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**LAND TENURE AND THE ADOPTION OF AGRICULTURAL
TECHNOLOGY IN HAITI**

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ABSTRACT

There has long been an active debate in Haiti—as in many other developing countries—over whether or not the customary tenure system constrains technology adoption and agricultural development, and whether cadaster and land titling should be national priorities. This paper contributes to this debate by reviewing and interpreting the body of literature and new empirical evidence concerning the relationship between land tenure and the adoption of technology in rural Haiti. The findings suggest that (a) formal title is not necessarily more secure than informal arrangements, (b) informal arrangements based on traditional social capital resources assure affordable and flexible access to land for most people, and (c) perceived stability of access to land—via stability of personal and social relationships—is a more important determinant of technology adoption than mode of access. The paper concludes that there is no definitive relationship between tenure and technology adoption by peasants; peasants are preoccupied more by political and economic insecurity than insecure tenure; and rather than tinkering with formalizing tenure, policy makers should prioritize other more fundamental rural sector reforms. The paper ends by considering some of the implications for theory and suggests several avenues for future research on land policy.

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LAND TENURE AND THE ADOPTION OF AGRICULTURAL TECHNOLOGY IN HAITI

Glenn R. Smucker¹, T. Anderson White², and Michael Bannister³

1. INTRODUCTION

Experts commonly cite Haiti's complex land tenure system as a key constraint—sometimes *the* key constraint—to agricultural intensification and rural development. These claims have led to calls for national cadastral survey and titling programs to update the formal land tenure system and unleash the rural sector (see USAID 1985, World Bank 1991, IDB 1992, FAO 1991 and 1995, APAP 1995, Nathan 1995, FAO/INARA 1997, MARNDR 1992, Renaud 1934, Victor 1993). At least one pilot cadaster and titling program has been established, and major new investments in land reform are under consideration. The conventional wisdom holds that Haiti's tenure system constrains peasant investment and adoption of technology since a majority of parcels are informally divided and the formal system for administering tenure is ineffective.

These arguments correspond to prevailing property rights theory as represented by Boserup (1965) and Demsetz (1967)—that private, individualized tenure is the most efficient in situations of land scarcity. On the other hand, the empirical evidence suggests that the informal

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system appears reasonably efficient from a peasant perspective, and has evolved in response to other pertinent factors.

The findings described in this paper support Baland and Platteau's claim (1998) that prevailing property rights theory underappreciates three important variables: the role of the state, social capital, and the distributional concerns of local people. The evidence suggests that land scarcity in Haiti is acute, and labor—in simple, aggregate terms—is in abundant supply; however, access to labor remains a critical issue for most Haitian peasants. In this rural context of extreme cash scarcity, labor serves as the primary medium of exchange. Access to a colleague's labor is, on the margin, more important than access to land.

Empirical evidence from Haiti challenges the proposition that direct interventions to reform tenure—especially large-scale cadastral survey and titling—should be a priority for rural Haiti. Instead, more fundamental reforms must first be addressed. Furthermore, the evidence shows that peasant social relations support agricultural intensification even in the absence of formalized property rights and titles.

The purpose of this paper is to contribute clarity to this debate by reviewing and interpreting the body of literature concerning relationships between land tenure and the adoption of technology in rural Haiti. The paper first summarizes the modern context of peasant production and Haiti's statutory and customary tenure systems. The paper then reviews the results of previous studies on tenure and adoption, and the recent national household Baseline Survey of food security commissioned by USAID (BARA 1996a, 1996b, 1997) and analyzed by the World Bank (Wiens and Sobrado 1998). Next, the paper presents important new data

from the PADF agroforestry impact survey (Bannister 1998a, 1998b) and concludes with a discussion of findings, including implications for theory and future research.

CONTEXT OF PEASANT PRODUCTION

In 1804 Haiti became the New World's second republic and the world's first nation of free citizens to achieve independence from Europe. A colonial social structure based on acute class stratification set the stage for Haiti's post-independence evolution as a deeply divided society.⁴ After 1804, the masses of former slaves established themselves as independent freeholders—a reconstituted peasantry.⁵ Peasant society emerged as largely self-regulating to cope with geographic isolation, exclusion from the political system, exploitative market relations, regressive taxes, and the virtual absence of state investment in the rural sector. In response, Haitian peasants created a complex network of local institutions to ensure social security and channel access to land, labor, and capital.⁶

⁴ See Leyburn (1966), Mintz (1974a), and Farmer (1994) for reviews of colonial history and implications for national development; James (1963) and Saint-Louis (1970) on the Haitian revolution; Trouillot (1990), Fass (1988); Lundahl (1979, 1983, 1992); and Cadet (1996) on Haiti's political economy and poverty.

⁵ Mintz (1974a) coined the term "reconstituted peasantry," and identified the antecedents of peasant production strategies under the slave plantation regime of colonial Saint-Domingue. See Leyburn (1941) and Moral (1961) for historical origins and the early evolution of Haitian society, and Lundahl (1979) for economic history including the role of land.

⁶ For reviews of the emergence and nature of rural institutions see Barthelemy (1989, 1996) and field ethnographies including Murray (1977), Smucker (1983a), and Woodson (1990). See Lundahl (1992) for a review of the informal system of social security in Haiti, and SACAD and FAMV (1993) for a synthesis of numerous papers on peasant agricultural strategies.

Historically, peasant agriculture has been Haiti's primary economic activity. An estimated 59 percent of Haiti's population is rural—one of the highest rates in the region.⁷ Most farmers in Haiti are mountain peasants with farm units composed of several dispersed field plots. Recent national surveys confirm that the vast majority of peasants continue to be owner-operators by purchase or inheritance (see Table 1); however, average landholdings are small, fragmented, and generally of poor quality.⁸

Land, labor, and social relations are the most important assets of the household economy. Peasants actively manage kin ties, fictive kinship (godfatherhood), patron-client relations and other special relationships as social capital that can be leveraged for access to land, labor and capital. Cash resources are extremely scarce; farm strategies tend to be labor intensive. Land is the most significant tangible asset and serves as a powerful fulcrum for access

⁷ Demographic data are based on population projections estimated at 7,630,997 in 1998. The most recent national demographic survey (see Cayemittes 1995) was undertaken by the Enquête Mortalité, Morbidité et Utilisation des Services (EMMUS-II) of the Institut Haïtien de l'Enfance (1994/95). This survey estimated the rural population at around 63 percent in 1993 and decreasing due to out-migration from rural areas and rapid urban growth, around 4 percent annually in the capital city.

