

“Market-friendly” Reforms and the Operation of Credit and Land Markets in Central America

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Abstract: This paper provides descriptive evidence of the impacts of market-oriented reforms on the operation of land markets in Honduras and Nicaragua. Both countries implemented reform packages in the early 1990's, which were designed to enhance agricultural efficiency and the land access of less well-off households via the activation of land markets. We estimate non-parametric regressions of: i) Land owned versus land operated and ii) Land owned before and after the reforms to evaluate the role of land rental and land sales markets in facilitating the transfer of land to more efficient farmers. We also explore some of the potential interactions between land market and credit market outcomes. We find that policy reforms have not led to the types of large-scale market based land transfers that were anticipated.

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1. INTRODUCTION

The ever-evolving path of agrarian reform in Latin America has taken a dramatic turn. The original reforms—stretching from the Cardenas’ redistribution in 1930’s Mexico through the Sandinista agrarian reform in 1980’s Nicaragua—operated from a structuralist perspective and sought state-mandated redistribution of land ownership. In contrast, the new reforms operate from a liberal perspective and rely on market-mediated redistribution of land and land access to achieve the productivity and income distribution desiderata of land reform. Using newly collected panel data from Honduras and Nicaragua, this paper evaluates the empirical veracity of this new liberal approach. We find that the current operation of capital and land markets is more consistent with what we term a neo-structuralist perspective, a finding that suggests that problems lie ahead on the liberal path to agrarian reform.

The structuralist perspective of the original Latin American agrarian reforms saw agricultural performance and income distribution as inseparable from the land ownership distribution. These reforms consequently sought through state-mandated redistribution to break the dualistic agrarian ownership structure inherited by most Latin American countries from the colonial era. While they met many social and political objectives, a relative consensus exists that these original or first stage reforms failed to raise agricultural productivity and rural incomes, or reduce rural poverty, for four main reasons:¹

1. Redistribution was incomplete as large sectors of landless and land-poor rural households were excluded.

¹ See Dorner 1992, Deininger 1999, and Binswanger, Deininger and Feder 1995 for detailed discussions of the limitations of first stage reforms.

2. The reforms failed to consider explicitly the negative impacts of imperfections in complementary markets such as credit, extension, and insurance.
3. Collective forms of production established by the reforms created incentive problems associated with effort and investment.²
4. Even where beneficiaries farmed land individually, legal impediments to land transfer and mortgage reduced the potential for efficiency enhancing gains from trade via rental, sales, and inheritance on one hand and investment via posting collateral or via security of property holdings on the other. These flaws dampened the ability of farmers – especially those at the bottom of the wealth distribution who had received land– to effectively respond to changing price signals brought about by economic liberalization and thus to pursue the changes in technology, crop choice, and so forth that would have raised productivity and incomes.

The new path to agrarian reform has come in the form of “agricultural modernization” policies adopted by several countries in the 1990’s.³ These market-friendly policies seek to redress the flaws of the original reforms by strengthening individual, private property rights over land and replacing the state with markets as the main mechanism for allocating agricultural land and capital. In stark contrast to the structuralist perspective of the original land reforms, this neo-liberal perspective suggests that markets can break (or at least weaken) the link between ownership structure and land access and agricultural performance.⁴ Interestingly, the strongest pushes to use markets to separate agrarian performance from structure have occurred in countries—notably Mexico, Nicaragua, and Peru—that initially carried out some of the most far-reaching redistributive reforms and extensively promoted collective forms of rural organization.

² It is now recognized that indigenous forms of collective tenure – especially where population density is low – may play a key insurance role and thus be efficiency enhancing (Bruce et. al (1994), Deininger (1999)). The above point refers primarily to collectivization imposed from above by federal governments.

³ These reforms were designed to appeal to both those who think land access is key to the improving the lot of the rural poor and those who do not. While our views match the former, we do not formally address the value of land to the rural poor in this work. See López and Valdés (2000) and Finan et. al. (2002) for more on this issue.

⁴ While the land rents would still go to owners, in a competitive land market the infra-marginal rents associated with family management of farm operations could be captured by the renters.

Sounding a cautionary note to this liberal optimism about the potential separation of performance from structure is what we term a neo-structuralist perspective. In contrast to the old structuralist perspective, this new one argues that though liberalized land markets could potentially contribute to improved land access for the rural poor and rising agricultural productivity, that such a virtuous outcome is very unlikely unless the intrinsic flaws in other factor markets, especially financial ones, are addressed. Indeed, without attention to complementary markets, land markets will tend to be biased in their operation toward wealthier agents and larger farms (Mesbah and Carter, 1993; Carter and Barham, 1996), which will, in turn, obviate efforts to create a level playing field especially in what are already highly inegalitarian agrarian economies.

It is important to note that both the neo-liberal and neo-structural frameworks coincide in a fundamental aspect: significant efficiency and equity benefits can be realized by exploiting the competitive advantage of family farms which stems from the agency costs involved in monitoring hired labor.⁵ In both views, this underlying labor market failure provides the economic rationale for land transfers from land abundant to labor abundant households and a move towards the homogenization of operational farm size. The two views diverge, however, over the role of imperfections in complementary markets – particularly for credit and insurance. While the neo-liberal viewpoint acknowledges financial market imperfections, it expects them to be remedied by the ongoing policy reforms. The neo-structural view is more skeptical. It posits that financial market imperfections are much deeper and will not likely be solved – especially

⁵ Eswaran and Kotwal (1985) provide an important theoretical treatment of the role of labor market failures in determining agrarian structure. Deininger and Binswanger (1999) and Banerjee (2000) provide intuitive discussions of these issues, while Frisvold (1994) provides empirical evidence on the magnitude of supervision induced inefficiency.

for poor households – via the current set of property rights reforms and financial liberalization policies. Ultimately, the outcome of these counter-veiling forces – and the degree to which efficiency and equity enhancing transfers in land markets occur – is likely to be highly context specific. While providing some initial empirical evidence, this paper also serves as a call for additional empirical research on the complex interactions between rural factor markets.

The stakes are high in Latin America. Low growth rates in the 1990's have been accompanied by worsening income distribution so that poverty levels – already highest in rural areas - have grown (Birdsall and Londoño, 1997). While the agricultural modernization reforms are arguably still taking hold, this paper develops and empirically explores the neo-liberal and neo-structural visions using farm level data sets from Nicaragua and Honduras. The panel nature of the data sets permits a comparison of pre- and post reform outcomes. The analysis focuses on three key markets where the reform's impacts are playing out: credit, land rental and land purchase markets. While the analysis is primarily descriptive, it gives us a unique window into the emerging impacts of the reforms and identifies patterns and puzzles that require more in-depth analysis in the future.

The structure of the paper is as follows. Section 2 traces the recent history of agrarian policy in the two countries. Section 3 develops contending hypotheses for analyzing the reforms. Section 4 describes the survey methodology and uses the data to present evidence on the reform impacts, focusing attention on the degree to which the distribution of land access and ownership have changed. Section 5 concludes.

