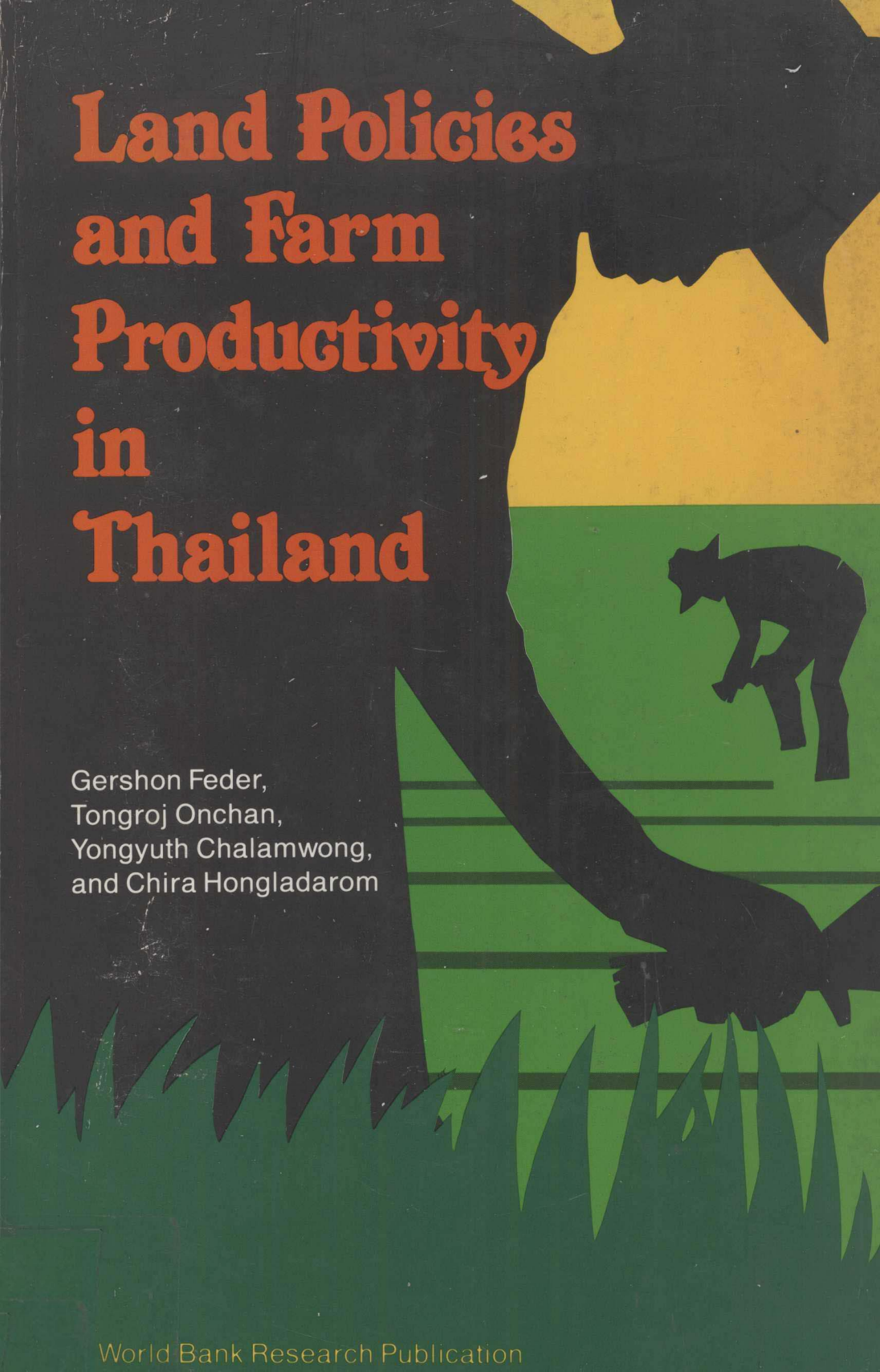


# Land Policies and Farm Productivity in Thailand

The background of the cover features a stylized illustration. On the left, a large, dark silhouette of a tree trunk and its branches extends upwards and across the middle. To the right of the tree, a person wearing a hat is bent over, working in a green field. The sky is a solid yellow color, and the foreground is filled with dark green, pointed shapes representing grass or reeds.