⁸ See Zuvekas (1978) for available census data. According to national census data of 1971, the average size of peasant holding is less than 1.5 hectares, and the average plot size is less than 0.8 hectares. The census data on farmland and its distribution may not be reliable. The census data do not recognize mixed status categories, nor do they distinguish production units from landholding units. Nevertheless, the census data are indicative of the fragmentation and small size of peasant farms. The recent USAID survey, interpreted by Wiens and Sobrado (1998), found that over 90 percent of farmers have access to land and that two-thirds own land either through purchase or inheritance. The average farm size is about 1.7 hectares and these farms are comprised of an average of 3.7 dispersed plots. Farmers average only 0.6 hectares of good or mixed quality soil.

to labor and capital resources. Farmers are acutely aware of micro-site variations, such as topography and soils, and actively diversify land portfolios and cropping

Table 1: Distribution of modes of access to land^a

Source	Ownership ^b	Purchase	Parcels in each category		Rent	Sharecrop	Other
			Divided	Undivided			
			Inheritance	Inheritance			
(percent)							
Wiens & Sobrado (1998) ^c	65.5	32.4	33.1	7.5	8.4	11.9	6.6
Bannister (1998) ^d	53.2	38.5	14.7	21.0	12.6	10.0	3.3
USAID (1995) ^e	58.2	38.6	19.7	14.0	12.1	5.5	10.2
ADS II (1988) ^f	61.0	—	—	13.0	9.0	9.0	7.0
Zuvekas (1978) ^g	60.0	—	—	—	14.3	14.4	11.1

Notes:

^a Tenure categories as defined here include direct access to land by virtue of ownership and indirect access through tenancy.

^b Ownership is defined as “purchased” plus “divided inheritance” plots. “Purchased” and “divided inheritance” categories do not distinguish formal from informal transactions, and may not have updated title.

^c Data source: USAID food security survey—a nation-wide, area-frame Baseline Survey of 4,026 households (BARA 1996a, 1996b, 1997).

^d Data source: PADF/PLUS agroforestry impact study—a list-frame survey of 5,658 plots and 1,540 households. The category of “other” includes leasehold on state lands, and plots controlled by a land “manager” for absentee landlords.

^e Data source: Interim Food Security Information System (IFSIS)—a nationwide, area-frame sample of 5,000 agricultural parcels. In this survey, the “other” category includes “gift” (1.32%) and “other arrangements” (8.87%).

^f Data source: Agricultural Development Support Project (ADS II, 1988)—a nation-wide, area-frame sample of 1,307,000 parcels. In this survey, the “other” category includes “rental from state” (4%), “without title” (2%), and “other” (1%). The “ownership” category includes purchased and divided inheritance lands.

^g Data source: Institut Haïtien des Statistiques (HIS)—a nation-wide census of 1,484,385 plots. In this survey, the “other” category includes “rental from state” (3.8%).

patterns to manage risk and spread out harvest cycles. As a strategy for survival, most peasants tend to focus on reducing risk rather than maximizing production. Managing a peasant household's stock of social capital is the key element of this strategy.⁹

Recent surveys indicate that 81 percent of rural households fall below the poverty line.¹⁰ This alarming level of poverty reflects a precipitous decline in Haitian agriculture. Production per capita dropped 33 percent since 1980 and agriculture's contribution to GNP dropped from 47 percent in the 1970s to 24 percent in 1996.¹¹ This abrupt decline coincides with acute land scarcity, the closing of the agricultural frontier, and prolonged political and economic crisis in Haiti since the mid-1980s. The agricultural sector is significantly decapitalized and there is limited public investment in rural infrastructure. A shortage of off-farm employment opportunity heightens the extent of rural poverty. Despite recent efforts to decentralize and democratize the

⁹ The literature on Haitian peasants includes numerous references to risk management, agricultural strategies focused on survival issues and food security, and the importance of retaining a diversity of plots, cultigens and income sources. See Smucker (1983a, 1983b), Ehrlich et al. (1985), BARA (1997), Kermel-Torres and Roca (1993), Gagnon (1998), Zuvekas (1978), Wiens and Sobrado (1998), Moral (1961), and SACAD and FAMV (1994b).

¹⁰ See Wiens and Sobrado (1998) on the USAID food security baseline survey (BARA 1996a, 1996b, 1997). They find 67 percent of households surveyed below the indigency line, 81 percent below the poverty line, and only 28 percent of food consumed by peasants as self-produced. The indigency line is defined as the local cost of reaching the FAO minimum nutritional standard of 2,240 calories daily per capita with a diet that matches the food expenditure percentages of the average sample household.

¹¹ See USAID (1997) among others. This document also reports a decline of 33 percent in the number of calories consumed per person per day since 1980. Further, agriculture's share of total export value fell from around 60 percent in the 1970s to less than 10% by the end of the 1980s.

economy and the state, reform efforts have yet to make a palpable difference in rural areas.

The peasantry remains in a state of chronic and growing crisis.¹²

2. LAND TENURE SYSTEM

ORIGINS

In 1804, the new Haitian state acquired immense holdings by confiscating French colonial estates and asserting state ownership of all unclaimed lands. Informally, newly freed slaves established themselves as independent agriculturists in areas of weak government control. Victor (1993) estimates that over a third of Haiti's present territory was settled outside of government control. Between 1807 and 1817, President Pétion distributed 150,000-170,000 hectares to some 10,000 beneficiaries (Moral 1961). Land distribution in Haiti today remains significantly more egalitarian than elsewhere in the Caribbean and Latin American region (Lundahl 1997; Zuvekas 1979).