2. MARKET FRIENDLY REFORMS IN HONDURAS AND NICARAGUA

Honduras and Nicaragua, like most Latin American countries, undertook sweeping economic reforms in the 1990s that were aimed at increasing market orientation, openness, and competition. These efforts were especially dramatic in the agricultural sector, where land market liberalization initiatives were launched after three decades of heavy government intervention in support of land redistribution and rural credit provision in Honduras and more than a decade of land reform efforts under Sandinista rule in Nicaragua. In both countries, the market-oriented reforms were undertaken at the beginning of the 1990s, and emphasized strengthening individual property rights to land, extending titling efforts including the privatization of cooperative lands, activating land rental markets and private credit markets, and removing the government from all forms of direct land redistribution efforts that did not involve market mechanisms.⁶ For each country, the agricultural modernization laws, as they were called, and their conditions relative to pre-reform conditions are summarized in Table 1.

(a) Honduras

In Honduras, the Law for Modernization and Development of the Agricultural Sector (LMDSA) was enacted in 1992 and became operative in the middle of 1993. It replaced the 1975 Agrarian Reform Law, rescinding several key statutes including the commitment to eliminate minifundios (5 hectares or less), the prohibition of land rentals by beneficiaries of land reform, and the prohibition on sale of land adjudicated to cooperatives or parcels controlled by individuals in the cooperative. The LMDSA also promoted the titling of land to individuals or couples holding “illegally occupied national

⁶ For both countries, the early 1990’s represent what de Janvry et al (2001) call “Phase III” of agrarian reform whereby land policy promotes land access of small-holders and landless households via market mechanisms.

lands” prior to 1989. It also strengthened women’s formal rights to hold and receive land and obliged the government to facilitate land market transactions by improving the security of property rights and the titling and land registry process.

Measures were also taken by the Honduran government to rationalize the rural financial sector by strengthening incentives for the private sector to play a leadership role in rural financial markets. Specifically, rural interest rates were liberalized, and BANADESA, the main source of formal credit for small farmers, was restructured through a reduction in personnel, an increase in lending rates to market levels, and a limit of \$50,000 in the maximum loan size for a single borrower. The aim was to stimulate commercial bank lending by deregulating interest rates and by ensuring that BANADESA, the government development bank, would not crowd out or repress private sector participation in rural financial markets.⁷

A major thrust of the LMDSA has been to reinvigorate land-titling programs that had been promoted strongly in the 1980s but had diminished in the early 1990s. Both prior to the LMDSA and since then, the National Agrarian Institute (INA) has had as one of its major tasks implementing land titling programs with the support of the United States Agency for International Development (USAID), with the main difference being that since 1994 the titling program has been expanded from seven departments to the whole country. Table 1 also provides estimates of the number of titles issued and the total area distributed for two time periods prior to the passage of the LMDSA and since the passage until 2001. Of the 150,000 titles that were issued between 1983 and 2000,

⁷ While the Honduran government acknowledged the potential for credit market failures for small farmers and thus established the legal base for a rural credit fund and land bank, these two financial institutions have not yet materialized. The World Bank and the European Community are currently developing land banks to land purchase for small and landless farmers.

over 100,000 of them were issued following the passage of the LMDSA, i.e., about two-thirds of the total in about one third of the time period. The average size of the land titled since 1994 has been somewhat smaller than in previous periods, averaging about 8 hectares per title compared to almost 11 hectares in the earlier periods.

(b) Nicaragua

The move in Nicaragua toward land market liberalization and a downsizing of the state's role in the agricultural sector began with the electoral defeat of the Sandinista National Liberation Front in 1990 and the implementation of a far-reaching structural adjustment program by the Chamorro regime (1990-1996). Most directly related to the agricultural sector was the privatization of state enterprises and agricultural cooperatives, a dramatic reduction in government credit and extension services especially by the state development bank BANADES, and a deregulation of the financial sector. Land titling programs were also advanced in an effort to deepen private property rights.

The Aleman administration (1996-2002) built on the efforts of the Chamorro government by producing a package of policies aimed at modernizing the agricultural sector. Included in these measures was a law enacted in 1997 that secured the individual ownership rights to the majority of land reform beneficiaries (those with holdings less than 35 hectares) as well as an acceleration of other land titling efforts. While BANADES was closed, the government tried to activate rural financial markets through the provision of incentives to small, privately owned financial intermediaries and the sale of some of the branches of BANADES. Overall, in the 1990s, the market-oriented reforms pursued in rural Nicaragua were quite parallel to those undertaken in Honduras,

with perhaps the main difference being the more complete withdrawal of state support for technical and credit services in Nicaragua during the latter part of the decade.

3. CONTRASTING NEO-STRUCTURAL AND NEOLIBERAL VISIONS OF MARKET FRIENDLY REFORMS

The market-friendly reforms of Honduras, Nicaragua and other countries were aimed at rejuvenating agricultural credit and land markets. As a prelude to the next section's empirical analysis of these markets, this section lays out competing neo-structural and neo-liberal hypotheses about the impacts of the reforms on these markets.

(a) Credit market activation

As numerous authors have noted (*e.g.*, Eswaran and Kotwal, 1986), access to capital across economic classes will have a major impact on land access, agricultural organization and productivity. A key question then becomes whether post-reform credit markets do or do not work for the rural poor. If they do provide credit access to the poor without strict collateral or guarantee requirements, then the potential for activation of these markets in ways that benefit the land-poor seems quite high. But, if they do not provide credit access to the poor, indeed if the poor tend to be non-price rationed in credit markets,⁸ then the potential benefits to the rural poor of land market liberalization seem likely to be much more limited to indirect effects of labor market opportunities. They may even be negative, if the capital bias of larger farms leads to a reduction in labor opportunities (Carter and Barham, 1996).

⁸ A borrower is non-price rationed when they would accept the loan at the going interest rate if a contract were available to them at a level of risk they can face. A borrower is price-rationed when at the going interest rate, they do not want a loan because the value of the activity they would pursue with the loan is not sufficient to make borrowing worthwhile.

How then is the land titling emphasis of the agricultural modernization efforts likely to affect the credit access of rural households? According to the neoliberal story, it is not the lack of land, but instead the lack of collateral assets that is the primary barrier impeding credit access to small farmers. Formal lenders—who have limited local information and thus are not efficient at screening and monitoring borrowers—require collateral in order to provide incentives for borrowers to minimize the probability of default. In this view, one of the most destructive legacies of the first stage land reforms was the inability of beneficiaries to establish clear property rights over land, and this left them unable to fully exploit their primary productive asset.

This shortcoming is remedied in the neoliberal plan by granting and registering freehold titles. Land titling should activate credit markets via both a supply and demand effect.⁹ On the supply side, land title increases a farmer's ability to provide collateral. Indeed, since the ratio of a household's titled to total owned land is typically increasing in owned farm size, granting titles across the board has a potentially larger impact among the poor. Tenure security also increases farmers' willingness to undertake fixed investment, thereby increasing credit demand. This view of the relationship between market friendly reforms and credit is summarized in the following hypothesis:

- *Neo-liberal Hypothesis 1:* Solidifying private property rights in the form of granting registered, freehold titles will lead to greater participation of land owning, farm households in formal credit markets. The increase in credit market participation should be greatest among small-holders.