Gershon Feder,  
Tongroj Onchan,  
Yongyuth Chalamwong,  
and Chira Hongladarom

# Land Policies and Farm Productivity in Thailand

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CIP

In legislation, the most important thing is security. If no direct laws are made respecting subsistence, this object will be neglected by no one. But if there are no laws regarding security, it will be useless to have made laws respecting subsistence—command cultivation, you will have done nothing; but secure to the cultivator the fruits of his labor, and you most probably have done enough.

*Jeremy Bentham (1748–1832)*

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# Preface

This study originated in response to an operational problem faced by World Bank economists in 1983 in connection with an appraisal of a land titling project in Thailand. As is true of most Bank projects, the possibility of conducting a quantitative cost-benefit analysis was considered. Although the project costs were readily available, the quantitative assessment of expected benefits was less straightforward. A review of the literature available at the time revealed that, although the benefits of secure ownership had been discussed conceptually by many scholars, a rigorous quantification had not been attempted. There were therefore no reliable parameters to refer to in addressing the problem at hand.

Many of our colleagues at the Bank recognized the value of clarifying and quantifying the economic effects of secure ownership. It was apparent, however, that no secondary data sources existed which could be used for that purpose. Primary data would thus need to be collected at considerable cost. A request for research funds was approved by the Bank early in 1984. Thai officials were also interested in the study, and clearance was obtained without any difficulty. The main fieldwork took place during the latter part of 1984 and early in 1985, followed by an analytical phase in Thailand and in Washington.

The research underlying this report and the preparation of the report benefited from the contributions and assistance provided by many persons to whom we owe a debt of gratitude.

Fieldwork was carefully organized and supervised by Jeerakiat Apibunyopas of Kasetsart University and Veera Pak-Uthai of Khon-Kaen University. Dedicated research assistance was provided in Thailand by Prapol Patamakitsakun, Anongsiri Chaprapan, and Piangpen Pak-Uthai of the Center for Applied Economics Research at Kasetsart University, and Paitoon Sucharitchan and Viroj Na Ranong at the Human Resources Institute of Thammasat University. Boonsri Prasertwaree assisted in the translation of Thai documents.

In Washington, Apparao Katikineni of the World Bank handled efficiently and expertly the computer-related analytical work throughout the study. Tejaswi Raparla contributed to the analysis of the credit market.

Many colleagues offered helpful suggestions and comments on various parts of the analysis. Among them are Peter Angus-Leppan, Thomas

Daves, David Feeny, Quill Hermans, Lynn Holstein, Emmanuel Jimenez, Michael Lav, Johannes Linn, John Lindt, Gregory McColl, Daniel McFadden, Charles Mehl, Jessica Mott, Jerry Murray, Ngozi Okonjo-Iweala, Theodore Panayotou, William Panton, James Roumasset, Enrique Rueda-Sabater, G. Edward Schuh, and Ammar Siamwalla. Participants in seminars at Kasetsart University, the University of Maryland, the University of Minnesota, the University of Wisconsin-Madison, and the World Bank and in an interim seminar in Bangkok provided useful comments as well.

Rhonda Zaharna patiently and expertly typed numerous drafts and provided valuable editorial assistance. We also thank Consuelo Tan, who helped with the typing. David Howell-Jones edited the manuscript and significantly improved the presentation.

Finally, we would like to thank the hundreds of Thai farmers who generously gave of their time to provide us with the information on which this study is based.