OWNERSHIP, LAW AND CUSTOM

The literature on Haitian land tenure is based primarily on local community studies, old census data, especially the census of 1971, and other more recent survey data. Community studies include research in widely dispersed areas of the country, lowland plains, and mountain communities. Review of the literature suggests that categories of access to land are fairly

¹² See the World Bank (1998), *Haiti: The Challenges of Poverty Reduction*. For a review of the economics of long term rural decline, see Lundahl (1979), "The Haitian peasant

standard throughout most of rural Haiti. The duality of formal and informal systems is applicable in all regions of the country.¹³

Identifying characteristics of Haitian land tenure include the following: (1) individual, private property is the rule, (2) peasant smallholders predominate over large holdings, (3) the majority of peasant farmers are owner-operators of their own land, (4) peasant farms are composed of several non-contiguous parcels, (5) most peasants are simultaneously landlords and tenants, (6) land is readily bought and sold without updating title, (7) inherited land is divided equally among all children of the deceased, (8) farm holdings are built up over the course of a lifetime, then divided and dispersed (Oriol 1996; Bloch et al. 1988).

Land tenure categories discussed in this paper are categories of access rather than strictly legal categories based on title or lease contracts. This includes direct access to land by virtue of ownership and indirect access through various forms of tenancy or usufruct. Table 1 summarizes overall distribution of agricultural plots by direct and indirect modes of access. A farmer may own, rent, and sharecrop several plots. Therefore, it is important to distinguish farm operations (land use) from its proprietary base (land ownership and control).¹⁴

Haitian peasant holdings are firmly grounded in the concept of private property. Peasant land ownership originates from formal and informal purchase, inheritance, and gifts.

sector is caught in a downward spiral of circular and cumulative causation which slowly depresses the standard of living among the peasants.”

¹³ See FAO/INARA (1997), Victor (1993), Bloch et al. (1988), Ehrlich (1985), Renaud (1984), and Zuvekas (1978).

¹⁴ See Wiens and Sobrado (1998), Bannister (1998), Bloch, Lambert, Singer, and Smucker (1988).

According to national surveys, peasant owner-operators own 37 percent of all agricultural parcels by purchase, 23 percent via divided inheritance, and 15 percent via undivided inheritance (averages based on Table 1).¹⁵ Other forms of access derive from a variety of arrangements including usufruct, non-formalized gifts of land, pre-inheritance, plots controlled by land managers for absentee landlords, and leasehold on state land.

In keeping with the profound dualism of Haitian society, land tenure arrangements are marked by two parallel systems—one legal and the other customary.¹⁶ In practice, the two systems are interactive and constitute a type of legal pluralism rather than two discrete systems.¹⁷ Statutory (legal) land transactions and entitlement rely heavily on documents prepared by notaries and updated survey. In general, peasant land transactions reflect skepticism of notaries, land surveyors, and virtually all agents of the state including the judiciary.

¹⁵ Findings of INARA (1997), Oriol (1997), Wiens and Sobrado (1998) and Bannister (1998a) are consistent with earlier findings. See Zuvekas (1979) for an earlier compilation of studies demonstrating ownership.

¹⁶ See MARNDR (1992), Victor (1989 and 1993), Bloch et al. (1988), and Montalvo-Despeignes (1976), among others, on the dualism of law and custom, and reviews of Haitian land law and pertinent literature.

¹⁷ See Benda-Beckman (1995) for a definition of legal pluralism drawn from legal anthropological studies: “. . . the simultaneous existence of multiple normative constructions of property rights in social organizations (legal pluralism).”

In the customary system, people make land available in response to family obligations, special ties to fictive kin (godparenthood), and various forms of clientship (e.g., labor relations, personal loans, banking of favors). Normatively, kinship groups have an obligation to make land available to all family members. Informal (customary) tenure arrangements among peasant farmers tend to be self-regulatory. Peasant farmers occasionally update title to inherited land, but ownership rights stem primarily from kinship ties and transactions not regulated by law. Most farmers hold land by extra-legal agreements, but owners of informally divided inheritance plots may also refer back to master deeds three or four generations removed (Murray 1977; Barthélémy 1996).

There is a lively land market in among peasants in Haiti. Land sales are driven by consumption and the need for cash in a household economy characterized by extreme cash scarcity. In addition to its value as a basic factor of production, land is held as a store of value or insurance fund for crisis, illness, burial, ceremonial obligations, schooling, or out-migration (Murray 1977; FAO/INARA 1997).

The recent FAO/INARA study estimates that 95 percent of land sales in rural Haiti avoid the formalities prescribed by Haitian law. There is some evidence that updated title is more common in irrigated zones or peri-urban areas subject to high rents and speculative land values. Farmers make every effort to avoid, diminish, or postpone notarial fees, survey costs, taxes, and other charges for land registration and updated title.¹⁸ From a

¹⁸ See Bruce and Migot-Adholla (1994) for reports of such practices in Africa.

peasant perspective, avoiding surveys also diminishes the risk of land loss due to the high cost of surveying and revising current plot lines to conform to old master deeds. In the Haitian context of legal pluralism, formal title is not necessarily more secure than informal arrangements, although it is demonstrably more expensive and considerably less flexible than the informal system.¹⁹

In general, patterns of inheritance redistribute family land with the passing of each generation. In both law and custom, all recognized children have equal rights to a share of parental land holdings. The mechanism of inheritance tends to maintain egalitarian distribution of land; however, subdivision also perpetuates fragmentation and diminished plot size over time. With high population growth, the size of farm units and individual plots has diminished dramatically since the nineteenth century. The effects of fragmentation are mitigated by out-migration, consolidation of shares (usually by men since women commonly marry out and move away from the family land base), and customary restrictions against selling inherited land to outsiders (non-kin) (Barthélémy 1966). Customary norms assure potential access to land by all members of the family, but the system rewards family members who stay on the land rather than migrating or marrying outside the community.