While improving the ability of poor households to use their land as collateral is certainly a positive step, from a neo-structuralist perspective, it might best be viewed as a

⁹ Formal treatment of the impact of titling on credit supply and demand are given in Feder (1985), Besley (1995), and Carter and Olinto (1996). De Soto (2000) provides a general discussion of the potential for property rights reform to “activate” poor households’ assets.

necessary but not sufficient condition to alleviate non-price rationing outcomes in credit markets. Both supply and demand factors may leave land-poor households – even though they own some titled land – constrained in the credit market. On the supply side, formal lenders may not be willing to accept collateral under a certain minimum value because of the transaction costs associated with management of the loan and with foreclosure and resale in the event of a default. That minimum threshold creates the potential for quantity-rationed outcomes, where land-poor households would like a loan at the going interest rate but cannot secure the loan with sufficient collateral to generate a loan contract (Carter and Olinto, 1993).¹⁰

On the demand side, a land-poor household may have enough collateral to qualify for a loan but lack access to sufficient insurance to outweigh the risk of collateral loss associated with a bad outcome in the loan contract. As a result, they may be unwilling to take the loan contract because of the downside risk implied by collateral loss. This “risk-rationed” outcome is another form of non-price rationing that can hinder the operation of liberalized land markets (Boucher, 2000; Boucher and Carter, 2002). It is of particular concern on equity grounds because lower wealth households tend to be more sensitive to a given risk.

In contrast to the neo-liberal hypothesis, the neo-structuralist vision suggests the following alternative hypothesis:

- *Neo-Structuralist Hypothesis 1*: The effect of market friendly reforms on credit market activation will be uneven, more effective for medium and large

¹⁰ In work in Paraguay, Carter and Olinto (1996) find that the probability of facing a credit supply constraint is above 90% for households with a land to labor ratio of less than 2 – independent of whether or not the land was titled. The anticipated credit supply effect of land title only kicks in above a ratio of about 4 hectares per family worker.

scale farmers, while smaller-scale producers are likely to be subject to quantity rationing or risk-rationing that impinge on their access to credit.

It is important to stress that these neo-structuralist and neoliberal perspectives share the view that tenure security and credit access are essential to improving the situation of poor farmers in rural markets. What distinguishes the two visions is the extent to which having a sufficient quantity of land serves as a starting condition to overcome intrinsic credit and insurance market imperfections and risk considerations.

(b) Land rental markets

From a neoliberal perspective, incomplete property rights over land combined with an imperfect labor market lead to inefficiency and suggest a clear policy remedy. While there are many dimensions to property rights over land, the neoliberal story pays special attention to rights of transfer—or alienability—that permit land to flow to its most efficient user. Until the recent reforms, the right to temporarily transfer land via rental was restricted in both countries either explicitly or implicitly by the threat of expropriation of land that was not owner-operated. Government policies that define full private property rights – including alienability - and defend them through legal means can close off this market failure in land, and allow rental markets to function effectively.

It is important to note that restrictions in transfer rights in and of themselves need not lead to inefficiency and thus need not justify a policy intervention since returns to land and other factors can be equated across households as long as they can engage in trade for the other factors of production (Feder (1985), DeJanvry, Sadoulet, Fafchamps (1991). If, however, the labor market is also imperfect, then simultaneous frictions in the land market can prevent the realization of gains from trade across heterogeneously

endowed households. A commonly asserted source of labor market imperfection – often cited as a cause of the inverse farm size relationship – is the imperfect substitutability between family and hired labor (Eswaran and Kotwal (1985), Frisvold (1994)).

Transaction costs of hiring and monitoring labor create an efficiency advantage for households with high labor to land ratios. Again, the policy recommendation is straightforward. By making possible land rentals between larger and smaller producers, land market liberalization will have salutary efficiency and equity effects, the former by moving lands into the hands of more efficient (self-monitoring) farmers and the latter by equalizing operational farm sizes in the rural economy and increasing incomes earned by land-poor households. This proposition is summarized in the following hypothesis:

- *Neoliberal Hypothesis 2*: Market friendly reforms will activate land rental markets and break or weaken the link between land owned and land operated as land is rented out to land-scarce, labor abundant poor households.

The scenario implied by this hypothesis 1 is depicted in Figure 1, which portrays various potential relationships between operational farm size (T) and owned farm size (A). In the absence of rental markets, households' operational and owned areas are equal. The 45-degree line depicts this the pre-reform relationship. If farm households have similar labor endowments and technologies but have different land holdings, then the introduction of a well-functioning rental market (and no credit market problems) should give rise to an optimal operational farm size equal to T^* . In Figure 1, the effect of an activated land rental market is to rotate the 45 degree “pre-reform relationship” to the horizontal “neoliberal relationship” at T^* , with land transfers being dominated by movements between landowners of disparate sizes. Note that under this circumstance,

the actual operating distribution of farms becomes separable or independent from the land ownership distribution.

While agreeing that market-friendly reforms open the door to efficiency and equity enhancing land rental transactions, the neo-structuralist perspective notes that unequal credit access and transactions costs in land markets themselves may quickly shut that door. On the land market side, the illustrative transaction cost is the comparison of matching, contracting, and enforcing 100 one-acre rental agreements with a single 100-acre rental agreement. If the transaction costs have a significant fixed component to them, then a farmer seeking to rent out (or rent in) 100 acres would find a single transaction more efficient than many transactions.¹¹ Credit market imperfections may also reduce households' ability to participate in rental markets. The potential for quantity rationing and high, fixed transaction costs associated with contract design and the posting of collateral may make it infeasible for households to make up-front rental payments and finance variable costs associated with the rental. As discussed in the prior section, quantity rationing and transaction costs tend to bias credit access against low wealth households, suppressing their access to land via rental transactions.

Taking into account these additional land and credit market failures, the neo-structuralist vision suggests the following alternative hypothesis:

- *Neo-Structural Hypothesis 2*: While market friendly reforms will activate land rental markets, those markets will be segmented and will do little to weaken the link between land owned and land operated.

The dashed line in Figure 1 illustrates this neo-structural hypothesis, showing that segmented land markets do not break the link between the land ownership and land

¹¹ Examples of transaction costs in rental markets include search costs to find a counterpart, writing and formalization of the rental contract, and legal costs associated with eviction.

access predicted by the neoliberal account. The segmentation arises because the combination of transaction costs and credit market failures prevent significant rental transactions between land-rich and land-poor households. There is less rental activity, because rentals are based on intra-class transactions that stem from differences in endowments (age, skill) and livelihood strategies (off-farm or on-farm labor choices) but not also on inter-class differences in farm efficiency driven by differential access to family labor. Overall, operational farm size will stay much closer to the 45-degree line, perhaps with some local movement off of it within farm size classes, but without significant transfer of land between land-rich and land-poor households that would create a move toward a common operational farm size.

(c) Land ownership market

Property rights reform may also improve the efficiency and equity of agriculture via the fortification of land sales markets. The logic is as follows. Defining freehold titles establishes clear, individual rights to a parcel - including the right to sell it. Establishing a property registry permits buyers to examine the history of a parcel – including the existence of competing claims and liens – and to defend their acquired rights. The overall effect is to reduce the costs associated with land sales. This, in turn, enhances efficiency via two routes. A first order effect of lower costs is to promote the flow of land to more efficient households, who are willing to pay for it. There is also a second order or ‘gains from trade’ effect by which the greater ease of sales induces current owners to increase investment which they will be able to capitalize in a future sale (Besley JPE 1995).