Parts of this book have appeared, in somewhat different form, in journal articles written by the authors. These include "Ownership Security and Farm Investment in Rural Thailand," *American Journal of Agricultural Economics* 69:2 (May 1987); "Land Ownership Security and Farm Productivity: Evidence from Thailand," *Journal of Development Studies* 24:1 (October 1987); "Land Registration and Titling from an Economist's Perspective," *Survey Review* 29:226 (October 1987); and "Land Policies and Farm Performance in Thailand's Forest Reserve Areas," *Economic Development and Cultural Change* 36:3 (April 1988) © 1988 by The University of Chicago.

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Land Policies  
and Farm Productivity  
in Thailand



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# Introduction

The evolution of individual land rights and mechanisms to enforce such rights in the rural setting is closely related to increases in population density and to advances in agricultural technology. As land becomes scarce, societies that may have practiced shifting cultivation or long fallow periods to maintain the fertility of their land must adopt fertility-restoring technologies that make possible continuous exploitation of the land. Because such technologies require investment of both capital and effort, the cultivator must have an investment incentive. For the cultivator, this incentive is enhanced when the right to cultivate continuously and the ability to transfer a given tract of land by will or by sale are secured not only by social custom but also by an effective state-enforced legal system. Thus, population growth and agricultural progress are typically accompanied by mechanisms to enforce land rights. An almost universal mechanism is a unified system of land registration and documentation whereby the state provides the landowner with proof that a given well-defined tract of land does indeed belong to him. If the registration system is effective, and if the state can protect the owner from encroachment or false challenges to his ownership, such a mechanism does indeed enhance security.

With agricultural development there is an almost universal emergence of rural credit markets, both formal and informal. Credit transactions often require explicit or implicit collateral. Land is an attractive collateral asset provided that the farmer can assure the lender that he has the ability to transfer the land. Again, a unified land-registration system is a mechanism that would provide the lender with such an assurance.

It follows that the institution of land registration and titling can have significant economic consequences in the agricultural sector. Although this proposition is generally recognized by economists and development officials, a paucity of rigorous quantitative research on the topic hampers the design and evaluation of policies. Alternative policies and investments are better assessed when some knowledge of the magnitude of their effects is available to policymakers.

This issue is acute in a country such as Thailand, where the cultivated area has rapidly expanded during the past three decades. Much of this expansion took place through the clearing of forest areas and without

proper documentation or formalization of farmers' land rights. Today perhaps a million farm households are operating on a fifth of the designated forest reserve areas owned by the state.

There is a need to know the extent to which the lack of legal ownership security affects the performance of farmers, for if the effect is significant, it merits the attention of policymakers. Further, to design efficient policies warrants information on the exact nature of the constraints imposed by lack of ownership security. Do usufruct certificates or legal long-term leases for squatters on public lands, for example, significantly improve their performance? Do titling programs or other programs that address ownership security need complementary policies in other areas, such as the rural credit system? Are there differences in the potential effects in different geographical areas? Should such differences dictate an ordering in the allocation of public funds for enhancing ownership security? The available literature does not provide relevant information for Thai policymakers. In fact, most developing countries have little quantitative information to provide a reliable basis for comparative assessment of the dimensions and implications of insecurity of ownership.

In this study data from Thailand have been used for a rigorous analysis of several aspects of landownership security. The present Thai system of land rights simplified the study considerably, allowing for an essentially cross-sectional comparison of farmers with varying degrees of ownership security. The study provides both qualitative and quantitative information on the effects of ownership security. While the quantitative results are specific to Thailand, they provide some frame of reference for effects that can be anticipated elsewhere. In addition, the methodology of the study is replicable, and it is hoped that similar studies conducted in other countries will help to broaden the knowledge on this important issue.

The study is organized as follows: the next chapter presents a conceptual model and a review of the literature. It will be followed by separate discussions of the evolution of land rights in Thailand, the methodology of the study and the nature of the data, and the credit market. A formal model of land acquisition and ownership security that follows underlies the empirical discussions to be presented in subsequent chapters on land values, capital formation and land improvements, and the use of inputs and farm productivity. The effects of usufruct certificates will then be assessed, to be followed by an analysis of the benefits and costs of land titling. Policy implications and conclusions will be presented in the last chapter.