Strictly from a legal perspective, the most striking feature of the overall system is the prevalence of legally undivided inheritance land, and a general reluctance to update title for land transfers. From a statutory perspective, undivided family inheritance retains

¹⁹ See FAO/INARA (1997, Chapter 5.4), FAO/IDB 1998, 24, Oriol (1996), Murray (1977), Moral (1961), McLain et al. (1988), Bloch (1988), Victor (1984), Smucker (1983).

its legal status as a single block of land even when subdivided by custom. Once divided by custom, these shares are readily bought and sold informally among heirs. Consequently, the percent of legally undivided family inheritance is undoubtedly higher than shown in national census and survey data. Land access categories in Table 1 do not distinguish statutory from customary forms of land purchase or inheritance.

As illustrated in Table 1, about 10 percent of all agricultural plots are accessed via rental agreements and 10 percent via sharecropping agreements. Most sharecroppers are not solely dependent on sharecropping. Peasants generally view sharecropping as a favor to the tenant since land and cash are both scarce. Paying rent in cash is commonly viewed as a favor to the landlord—perhaps a relative faced with a heavy burden of funeral debt. Some tenants retain continuous access to rented or sharecropped land for many years. Others rent land for shorter periods when the tenant's own holdings are in fallow or otherwise occupied (McClain et al. 1988).

In the customary system, people also make land available by usufruct, especially to kinfolk. Usufruct may be limited to specific rights such as the right to harvest particular trees or bushes (coffee, fruit), grazing, or agricultural use for a single growing season. Usufruct may also take the form of pre-inheritance plots with the understanding that the beneficiary will cover the giver's eventual burial costs. Some inheritance land remains undivided—even informally—for several generations. In such cases, co-heirs and their descendants may retain joint use rights to house sites, wood lots, pasture, or ceremonial sites (Smucker 1983; Oriol 1996; Barthélémy 1996).

Leaseholders and squatters on state land are a significant exception to the rule of private property. Oriol (1993) calculates the number of state leaseholders at around 35,000 or roughly 5 percent of rural households and 10 percent of agricultural land.²⁰ Peasant leaseholders on state lands treat their leases as though they were private property—buying, selling, renting, sharecropping, and inheriting their lease rights by customary agreements.²¹

3. LAND TENURE SECURITY

In this context of legal pluralism, with the prevalence of informal modes of access to land, what ultimately defines land tenure security and insecurity? From a juridical perspective, clear and defensible title derives ultimately from the state. Clear title should presumably ensure long-term access to land, freedom to alienate the asset, and freedom from the threat of eviction. As a corollary, juridical insecurity exists when the landowner or land user lacks the necessary legal status (clear title, lease) or the institutional means (court system, law enforcement) to enforce property and leasing rights.

By these measures, peasant farmers in Haiti do not enjoy land tenure security. This juridical insecurity stems from contradictions in land law and weak institutions of enforcement. First, most peasant landholdings are not covered by updated title. This is

²⁰ ADS II (1986) estimates 4 percent of agricultural parcels under state leasehold. Victor (1993) notes that estimates of state land vary from 100,000 to 300,000 hectares. There are no verifiable inventories of farmers on state lands or the amount of state land.

²¹ See Bloch et al. (1988) and author interviews (Smucker and Delatour 1979; Smucker and Smucker 1979) with leaseholders on the offshore island of La Gonave and the Northwest Department.

due in large part to the high transaction costs. Secondly, those with updated title cannot adequately defend their rights in a court of law. Victor (1993) views insecurity as a permanent feature of Haitian land tenure and a direct product of the Haitian political system.²²

What emerges from field studies is a generalized peasant distrust of the law, and primary reliance on social relations and customary arrangements to ensure access to land. Most peasants are aware of procedures for formalizing land ownership. They value updated title to land; however, customary arrangements are standard in virtually all peasant households. Co-heirs may revert to the formal system to sell inherited land to outsiders (non-kin). In most of rural Haiti, the formal system is a recourse of last resort in managing land conflict (see Murray 1978a; Smucker 1983a).

Peasants may turn to the formal system when the informal system proves unable to resolve conflicts over inheritance or rightful ownership. This course of action is prohibitively expensive for most peasant households. Recent research on land conflicts adjudicated by the courts has concluded that the courts are often unable to arrive at a definitive judgment, and that the judicial apparatus is generally unable to enforce its judgments (FAO/INARA 1997).

Customary law privileges the possessor. Peasant rights and claims are strengthened by continuous presence on land. Co-heirs who remain on the land assume

²² Clear title does not provide protection from intervention by powerful outsiders, land invasions to reclaim lost land, or the takeover of unoccupied land, usually in the aftermath of changes in government (FAO/INARA 1997; Moral 1961). Such incursions, however, are more commonly reported on state lands, peri-urban zones, irrigated zones, or sites with speculative value.

control of absentee shares and consolidate adjoining shares of inheritance into larger blocks of land. Co-heirs and kinfolk have priority for land purchase. Longstanding sharecroppers or leaseholders also enjoy priority over others for the opportunity to purchase (Smucker 1983b).

Poverty is itself an important source of land tenure insecurity. In a cash starved peasant economy, farmers find it difficult to expand their land base by purchase, and are not inclined to invest scarce savings to update title. Furthermore, viable land holdings are not transmitted intact to the next generation. Subdivision gives each member of the next generation a stake in the land—however meager that stake might be. This is a two-edged sword: people have a stake in the land—a social safety net and access to land through of customary law, but for most people the land base is inadequate by traditional peasant standards. Mintz (1974b) describes this as a “concealed proletariat”—land-poor smallholders who rely heavily on agricultural day labor or other intermittent sources of income. The overall system redistributes the wealth in land, mitigates poverty, and, in effect, shares the poverty.

The FAO/INARA study (1997) assessed the formal land tenure system and concluded the following: (a) the judicial system is incapable of guaranteeing land tenure security even for those able to take full advantage of it, and (b) the system actively

generates land conflict and insecurity.²³ This tends to confirm Victor's assessment that agrarian law is contradictory and ill adapted to the rural social context and Haiti's customary system (Victor 1993). For example, the FAO/INARA study identified five separate means of formal entitlement, a situation that generates rival ownership claims.