This neoliberal vision of the land sales markets thus extends the basic logic of the story for rental markets. Stronger incentives to invest and greater ability to secure finance (via the collateral value of titled land) mean that land-poor households who own some land can become more active in land sales markets and purchase the additional land (perhaps in increments) they need to become more productive. This outcome complements the process of land rental market activation discussed above. Perhaps the land poor rent first, build up equity, and then purchase. Land purchases can also substitute for rental if those transactions are limited by segmentation as discussed above, in the sense that each land purchase may provide the basis for additional credit access that can over time be used to facilitate expansion of the operational farm size of the household. Together, these expectations gives rise to the following hypothesis:

- *Neoliberal Hypothesis 3:* Land market liberalization will activate land sales markets and – over time – lead to a concentration in the distribution of owned land around an optimal farm size level.

This optimistic story is presented in Figure 2, and starts in the northwest quadrant, with reforms that reduce the transaction cost threshold for securing land title from C to D or possibly all the way to 0. The resulting increase in titled land and the security of property rights should have the effect of stimulating a concomitant shift among the land-poor in both their demand for land and ability to finance land purchases. This effect is captured by tracing out the impact of land title on collateralizable wealth and then long-term credit by moving in Figure 2 from the northwest to the northeast quadrant.

If this increased collateral can be translated into long-term credit on a one to one basis (ignoring the threshold at B for the moment), then the credit can be harnessed to purchase land (SE quadrant) that is then added to the current stock. Thus, land titling

initiates a virtuous cycle of land accumulation, with a limit that is reached when the previously poor household owns sufficient land to operate at the optimal farm size corresponding to the point where family labor needs to be supplemented by hired-labor. In this account, whether land sales markets are complements to or substitutes for land rental markets, they serve to improve the efficiency and equity of agriculture, with the main difference between the two paths being in the length of time required to build the necessary finance for these purchases land sales are substituting for land rentals.

The neostructuralist understanding of the workings of post-reform land sales markets again differs because of a different understanding of post-reform capital access. Non-price rationing or high transaction costs in credit markets could imply the existence of a minimum collateral wealth threshold (say point B) for the activation of the credit access benefits outlined above. Households with a land endowment—even if titled—that do not get them well above that threshold would be unable to use credit markets to finance fixed investment or purchase much additional land, because formal lenders would not be interested in managing their loans due to the transaction costs associated with enforcement and collection of collateral. Indeed, those land-poor households may, in fact, become less competitive in terms of their land use options than somewhat wealthier farmers who end up with better access to credit (Carter and Mesbah, 1993, Carter and Olinto 1993). The alternative land sale hypothesis is:

- *Neo-Structural Hypothesis 3*: While market friendly reforms and the widespread provision of title will activate land sales markets, the resulting transactions are likely to be regressive in the sense that the land-poor will sell their land to a higher bidder with better credit access.

Depending on the underlying distribution of land, the critical threshold for credit market access, and the extent of credit access associated with collateralized land, the impact of

titling could be to further polarize agrarian structure both in terms of land owned and land operated. If there is no fundamental attention to credit markets, the neostructuralist vision suggests that, at best, land-poor households will struggle to use land sales as a means to improve their situation and at worst may be more likely to sell out to more competitive agents in land markets.

4. EMPIRICAL ANALYSIS OF HONDURAS AND NICARAGUA

(a) Data collection

A similar data collection process was carried out in the two countries. In 2001, 850 producer¹² households were surveyed in 5 departments in Honduras regarding the 2000 agricultural year.¹³ This sample can be broken into two distinct sub-samples: panel and cross section. The panel households (500) originate from a study conducted in 1994 (Lopez 2000) in which 450 farm households were interviewed to analyze the impacts of initial land titling programs. The 2001 survey attempted to follow both these baseline households and the land they cultivated. Of the original baseline households, 362 were resurveyed. In addition, 138 “new” panel households were added. In 2000, these households were cultivating land that had been worked by the original panel households in 1994. The remaining 350 cross-sectional households were added in regions that were not covered in the 1994 study. The stratification process for this sub-sample was as follows. First, nine municipalities in three departments were non-randomly identified.¹⁴ Within each municipality, three towns (*caserios*) were randomly selected. A census of

¹² A criterion for selection was that the household either owned or cultivated a parcel in the previous agricultural year.

¹³ The departments are: Colón, Intibucá, Ocotepeque, Santa Bárbara, and Yoro.

¹⁴ The municipalities were those identified as future areas of operation by the European Community’s Land Bank project (formal name...).

each town was conducted and used to classify households into 5 farm size categories. To ensure coverage across farm size, households were randomly drawn from each category.

In 1996, the Nicaraguan Ministry of Agriculture and Forestry in collaboration with FAO carried out an in-depth socio-economic survey of the 1995 economic activity of 1450 rural households (Davis, 1998). These households were identified as the cultivators of randomly selected plots drawn from an area-based sampling procedure that gave every piece of land in Nicaragua (excluding the Atlantic Coast region) an equal probability of inclusion in the sample. The original area-based sample was drawn as the basis for national crop estimates. Unfortunately, the in-depth 1996 survey excluded all production units larger than 500 manzanas.

In 2000, efforts to interview these same 1450 households were undertaken, focusing this time on the 1999 crop year. It proved possible to locate 1350 of the original households. In most cases, the missing households had migrated, either to Managua or internationally. In those cases, households found using the land formerly cultivated by the migrant household were interviewed. In addition, new households were interviewed if they were found to be cultivating any of the area operated by one of the 1996 households, even if the original respondents were still resident and operating some of the land that they had cultivated in 1995. The final result was a year 2000 sample of 1540 households involved in the cultivation of the randomly selected sample of plots.

The household surveys in both countries include conventional modules on household demographics, farm and non-farm income, wealth, land holdings and

participation in land markets during the 2000 agricultural year.¹⁵ Two additional and unique features of the survey are used extensively in the ensuing analysis. First, the credit module includes a section that details the terms of formal and informal loan contracts initiated during 2000 as well as the reasons that non-borrowers did not participate in the credit market. These data permit the direct identification of each household's rationing mechanism (price versus non-price) in formal credit markets, and thus a means of exploring neoliberal hypothesis number 1.¹⁶ Second, a land history module was included in which households were asked to reconstruct the evolution of their stock of owned land and their participation in rental and share transactions. The retrospective data allows the calculation of each household's land use portfolio (i.e., area under owner-operation, rental, share and lent) for each year since they began farming and is used to compare the role of land markets before and after the reforms. In particular, it this allows us to see how effectively land rental and sales markets promote the transfer of land towards uniform operational sizes as suggested by hypotheses one and two.