Unless a specific source is cited for the tables and figures presented here, all data are from the survey of farmers undertaken by the authors in four provinces in Thailand.

---

## A Conceptual Framework and Review of the Literature

The most obvious effect of insecurity of landownership is increased uncertainty whether the farmer will be able to benefit from the investments that he makes—in equipment, structures, irrigation infrastructure, or land conservation measures—to retain or improve the productive capacity of his farm. Investment would be expected to be related negatively to uncertainty of tenure: with increased uncertainty, investment incentives are reduced and current consumption is preferred. With lower capital accumulation, the demand for variable inputs complementary to capital is reduced. If acquisition of machinery allows fast preparation of land, for instance, then a greater area can be double-cropped and the demand for variable inputs such as labor and fertilizers will increase.

In the early stages of agricultural development, *de facto* ownership may not imply substantial uncertainty about a farmer's continued use of the land. Uncertainty tends to increase, however, as commercialization increases and as new technology increases the income-producing potential of the land. There is ample evidence that the incidence of land disputes and land grabbing—and consequently insecurity of tenure—increases as the potential return on land increases (Feeny 1982, 95; Tomosugi 1980; Tanabe 1978; Clark 1969; Baron 1978, 27; Kemp 1981, 15). Development also increases land transactions—sales and rentals—as considerations of efficiency motivate adjustment in the land input to make it compatible with other endowments, such as farming skills. But as the frequency of transactions between individuals who are not closely related increases, uncertainty over the entitlement of an owner to transfer land rights becomes a relevant factor. Individuals are therefore induced to spend resources on reducing uncertainty, and this, in turn, affects the scope and the price of land transactions. One way to reduce or eliminate ownership uncertainty is to provide landowners with titles backed by a legal system capable of enforcing those property rights.

Many have highlighted the function of a secure legal title in facilitating a farmer's access to cheaper, longer-term, and more extensive institutional

credit. Since lack of clear legal title prevents the mortgaging of land, a secure title may indeed provide easier access to credit, especially credit from lenders who do not have personal or detailed information on the borrower. As Binswanger and Rosenzweig (1986) noted, land has several attributes that make it a desirable collateral asset. A land title is often a mandatory precondition for commercial or official bank loans (Wai 1957; Dorner and Saliba 1981, 23; Sacay 1973; Aku 1986, 24; Collier 1983, 163). On the basis of a farm survey in three Thai provinces, Meyer and Chalamwong (1983) reported that farmers complained of collateral requirements for obtaining credit. Farmers without clear titles or with small farms were significantly affected.

In the informal credit market, collateral is less significant. The lenders usually base their decisions on personal familiarity with the borrower, and they can enforce repayment through social pressures and other means which are not available to formal lenders. Thus, farmers without secure ownership face fewer disadvantages in the informal credit market than in the formal market. Informal credit is typically much more expensive than formal credit, however, and is confined for the most part to relatively small short-term loans.

From the lender's point of view, farmers without secure legal titles are, other things being equal, riskier clients; interest rates for these clients therefore reflect a higher risk premium. Indeed, in some areas of India, lenders charged 8 to 16 percent on secured loans as against 18 to 37.5 percent on unsecured loans (Panandikar 1956, 75). As explained by Stiglitz and Weiss (1981), however, interest rates cannot be allowed to rise to equate supply and demand because of asymmetric information and adverse selection. Thus credit rationing is optimal.

Farmers without secure landownership therefore face constraints in gaining access to low-cost, long-term and short-term credit. Compared to situations where there is a larger supply of relatively inexpensive credit, constrained or more expensive credit tends to yield low ratios of factors to land (David and Meyer 1980; Rosegrant and Herdt 1981). Since both variable inputs and capital are less among farmers without secure ownership, their output is expected to be lower than if they did have secure ownership.