Tenure security is significantly undercut by the absence of a functioning, independent judiciary to ensure enforcement. Most peasants are virtually excluded from due process by the inaccessibility of courts. There are no courts in Haiti's 565 rural sectional jurisdictions, and only a small number of courts are authorized by law to judge land disputes. The lower courts most accessible to peasants have very limited formal authority over land disputes. FAO/INARA notes that the courts are interminably slow, corrupt, and politicized. Therefore, broad based reforms and a viable system of justice are essential pre-conditions for land tenure security.²⁴

Haiti today lacks a comprehensive, operative system for recording land ownership. Victor (1993) supports the cadaster as an essential tool in reforming the system, but notes that Haitian laws on cadaster have never been implemented and cadaster projects have generally failed. The government together with foreign agencies or investors has carried

²³ See Chapter 2, La sécurité foncière et ses garants: "...il n'y a en Haiti aucune garantie ou sécurité foncière opposable à tous." See Chapter 3, La gestion des conflits: droits et propriété et tribunaux: "Le dysfonctionnement des institutions préposées à assurer la sécurité foncière...est générateur d'insécurité foncière et producteur de conflits fonciers, violents ou larvés."

²⁴ See FAO/INARA 1997, especially chapters 2 and 3 cited above, and FAO (1995).

out cadastral surveys as an element of project investment or agro-industry. This has sometimes had the effect of excluding peasant smallholders (FAO/INARA 1997).

Local cadasters were undertaken in irrigated zones of Haiti's Gonaives Plains (1974-79) and the Artibonite Valley (1950s, 1980,1982). In these cases, physical cadasters were undertaken with the promise of land reform, but delivery of title to peasants never materialized (Victor 1993). It is also interesting to note that landowners within the perimeters of these local cadasters have commonly made a choice not to register subsequent land transactions despite the offer of free registration. There is some evidence of success in the use of physical cadasters to regulate water rights—an approach based on water users within an irrigated perimeter—regardless of tenure status (Hauge 1984).

In a context of high risk within the statutory system, it is hardly surprising that peasants rely heavily on extra-legal maneuvers. The customary system offers a more manageable level of risk. Customary arrangements lower financial and transaction costs. They are flexible and adapted to daily realities of peasant decision-making. For the vast majority, the informal system assures at least minimal access to land—the pivotal asset of peasant livelihood. Peasants use mixed patterns of tenure to defray labor costs, ensure cash flow, and meet social obligations based on kinship ties or patron-client relations. Finally, the customary system is locally controlled and addresses household imperatives to manage risk, enhance social security, and set aside an insurance fund.

The literature on Haitian land tenure describes a context of legal pluralism. In current practice, customary forms prevail and appear more reliable than the statutory system. Haitian

peasants are more concerned with security in tenure rather than tenure security. That is, secure access is not defined by title security. Rather, peasant smallholders are concerned most of all with stability of access. Assured access is largely dependent on kinship status and one's personal stock of social capital.²⁵

4. TECHNOLOGY ADOPTION AND TENURE

The vast majority of Haitian peasants claim land ownership through formal and informal procedures. At issue is whether peasants feel secure enough to adopt agricultural technologies and invest in their land. This section first reviews the results of previous studies on tenure and the adoption of agricultural technologies and then presents new evidence from the agroforestry impact survey conducted by the Pan American Development Foundation.

RESULTS FROM PREVIOUS STUDIES

National Food Security Baseline Survey

Between 1994 and 1996, USAID funded the Baseline Survey, a national-level survey on food security that included questions on land tenure, adoption of agricultural technologies, inputs, production, demography, and nutrition.²⁶ This survey of 4,026 households

²⁵ See Locher (1988), Murray (1978a) and 1979), SACAD/FAMV (1994a and 1994b), and Bloch et al. (1988). McClain et al. (1988) collected data on length of occupancy for all tenure types, finding a high incidence of lengthy periods of tenure even for short-term forms of tenure.

²⁶ Under USAID sponsorship, three NGOs, CARE, the Adventist Development and Relief Agency (ADRA), and Catholic Relief Services (CRS) conducted the food security Baseline Survey, each in a different region of the country. The Bureau of Applied Research in Anthropology (BARA), University of Arizona, analyzed and published the findings. For the detailed reports, see BARA (1996a, 1996b, 1997).

generated the most comprehensive set of household data of the 1990s and the only national-level data relating tenure, adoption, and productivity. Wiens and Sobrado (World Bank 1998) analyzed the data to better understand the dynamics of rural production and poverty. Only the findings related to tenure will be reported here.

First, Wiens and Sobrado examined simple correlations between tenure type and agricultural practices. Five types of land access—purchased, inherited-and-divided, rented, sharecropped, inherited-and-undivided—were tested against four types of practices—cropping pattern, degree of crop diversification, input intensity, and the adoption of soil conservation techniques. Wiens and Sobrado tested the partial correlations while holding area cultivated and area of good or mixed quality soil constant, as these variables may be associated with particular tenure patterns and may mask other relationships if not held constant.

As judged by partial correlation coefficients with $p \leq 0.05$, they found no significant relationships between tenure and agricultural practices tested, except for sharecropping. Sharecropping was positively correlated with the proportion of agricultural output represented by corn, rice, and chickens, and negatively associated with growing vegetables and other cash crops. Sharecropping was not negatively associated with purchased input, but was negatively associated with the practice of fallowing.

Next, Wiens and Sobrado prepared a regression to predict crop output per hectare using data on 2,922 farms. Though the regression was highly significant, again, variables indicating tenure types were not significant, except for sharecropping which was found to be

negatively related. In addition, they found that sharecropping had productivity levels 72 percent of the average.

Finally, Wiens and Sobrado tried to determine the characteristics of “successful” peasants. This they defined as those who worked at least 0.3 hectares and had relatively high levels of crop productivity and household expenditures. They prepared a logistic regression to determine the probability of being successful or not. Again, the distribution of tenure types was not significantly different between the successful and unsuccessful peasants at $p \leq 0.1$. Successful peasants had no different access to their land than did unsuccessful peasants. This finding corroborated another result from the entire sample of households: farmers own (including access via purchase, divided and undivided inheritance) approximately two thirds of all land worked regardless of income level. Wiens and Sobrado concluded that tenure was not generally a constraint on technology adoption or on production and increases in income. Their findings on sharecropping were consistent with interpretation of sharecropping as a mutually advantageous practice to mitigate risks on marginal land.