Some basic characteristics of the sample households are presented in Table 2. Compared to the Nicaragua sample, the Honduran sample has a much larger proportion of smallholders, with half of the sample having less than 5 manzanas of land, and 35% having less than 2 manzanas. This difference reflects the distinctive origins of the samples, with the Honduran one stemming from an earlier study of land titling impacts. One surprising aspect of Table 2 is that despite the smaller average land holdings, the average household wealth in the Honduran sample is considerably greater than in the Nicaragua sample at least in part because the Nicaragua survey did not gather

¹⁵ Copies of the survey instruments and data sets can be obtained by request from the authors.

¹⁶ See Feder et al. (1990) and Barham et al. (1996) for applications of this direct solicitation of credit constraint approach.

information on the value of residential property. Finally, adult educational attainment is in general low, with about half of the adults in the Honduras sample and only a quarter of the Nicaragua sample having completed primary schooling.

(b) Post-Reform credit markets

As discussed in Section 3, credit market performance, especially the extent to which it provides the poorer households with access to loans suitable for participating in land market transactions, is pivotal to achieving efficiency and equity objectives of land market liberalization. Specifically, formal title is supposed to open the supply of (and demand for) credit that can be used to either rent or purchase land. Unfortunately, the evidence on credit market performance from Honduras and Nicaragua in the wake of agricultural modernization efforts suggests that this optimism about improvements in credit access for the rural poor is not warranted.

As of 1999 and 2000, rural financial markets in the post-reform era do not provide formal loan access to the lowest quintile of the rural poor in either country, and a large proportion of these households report being non-price rationed in this sector. As shown in Tables 3a and 3b, 2% of the lowest wealth quintile in Honduras and Nicaragua received formal loans, and in this lowest quintile almost 50% in Nicaragua and 60% in Honduras report being effectively non-price rationed in formal credit markets. Moreover, in both countries, the percent of respondents reporting non-price rationing falls steadily from those highs to around 13% in the top quintile, which reflects the severe wealth bias that is consistent with the neo-structuralist rather than the neoliberal hypothesis 1. Overall, in Nicaragua, it appears as if formal sector loans to agriculture are, at best, in the early phases of recovery, as even in the top quintile only 14% of the households reported

having formal loans, compared with 45% of respondents among the top quintile in Honduras. Formal loans are clearly not playing a fundamental role in helping to fuel land market activity, but are other sources of loans substituting for banks in this role?

The survey data permit a full appraisal of the other sources of credit and their contractual terms. A perusal of these data in Honduras underscores the obvious limitations of non-formal loans for assisting in the functioning of land markets. In addition to the formal lenders, Table 4 includes two types of informal lenders (institutional and private lenders), and compares the contract terms of loans from these different sources. Only 6% of all loans in the Honduran sample, *including banks*, had a maturity of over one year, and the vast majority of informal loans had maturities of around six months. Moreover, most of these informal loans are for short-term working capital that is either tied to the buyer or supplier, or else provided by friends and family. These loan data underscore the difficulty rural households would face in relying on loans to finance land rentals over a year, let alone fixed investments, such as land purchases or the installation of coffee trees.

(c) Land rental Markets

In the post-reform era, land rental market activity has definitely accelerated. More land rental is occurring in both countries, and more rural households are participating on both sides of the market. In the Honduran sample, whereas only 6% of the respondent households were renting out land in 1993, 26% of them did so in the 2000 agricultural year. This increase in land rental in Honduras has been most dramatic among the relatively land rich; in 2000, 65% of respondents with more than 50 manzanas supplied land in rental markets, compared to only 16% in 2000. Meanwhile, on the

demand side, most of the increase in frequency of land rentals is accounted for by the land poor. The negative correlation between area owned and frequency of demand on one hand and the positive correlation between area owned and frequency of supply are consistent with the neoliberal hypothesis that temporary land transactions could facilitate the flow of land from land rich to land poor households.

Two other aspects of this increase in land rental activity do not correspond as strongly to the neoliberal hypothesis. First, most of the land rental activity is not occurring via market transactions but through land loans, which are typically made between individuals with a long and close relationship.¹⁷ And, while the frequency of market rentals has increased in the post-reform period, loaned land remains the dominant form of temporary land transactions across all farm size classes. Second, while the incidence of temporary land transactions that involve inter-class transfers of land from land-rich to land-poor households did increase in Honduras (not so much in Nicaragua), the average amounts of land being rented out to the land poor are quite small, generally on the order of 1-2 manzanas. Thus, the overall impacts of this increase in land rental activity across classes is not sufficient to reshape the relationship between land owned and operated in any fundamental way.

In both Honduras and Nicaragua, land rental market patterns in the post-reform era appear to be falling well short of the neoliberal vision. Figures 3 and 4 report the results of non-parametric estimations of the relationship between area-owned and area-

¹⁷ Why lend instead of rent? First, it might be preferable to lend to a person who will certainly return the land than to rent to someone who can pay for the land, but may attempt to stake a claim to it. Second, it may be away of securing informal services from the individual in other domains. Third, land lending may be a part of a dynamic risk pooling arrangement. While a cross sectional survey makes the lending appear irrational, it may indeed be an effective means of pooling risk as today's land borrowers may become tomorrow's land lenders as their own fortunes improve and someone else's worsen. These explanations suggest that land rentals occur in response to market failures – be it continued tenure insecurity or failures in insurance markets.

operated in 1993 and 2000 and graph the results against the 45-degree line in an effort to identify changes over the time. Recall from Figure 1, that the neoliberal hypothesis predicted a move toward independence between ownership and operational farm sizes, which corresponds to a substantial movement away from the 45-degree line and toward a horizontal line.

In both countries, little discernible change has occurred in the pre and post-reform period in terms of the relationship of land owned and land operated. As shown in Figures 3 and 4, the non-parametric mapping of these relationships strongly adheres to the 45-degree line in both countries pre and post-reform. In the case of Honduras, the only movement off of the 45-degree line occurs in Figure 3 at the very bottom end of the land ownership-operation spectrum, where households with less than 2 manzanas of land are using rental markets to obtain access to small increments of land, generally increasing their land operation by about a manzana. This gap narrows to about half a manzana by the time the average farm is about 2 manzanas. The rest of the mapping of owned versus operate land adheres very closely to the 45-degree line, though Figure 3 only maps out to 5 manzanas. In Nicaragua, the only notable shift in the curve in the later period relative to the earlier one is at a farm size of around 20 manzanas, which suggests that perhaps medium-sized farmers there have been most able to take advantage of the land market liberalization to rent-in a bit of additional land.

In Honduras and Nicaragua, the land rental situation accords far more closely to that of the neostructuralist hypothesis than the neoliberal one with land market liberalization providing very little impetus for a break in the tight relationship between owned land operated land. However, the increasing incidence in Honduras of small

amounts of land rental by the relatively land rich to the land poor suggests that transaction costs may not be as much of a barrier to these exchanges as the neostructuralist approach might posit. Whether credit market restrictions are key to limiting the size and extent of these temporary land transactions has not been proven by this paper, but credit market failures remain a strong contending hypothesis. Another one that emerges from this analysis is the degree to which the small land rentals are just one expression of a multi-level relationship between the tenants and owners of land, that may be made easier by land market liberalization but may have its origins in other factor market considerations.