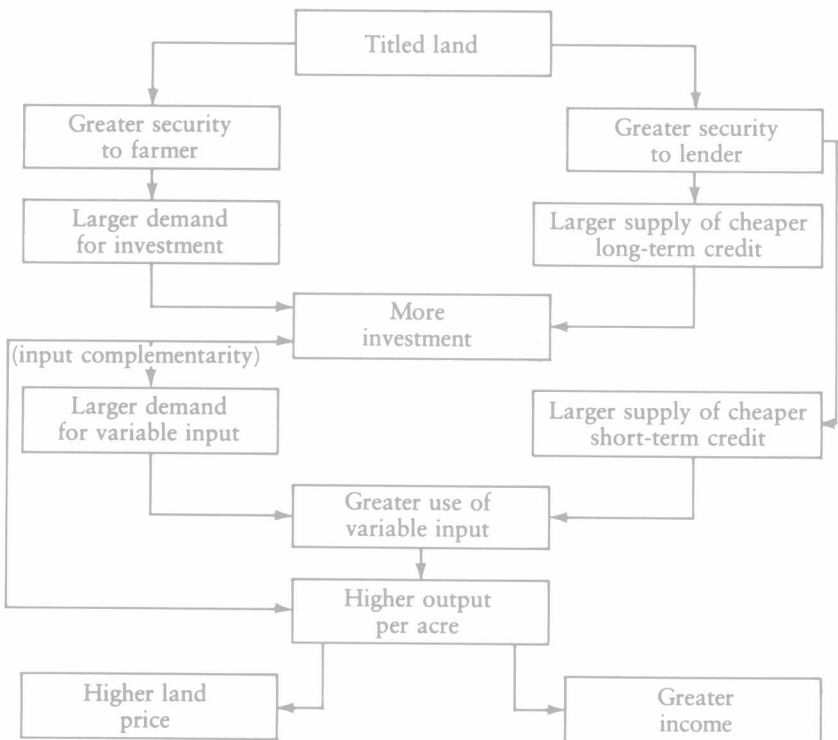
Losses in efficiency from constrained credit are also likely when the optimal mix of farm activities is affected. In general, credit constraints on working capital may yield a shift to crops and activities that require smaller outlays of cash. Constraints on long-term credit may bar a farmer from purchasing farm machinery, for example, and cause a shift to less capital-intensive crops. Similarly, lack of mechanized power may also diminish a farmer's potential for double-cropping in areas where speedy land preparation between seasons is essential.

From the foregoing discussion it is hypothesized that insecurity of own-

ership causes lower farm productivity because investment incentives are reduced and access to credit is limited (Dorner and Saliba 1981). Some commentators regard insecurity of ownership an important source of low productivity in agriculture (Mosher 1966). This conclusion implies further that the market value of land that is not securely owned—untitled land, for example—will be less than that of an identical tract of land that is securely owned. This implication follows from the fact that the value of land reflects the stream of net incomes that it generates over a long period. Since land that is securely owned has greater productivity and is a less risky asset, it has a higher market value.

The causal chain outlined in the discussion above is illustrated in figure 1 and will be rigorously developed in chapter 6. Empirical evidence to substantiate this conceptual framework was scarce at the time this study was initiated.

**Figure 1. Security of Landownership and Farm Productivity:  
A Conceptual Framework**



Quantitative evidence on the link between secure legal ownership and the use of credit is limited. A study in Costa Rica by Seligson (1982) showed that before the titling program began, 18 percent of the farmers sampled had obtained credit. After the program, 31.7 percent had obtained credit. The availability of credit improved mainly for owners of large farms; the average size farm of those who obtained credit after titling was 19 hectares and 7.3 hectares of those who did not. These findings reflect not only changes in supply but also shifts in demand. Similarly, recent data on a titling program in Jamaica (IDB 1986) indicate that almost half the recipients of titles increased their borrowing over its preproject level.