Local Level Project Studies

Perhaps the majority of agricultural and natural resource management projects have focused on technology transfer and proposed a relatively short menu of technologies to peasants

in contrast to broader based rural development projects.²⁷ Some of these projects have assessed the relationship between tenure and technology adoption.²⁸

The most pertinent study was Smucker (1988) who carried out field research and summarized findings from six community studies assessing factors affecting peasant planting of project tree seedlings. He found that peasants preferred to plant on purchased and divided inheritance lands; however, they regularly planted on undivided inheritance lands and other short-term forms of tenure. In some communities with less purchased land available, the majority of trees were planted on undivided inheritance lands (Buffum 1985). In all six communities, peasants planted trees on rented and sharecropped plots in addition to owned plots. In a separate, but related survey, Conway (1986) surmised that planting trees on undivided land was a strategy to enhance individual claims to specific portions of jointly inherited land.

After reviewing the evidence from Conway (1986) and six community studies, Smucker (1988) concluded that peasants expressed a clear but far from exclusive preference for adoption on purchased and divided tenures. These findings corroborated those of a similar study assessing correlations between tenure and adoption of soil conservation methods (Pierre-Jean and Tremblay 1986). Smucker surmised that, although the tenure system as a whole was

²⁷ See White and Jickling (1992) on projects offering a limited menu of technologies, and Durette, *Manuel de l'agronomie tropicale* (1991) on rural development projects.

²⁸ Zuvekas (1978) and Murray (1978a) reviewed the literature on tenure and found no conclusive links between tenure constraints and failure to adopt.

characterized by insecurity, this limitation was commonly overcome by personal ties and obligations, and did not prevent peasants from planting trees on a broad range of tenure types.

In the area of Les Anglais in southern Haiti, McClain et al. (1988) carried out land tenure research and tested for tree cover, tenure categories, and length of occupancy. They noted a strong correlation between length of occupancy and degree of tree cover regardless of tenure category—including trees on typically short-term tenures such as sharecropping. This remarkable finding, that tenure categories and length of occupancy were not significantly correlated, suggests that sharecropping and rental arrangements were renewed regularly and provided uninterrupted access comparable to long-term categories of tenure. The FAO/INARA study in nine different agro-ecosystems lends some support to this finding (1997).

White and Runge (1994, 1995) assessed the collective adoption of watershed management in multi-owner watersheds of Maïssade. The study asked two questions: (1) what factors were associated with individual choice to participate in the collective management activity; (2) what factors were associated with the emergence of watershed management regimes? White and Runge found no significant difference between the tenure status of participant and non-participant groups, and no significant difference in the distribution of tenure types in successful and unsuccessful watersheds. The emergence of successful watershed regimes was explained by two factors: significant economic gain from the action, and a critical mass of social capital derived from labor exchange practices and the existence of producer groups. Both conditions were necessary, and neither sufficient.

In a context where labor commonly substitutes for cash as a medium of exchange, White and Runge concluded that labor in times of need was effectively more important than cash or tenure. The need for labor and the social organization of labor diminished the potential for disputes over tenure. The authors further concluded that a preoccupation with tenure status was misplaced, and deflected attention away from social and cultural determinants of access to land. Land title or tenure type was not the key factor, but rather the degree to which individuals were incorporated in a nexus of enduring and well adapted set of personal and social relations (White and Runge 1995).

The sum of local level project evidence suggests that farmers make investment decisions based on their perception of prospects for long-term access to a plot—regardless of its tenure status, including investments that actively enhance their prospects for long-term access. This suggests that perceived stability of access to land—via stability of personal and social relationships—is a more important determinant of technology adoption than mode of access.

NEW EVIDENCE: THE PADF IMPACT STUDY

The Pan American Development Foundation (PADF) implements the Productive Land Use Systems (PLUS) project financed by USAID. This agroforestry extension project provides plant materials and technical assistance to interested farmers, and has reached 100,000 hillside farmers since 1992. In 1996, PADF carried out an impact survey of PLUS farmers that included information on land tenure and adoption of agroforestry practices (Bannister 1998a, 1998b). Survey conclusions may not characterize all Haitian farmers;

however, comparison with household data reported by Wiens and Sobrado (1998) suggests that both samples represent similar populations in terms of access to land and soil fertility.²⁹

The survey collected data on all plots worked or owned by 1,540 peasant households for a total of 5,663 plots, and additional information on 2,295 plots having project-inspired agroforestry practices including site characteristics, crop yields, technician observations, and farmer perceptions of agroforestry practices adopted. The sample represented 5.6% of the 27,728 farmers who had adopted project technologies prior to January 1, 1995. The survey was repeated in the spring of 1998 with 931 farmers (1 percent of eligible farmers) and 1,658 plots.

Tenure and Plot Characteristics

Bannister tested for correlations between tenure and plot distance from the residence, area, topographic position, slope, elevation, erosion, and farmer perception of

²⁹ The number of persons per household is the same (5.78 for Wiens and Sobrado, 5.6 for PADF), but other characteristics of the household are somewhat different. PADF households contained on average 54% males, with 85% of heads of household being male. The corresponding percents for the Wiens and Sobrado sample were 49% and 72%, respectively. The average percent of heads of household having six or fewer years of school was 58% for Wiens and Sobrado, but 85% for the PADF sample. The average size of the total holdings per household was 1.7 hectares for PADF, 1.78 hectares for Wiens and Sobrado. Of this total, the PADF households averaged 1.26 hectares owned (purchased plus inherited), and 0.59 hectares in good or mixed soil quality. The corresponding numbers for Wiens and Sobrado were 1.20 hectares and 0.62 hectares, respectively. Purchased plot area accounted for 37% of PADF households' total area, and 32% of the Wiens and Sobrado households' total area. The largest 1% of farms occupied 8% of the total area for PADF and 10% of the total area for Wiens and Sobrado.

soil fertility.³⁰ Residential garden plots were more likely to be purchased. Farmers had purchased 49 percent of residential plots, 35 percent of nearby plots, and 37 percent of distant plots.³¹ Among plots visited by technicians, sharecropped plots were somewhat more distant than plots in other tenure categories.³² Purchased plots averaged 0.53 hectares, significantly larger than divided, undivided, and sharecropped plots. This suggests that buying/selling markets have worked against the poor.³³

The survey found no significant differences between tenure types in terms of elevation, topographic position, slope, or severity of erosion.³⁴ There were statistically significant differences in soil fertility (see Table 2). A higher percent of purchased plots were in the high fertility category compared to other plots, and there was no evidence of use of organic fertilizers on these plots.³⁵

³⁰ Tenure categories in the PADF survey included some state rentals and plots managed by caretakers for absentee landlords. These categories are not noted here, as they were not introduced in earlier discussion of the land tenure system, and are not directly pertinent to the focus of this paper.