(d) Land purchases and accumulation

Permanent land transactions, such as sales, gifts, and inheritance are, of course the other means of moving land to those who are most able to use it. Were the reforms of the early 1990's felt more strongly in the land purchase markets than in land rental markets? This section uses non-parametric estimations of land owned in both countries in the earlier and later periods to map the extent of the movement toward a uniform farm size that has been driven by permanent land transactions. Again, the 45-degree line is used as a basis of comparison to see whether much change has occurred in the match between owned land across the two time periods. Adhering to the 45-degree line means basically no change. Movements above that line suggest accumulation of land over time, while movements below imply deaccumulation of land.

For both Honduras and Nicaragua, the non-parametric estimates depicted in Figure 5 are generally only slightly above the 45-degree line. The largest absolute gains

occur, on the one hand, at the very bottom of the farm size spectrum, with previously landless households moving to holdings of around 2 manzanas, and, on the other hand, at the top of the farm size spectrum in Honduras, with farms over 60 manzanas apparently accumulating additional land in the post-reform era. Compared with Figures 3 and 4, there appears to have been more land access mobility via permanent land transactions than has occurred via temporary land transactions, but this mobility has not been great. Moreover, if we use these transition data in both countries and a Markov probability of land holding transition associated with them to develop a stationary limiting distribution of land holdings, the one in Nicaragua moves only slightly from the current distribution and toward a more dualistic distribution of many small holders and a few large holders rather than toward a more uniform distribution. This result means only that the data do not suggest any substantive movement in the direction of the neoliberal hypothesis that would argue for a market-driven process of separation between initial size of ownership and eventual size of operation.

5. CONCLUSIONS

The neoliberal path to land market reform appears headed for serious trouble if its goals are to achieve a substantive move away from the historic dualistic agrarian structure in Latin America. While this paper provides only descriptive evidence on this issue, drawn from two countries, it offers a broad picture of how the anticipated, or perhaps imagined, credit and land market synergies have failed to emerge and deliver the kinds of underlying changes in resource access especially for the rural poor that are likely to be fundamental to achieving both efficiency and equity objectives. Moreover, this

paper follows on a series of more specific market level studies of credit markets and land markets in other parts of Latin America, where similar concerns have been raised. In that sense, the lack of hypothesis testing done in this descriptive account can be defended with reference to more sophisticated works done elsewhere which do test such things as the role of wealth in shaping credit rationing outcomes, or the role of land holdings in shaping the welfare outcomes of rural households.

At the level of policy, this paper should provide considerable reason for disquiet. While the argument can always be made that the reforms need more time and need to be more extensively, pragmatically most regimes and policy approaches have a limited time to produce results that can be used to buttress further moves in that direction. Clearly, the tide is shifting around much of Latin America away from neoliberal policies. If market-mediated reforms are to work, they must clearly take more seriously the full set of market failures and problems that might limit reforms in specific markets. One very likely problem in the current round of reforms is that failing to attend to the clear wealth bias of the rural credit market has limited the degree to which the land market can be utilized by low wealth households to pursue rentals or acquisitions. Ironically, in this particular case of land market reform, it appears as if the neoliberal approach has repeated the failures of the structuralists by not attending enough to other market failures, especially on the credit side. The question remains whether a viable neostructuralist approach can be constructed and delivered in the wake of what is likely to be another round of disappointment on the long and grinding road of agrarian structure in Latin America.

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Table 1
Evolution of titling and land policy in Honduras and Nicaragua

Titling Programs	Pre and Post Reforms		
	HONDURAS	Pre-Neoliberal Reforms 1975-1992	After Neo-liberal Reforms 1992-Present (LMDSA)
<p>1983 - 1993</p> <p>Departments: Atlantida, Comayagua, Copán, Cortés, El Paraíso, La Paz, Santa Barbara, and Yoro</p> <p>Titles: 47,731</p> <p>Land Area: 495,993 hectares (10.4ha)</p>	<p>1. Illegally occupied national lands (IONL)</p> <p>2. Multiple properties</p>	<p>Title petition only for those farming IONL lands for 10 years prior to 1975 Agrarian Reform Law (ARL).</p> <p>Exclusion from further land titles via ARL if individual holds 1 or more properties.</p>	<p>Requirement changes to 1989, three years before LMDSA.</p> <p>Multiple properties permitted up to 200 hectare ceiling.</p>
<p>1994-2000</p> <p>Departments: Nationwide (16 depts)</p> <p>Titles: 102,000 titles (approximate)</p> <p>Land Area: 800,000 hectares (8 ha)</p>	<p>3. Minimum size holding</p> <p>4. Large farms and ownership of</p> <p>5. Rental</p> <p>6. Individual ownership rights</p> <p>7. Women's rights</p>	<p>Eliminate minifundios by expropriating, consolidating, or readjudicating lands of < 5 hectares</p> <p>51% local ownership rule unless otherwise approved by Resources Ministry.</p> <p>ARL beneficiaries subject to expropriation if they rent out.</p> <p>Land adjudicated to coops cannot be sold without government permission.</p> <p>Land adjudication limited to single women and widows w/ dependents.</p>	<p>Redefines to under 1 hectare.</p> <p>Break-even and local ownership rules relaxed.</p> <p>Renting-out private or ARL lands is permitted.</p> <p>Individual shares can be granted within coops and can be sold.</p> <p>Both sexes eligible to receive land individually or jointly.</p>

NICARAGUA

Titling Programs		Pre-Neoliberal Reforms 1979-1990	After Neo-liberal Reforms 1990-Present
1979-1990			
Nationwide Properties expropriated: 5,952 Land Area: 2,893,798 manzanas	1. State expropriation	Large area of property expropriated.	Not applicable
	2. Cooperatives	Land adjudicated to coops initially and peasants later	Privatized
1992-1999			
Nationwide Titles: 32,812 Land Area: 1,248,416 Manzanas	3. Rental	Restricted	Liberalized and protected
	4. Individual ownership rights	Coop land could not be sold without government permission.	Parcelization of coops
	5. Women's rights	Limited individual rights	Both sexes eligible to receive land individually or jointly.

Table 2. Sample Descriptive Statistics

	Honduras	Nicaragua
Sample Size	850	1,356
Distribution of Land Owned (A)		
A = 0 mz.	4%	7%
0 < A ≤ 2 mz.	31%	8%
2 < A ≤ 5 mz.	16%	12%
5 < A ≤ 10 mz.	14%	12%
10 < A ≤ 50 mz.	26%	36%
50 < A mz.	9%	25%
Sample Means:		
Owned Area (mz.)	21.1	57.1
Household Wealth	\$42,000	US\$19,248*
Household Size	5.8	6.4
% Literate Adults	83%	71%
% Adults with primary complete	48%	24%
% Adults with secondary complete	10%	8%
Age of HOH	52	51

*The median wealth for Nicaragua. is about 6,750 dollars.