In a study of land transactions in the Central Plain of Thailand, Stifel (1976) observed widespread use of title certificates as security for non-institutional loans. These loans thus involve land collateral that is neither registered in the land office nor recognized by law. The "unregistered mortgages" are prevalent for small or short-term loans. In these transactions, creditors have no legal rights to the land. Since the creditors physically possess the title deed, however, they can prevent farmers from legally transferring ownership to other parties. This practice also restricts a farmer's access to additional credit from other lenders and therefore provides the lender with some protection against the possibility of the borrower's incurring excessive debt. As an indication of how widespread this practice is, Stifel (1976) found in one village in the highly developed Central Plain that the number of these unregistered mortgages was three times as great as the number of registered mortgages.

The effects of secured ownership on both the availability of credit and investment incentives imply that farmers without secure ownership will have fewer investments and land improvements, lesser use of variable inputs, and lower productivity per unit of land. Empirical evidence to confirm these propositions is scant. In a study of the economic implications of land titling in Costa Rica (Salas and others 1970) positive correlations—in the range of 0.40 to 0.67—between the degree of ownership security and farm investment per unit of land were found. Similarly, data from three Brazilian states in 1978 reviewed by Villamizar (1984) revealed that capital per hectare is substantially greater on titled land than on undocumented or encroached land. The analysis was made for groups of farms of various sizes, and within most groups the proposition held.

Several studies have been focused on the effect of ownership security on output or income. In the earliest study, conducted in Costa Rica (Salas and others 1970), a positive correlation of 0.53 between income per unit of land and security of ownership was found in one province. In another province, however, the correlation was negative, although quite weak (−0.07). From a study of the Brazilian state of Maranhão (cited in IDB



1986, 186–89) it was concluded that granting full legal ownership to squatters and undocumented occupiers would increase their income 200 percent. In the same report recent data from Ecuador are quoted to indicate that income levels of titled farmers were twice those of untitled farmers, when the amount of land owned was held constant (IDB 1986, 187).

As mentioned earlier, constrained credit may produce losses in efficiency when the optimal mix of farm activities is affected. In Costa Rica, for example, it has been reported that it is easier to obtain credit using cattle as collateral than it is using land to which the farmer does not possess a full formal title. In this example, as a consequence of the credit constraints, farmers without title tended to shift from crop production to raising cattle although the land may have been better suited to growing rice and beans (Dorner and Saliba 1981, 23).

Recent survey results from Jamaica indicate that the incidence of permanent and semipermanent crops was substantially higher among titled farmers than among untitled farmers—almost twice as high. Indeed, a third of the recipients of titles under a government program reported that following the change in their status they planted more permanent and semipermanent crops than they did before the initiation of the project (IDB 1986, 189).

There are no studies in which the effects of security of ownership on agricultural land values are addressed. A recent study of the economic value of ownership security in the setting of urban housing (Jimenez 1984), however, offers a plausible approach that could be replicated in a rural setting. A hedonic price equation was estimated for the value—that is, the sale price—of housing units on fully titled lots as a function of various attributes of the dwellings: quality of structure, access to services, average neighborhood income, and so on. The parameters were then used to predict the value of dwellings with given sets of attributes that are located in urban squatter settlements. On an average, the imputed value is higher than the actual value observed in the squatter settlements, with the implication that the difference represents the market's valuation of tenure security.

Although most of the evidence cited here is compatible with the theoretical discussion, the studies pertaining to the effects of insecurity of landownership in the rural sector are not rigorous in their analytical approach. The influence of various intervening variables that can be correlated with security of ownership is not controlled for, and thus, while the statistical associations are compatible with the theory, they cannot be taken to imply causality. In the present study, both a quasi-experimental design for sample data and appropriate econometric approaches are employed to estimate the effect of security of ownership on economic performance.