³¹ 3 by 5 cross tabulation, Pearson's chi-square, p-value .000.

³² Kruskal-Wallis test, p-value .000.

³³ Kruskal-Wallis test, p-value .000.

³⁴ 3 by 8 cross tabulation, Pearson's chi-square, p-value .694.

³⁵ Soil fertility was described for each visited plot on a five point qualitative scale by the farmer being interviewed, one being very infertile, 5 very fertile. Responses were recoded into the three categories shown in Table 2. These categories are apparently the same as those used in the Wiens and Sobrado study. However, in the PADF study fertility information was collected only for the subset of household plots actually visited. The Wiens and Sobrado study obtained fertility information for all plots in the household, but did not compare it to tenure status.

Table 2: Percent of plots in three soil fertility classes by tenure category

Tenure	Farmer's evaluation of soil fertility			No. of plots
	Low	Medium	High	
Purchased	14	37	49	948
Divided inheritance	13	45	42	324
Undivided inheritance	19	38	43	482
Sharecropped	18	38	44	189
Rented	22	41	38	284

Notes: Pearson's chi-square p-value for the 3 by 5 cross tabulation is .001.

Tenure and the Adoption of Agroforestry Technologies

Sampled farmers had installed project technologies on 41 percent of available plots and reported significant yield increases.³⁶ Previous studies indicate that project soil conservation structures can significantly increase yields. Crop yields were measured by technicians in farmers' plots during a series of case studies conducted in January 1995 (Lea 1995a, 1995b). Increases of 70% in sorghum yield were noted in hedgerow gardens and increases of 60% to 120% in rock wall gardens in controlled experiments on adjoining plots.

Overall, the impact survey indicates that farmer decisions to adopt new technologies are correlated with several plot characteristics in addition to tenure. Table 3 shows the percent of project plots in each tenure category. Hedgerows, which are relatively easy to install, are the most commonly adopted technology. Undivided inheritance, sharecropped, and rented plots have higher adoption rates for hedgerows than purchased or divided inheritance. The opposite

³⁶ The PADF impact survey asked farmers questions regarding the differences in crop yield they attributed to the presence of soil conservation structures, but the authors do not consider these recall responses reliable. Haitian farming systems contain a large number of crops, harvest is sometimes done in stages and in small amounts, new crops are sometimes planted due to the improved microclimate created by soil conservation structures, and there was

is true for crop bands, gully plugs, trees, and top-grafting. For those technologies, the highest adoption rates are found in plots with purchased or divided inheritance plots. For rock walls, the highest adoption rates are found on rented and sharecropped plots, but the differences are not significant.³⁷

Table 3: Percent of project plots by tenure and technology adoption, 1996 survey^a

Tenure	Hedgerow	Crop band	Rock wall	Gully plug	Trees ^b	Top grafting	No. of plots
Purchased	54	6	29	19	55	11	948
Divided Inheritance	59	4	29	11	47	12	324
Undivided Inheritance	63	4	27	16	51	9	482
Sharecropped	68	2	32	16	23	4	189
Rented	67	3	36	16	23	4	284
P-value ^c	.000	.033	.078	.017	.000	.000	

Notes:

^a Row percents do not sum to 100 percent because most plots had more than one project practice.

^b Trees seedlings raised by the farmer with project assistance and planted on the plot during 1995.

^c Pearson's chi-square significance for the 2 by 5 cross tabulation for each practice.

The 1998 survey shows adoption by tenure category for all plots controlled by participating households (see Table 4). Adoption rates are somewhat different from those of Table 3, but in general they confirm the previous findings. Table 4 shows that adoption rates for hedgerows are higher for undivided and sharecropped plots than for divided, rented, and purchased categories of tenure. Crop bands, gully plugs, and trees are more frequently adopted on purchased plots. Rented and purchased plots have the highest percent of rock walls. Top

confusion regarding whether or not the question referred to crops in the alleys or crops grown within the structures themselves.

³⁷ Level of significance of 95 percent.

grafting is still found more frequently on purchased and divided plots, but the differences are not significant. Notably, percentages of soil fertility (Table 2) and soil conservation practices (Tables 3 and 4) are quite similar across different tenure types. Based on these results, an extension program would not need to target technologies towards or away from any particular tenure type.

Table 4: Percent of all household plots by tenure and technology adoption, 1998 survey^a

Tenure	Hedgerow	Crop band	Rock wall	Gully plug	Trees ^b	Top grafting	No. of plots
Purchased	24	5	15	8	36	4	1382
Divided	19	4	12	7	33	4	517
Inheritance							
Undivided	29	2	13	7	34	2	688
Inheritance							
sharecropped	28	3	8	4	20	2	299
Rented	23	2	16	4	16	3	432
P-value ^c	.002	.004	.011	.044	.000	.086	

Notes:

^a Row percents do not sum to 100% because most plots had more than one project practice

^b Tree seedlings raised by the farmer with project assistance and planted on the plot during 1997

^c Pearson's chi-square significance for the 2 by 5 cross tabulation for each practice

Although not a project intervention, the presence of mature trees on a plot represents an important form of technology adoption. Bannister assessed the correlation between tenure and mature trees per hectare and found significant differences: there were more trees on purchased and divided inheritance plots (Table 5).³⁸ These results could indicate preference for investing

³⁸ All trees on the plot, either planted with project assistance or otherwise, having a breast-height diameter greater than 10 cm were counted by the visiting technician.

in land with long-term over short-term tenure. They may also suggest a pattern of asserting ownership claims by planting and maintaining trees on undivided plots. A similar analysis found more mature trees per hectare on plots with higher fertility (Bannister 1998b).