Table 3a. Formal Sector Rationing Mechanism by Collateral Wealth Quintile in Honduras

Total Wealth Quintile	<i>Price Rationed</i>			<i>Non-Price Rationed</i>		
	with loan	without loan	Total	Quantity	Risk	Total
1.00	2%	38%	40%	40%	20%	60%
2.00	18%	40%	58%	22%	20%	42%
3.00	20%	40%	60%	22%	18%	40%
4.00	27%	43%	70%	12%	18%	30%
5.00	45%	42%	87%	5%	8%	13%
<i>SAMPLE</i>	<i>21%</i>	<i>40%</i>	<i>61%</i>	<i>22%</i>	<i>17%</i>	<i>39%</i>

Table 3b. Formal Sector Supply-side Rationing by Collateral Wealth Quintile in Nicaragua

Wealth quintile	With Formal Loan	Without formal loan	
	% of Households	% of Households with supply	% of Households without supply
1	1.9 (6)	50.2 (156)	47.9 (149)
2	4.5 (14)	61.7 (192)	33.8 (105)
3	4.5 (14)	71.6 (222)	23.9 (74)
4	4.5 (14)	75.6 (235)	19.9 (62)
5	13.6 (42)	74.2 (230)	12.2 (38)
Total	5.8 (90)	66.7 (1035)	27.5 (428)

Number of cases in parenthesis

Table 4. Contract Terms by Lender Type

	n	Loan Size	% with loan term of ... months				Mean term	Interest Rate, I	
			≤6	7 – 12	>12	Un-defined		I	% zero interest
<i>Formal</i>	223	38,775	20%	65%	13%	3%	13.8	29.1	5%
Banadesa	19	33,747	21%	74%	0%	5%	9.1	27.4	16%
Banhcafe	35	42,255	20%	60%	17%	3%	20.4	29.4	6%
Commercial Bank	68	60,566	18%	68%	15%	0%	14.5	32.0	1%
Credit Coop.	90	25,152	21%	68%	15%	0%	12.0	27.4	0%
Other	11	12,086	18%	27%	18%	36%	11.6	9.0	55%
<i>Informal</i>									
<i>Institutional</i>	123	19,611	39%	23%	5%	33%	9.5	34.1	34%
Producer Group	16	9,333	25%	50%	7%	18%	9.6	24.1	0%
Alternative Bank	50	11,621	67%	28%	4%	2%	8.7	33.7	8%
Govt. Program	44	14,056	9%	7%	0%	84%	7.3	20.0	85%
Other	13	77,350	54%	23%	23%	0%	13.4	28.9	0%
<i>Informal Private</i>	277	10,505	39%	24%	2%	35%	6.4	49.4	5%2
Ag. Supply Store	14	20,124	57%	14%	0%	28%	6.0	36.6	70%
Trader/merchant	97	12,363	39%	28%	1%	32%	6.0	50.3	55%
Moneylender	32	16,909	34%	41%	3%	22%	7.8	75.2	21%
Farmer	7	3,914	14%	29%	0%	57%	7.7	NA	100%
Family/friend	127	6,804	39%	18%	2%	40%	6.4	37.7	50%
<i>ALL</i>	623	22,476	32%	39%	6%	23%	10.3	39.1	32%

Appendix B: Figures

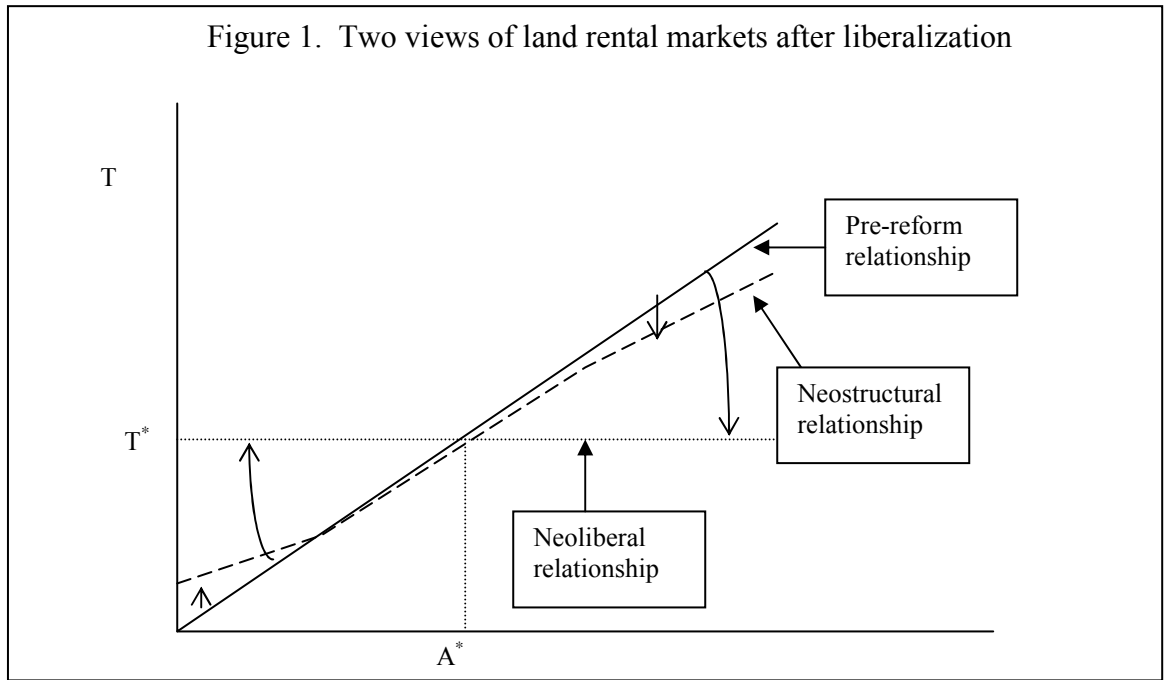


Figure 2 – Land Sales Markets Pre and Post Titling

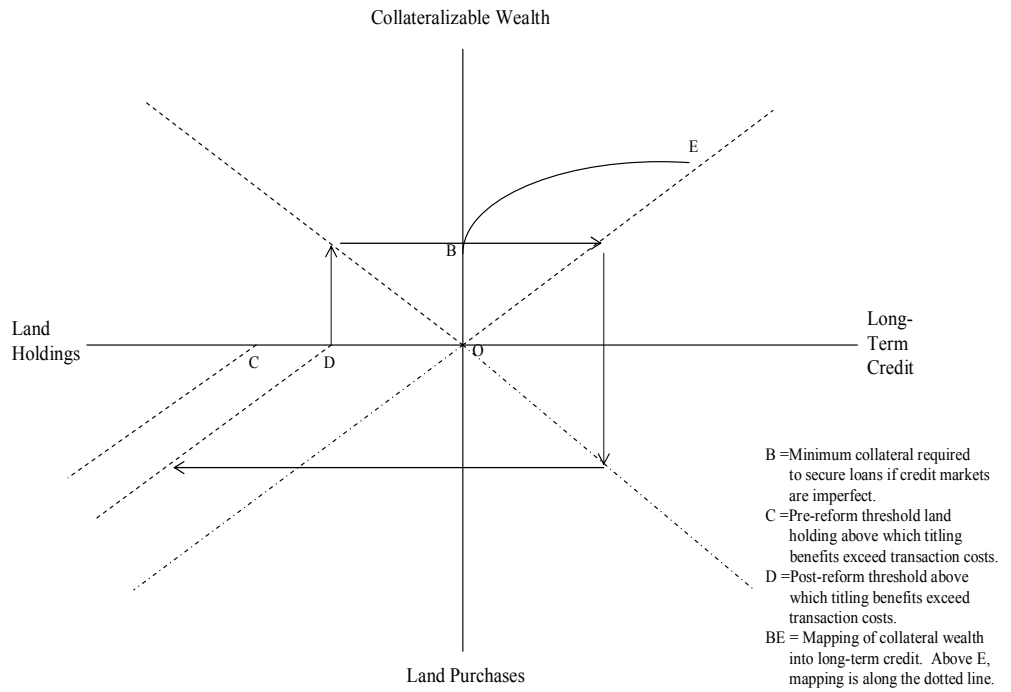


Figure 3. Evolving Land Rental Markets in Honduras

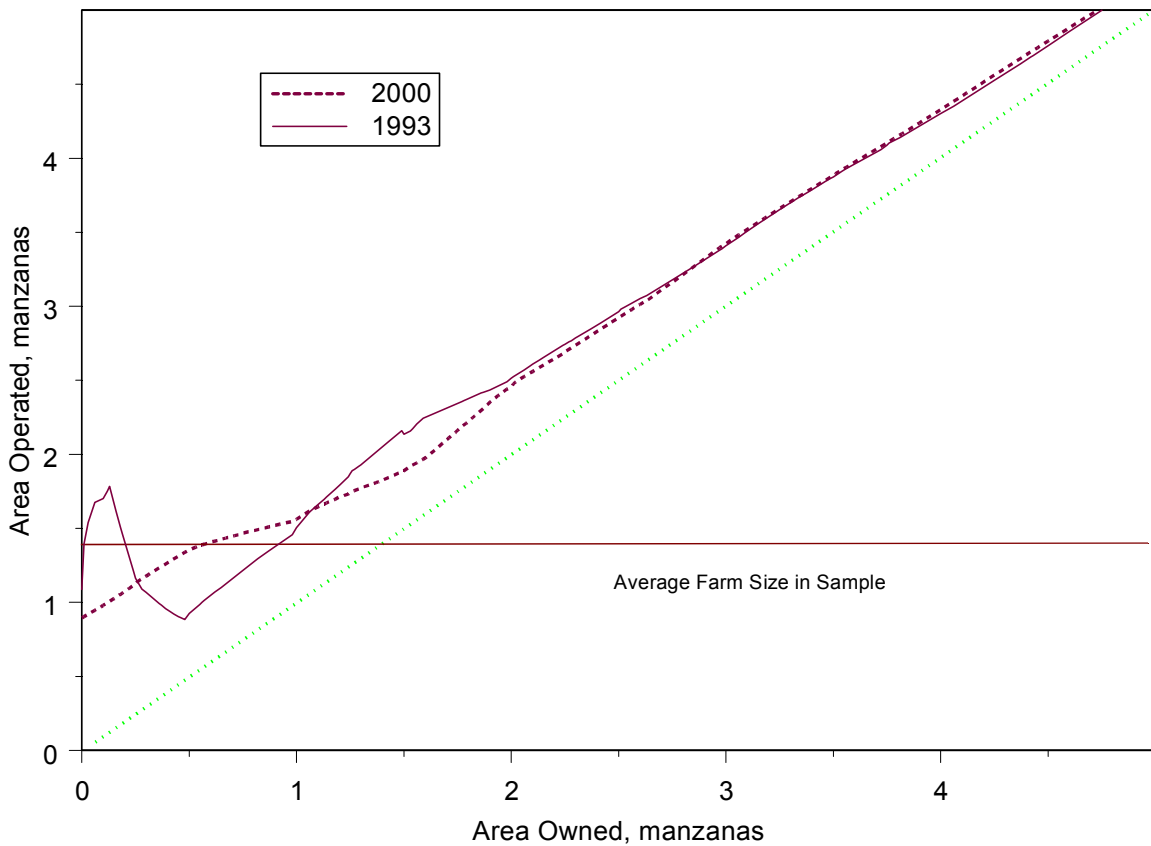


Figure 4. Evolving Land Rental Markets in Nicaragua

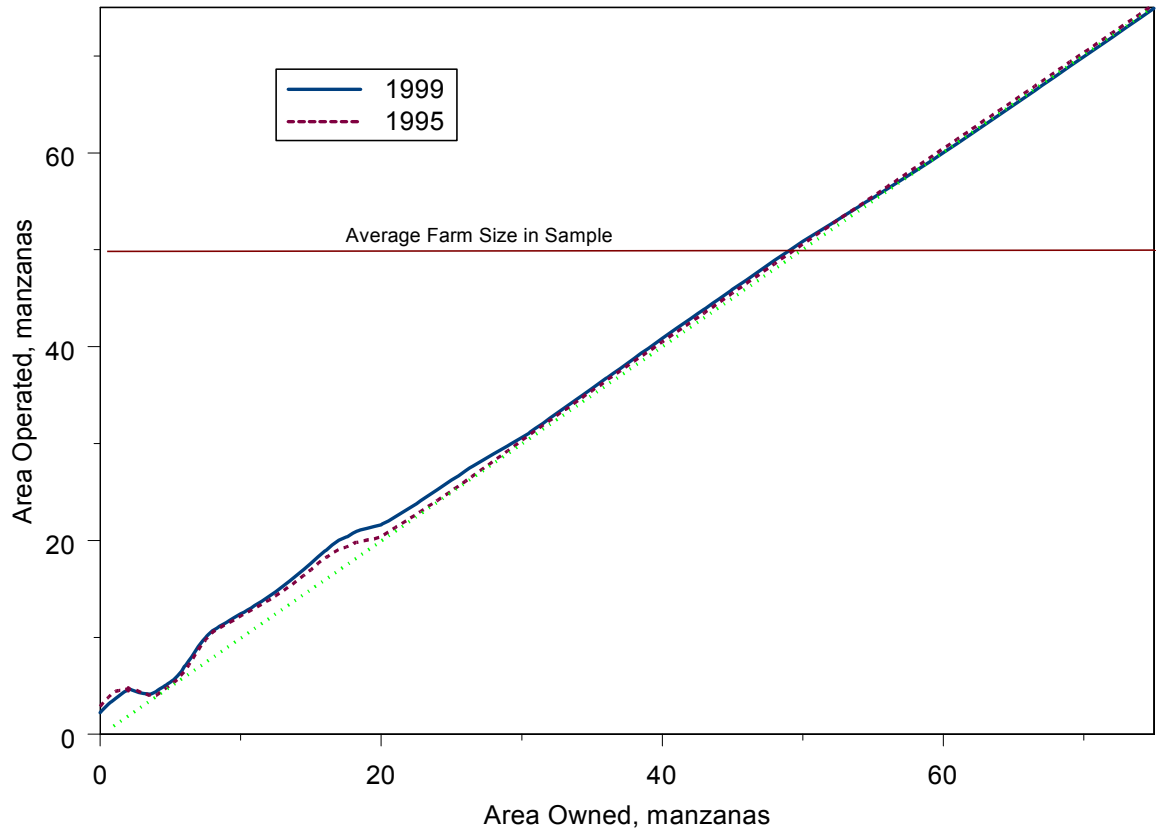


Figure 5. Evolution in Area Owned