Table 5: Number of adult trees per hectare by tenure category^a

	No. of trees per hectare	No. of plots
Divided inheritance	103 ^a	324
Purchased	88 ^a	946
Undivided inheritance	69 ^b	481
Sharecropped	61 ^b	189
Rented ^b	56 ^b	283

Notes: ^a Kruskal-Wallis test, p-value .000; numbers followed by the same letter are not different at the 95% level of probability (multiple comparisons done by paired Mann-Whitney tests with Bonferroni correction).

^b Private rental, doesn't include leasehold on state land

Correlation between technology adoption and soil fertility (Table 6) is as important as the relation between adoption and tenure status. This is perhaps to be expected since tenure status and soil fertility are also related (Table 2); however, farmer assessments of fertility also appear to integrate other productive factors not measured by laboratory analysis of soil nutrient levels.³⁹

³⁹ PADF had soil analyses performed on a randomly selected subset of 175 plots, 35 in each of the five qualitative categories, to determine if there was a relationship between farmers' perception and amount of soil nutrients as measured in the laboratory. No such relationship was discovered. There were no statistically significant differences in soil acidity or in the levels of soil nutrients (Ca, Mg, K, P) among the levels of fertility as perceived by farmers. Nor were there statistically significant relationships between the laboratory fertility findings and farmer's qualitative perception of soil depth, degree of "heat" (on a qualitative hot/cold scale) of the soil, or the severity of erosion found in the garden.

Table 6: Percent of fertile and infertile plots with project agroforestry practices, 1996 survey^a

Tenure	Hedgerow	Crop band	Rock wall	Gully plug	Trees	Top grafting	No. of plots
Fertile plots	54	6	33	19	48	12	1032
Infertile plots	64	3	27	15	44	7	1263
P-value ^b	.000	.007	.001	.026	.036	.000	

Notes: ^a Fertile plots are those with soils in the top two categories of the 1- to 5-point fertility scale; infertile plots are those with soils in the bottom three categories.

^b Pearson chi-square significance for the 2 by 2 cross tabulations.

Tenure appears to influence adoption in five of six technologies surveyed. Trees and grafted fruit trees are more common on purchased and divided inheritance plots. The value of tree products increases over time, so farmers need to protect their rights to harvest. Crop bands and gully plugs are also more common on purchased or divided inheritance plots. This is likely attributable to the high value of perennial food crops in crop contour bands (pineapple, plantain, sugar cane) and the economically important crops planted in soil collected by gully plugs (plantains, taro). Hedgerows are more commonly found on plots with other modes of access. Hedgerows are relatively easy to install, so this may reflect a strategy of risk minimization when trying a new practice or fulfilling project requirements to install soil conservation measures.

Tables 3, 4, and 6 show that tenure and soil fertility are both associated with adoption in parallel fashion. Technologies (crop contour bands, gully plugs, trees, top-grafted fruit trees) more common on purchased and divided inheritance plots are also more common on fertile plots, and conversely (hedgerows). Bannister's evidence does not allow clear separation of the relative influence of tenure and fertility on adoption; therefore, it is not possible to determine

which is more important in a particular decision to adopt new technology. Bannister's analysis (1998b) finds no association between tenure status and differences in management.⁴⁰ Although overall analysis of PADF data indicates that mode of access to land is an important variable, the data show no definitive relationship between tenure status and adoption.

5. CONCLUSIONS

THERE IS NO DEFINITIVE RELATIONSHIP BETWEEN TENURE AND ADOPTION BY PEASANTS

A broad range of studies on Haitian peasant agriculture and tenure find no simple and definitive relationship between tenure status and willingness to adopt agricultural technology. Levels of investment are quite similar across tenure types. Important exceptions to the general rule include the following: (1) other things being equal, peasants prefer to plant and graft trees on purchased or divided inheritance lands, and (2) peasants prefer to adopt certain soil conservation techniques—particularly hedgerows—on parcels with shorter-term tenures such as rental or sharecropping, perhaps to strengthen their claims or rights of access to that land, or perhaps to reduce the risk of adopting the new technology. Notably, these two preferences are far from exclusive and peasants frequently plant trees and establish hedgerows on all types of

⁴⁰ Technicians evaluated the management quality of hedgerows, crop contour bands, rock walls and gully plugs. Observations were made on the percent of rows well managed, percent of rows poorly managed, the number of breaches larger than 25 cm per 100 m, and whether or not the farmer repaired the breaches. The statistical tests found no significant tenure related differences in management for any of the agroforestry technologies promoted by the project.

tenure. This supports the basic contention that tenure is not the preeminent criterion for investment.

Approximately 60 percent of all agricultural parcels are purchased or divided inheritance plots (see Table 1); therefore, tenure is not a constraint for adopting technologies with long time horizons such as tree planting or grafting on the majority of parcels in Haiti. The various studies also suggest that tenure is not a constraint to agricultural intensification and soil conservation on the vast majority of parcels. However, agricultural research and extension services are available to only a small fraction of Haitian households. Despite continuously high peasant demand for agroforestry extension, Haiti's most significant effort to date reached just 25 percent of all peasant households over a ten-year period, and then ceased.⁴¹ Peasants continued to plant trees spontaneously in the wake of this outreach program albeit on a smaller scale. The key constraint to wider adoption and continued extension services was not land tenure but funding levels and the absence of a permanent institutional base for extension.

Local-level studies suggest that certain other factors are at least as important as tenure in peasant decisions to adopt. These factors include the relative size and fertility of available plots, proximity of plots to a farmer's residence, stability of access to land, and the quality of local social capital resources (e.g., kinship and other special ties and obligations, traditional rotating labor and credit groups, grassroots peasant organizations). Where stocks of social capital are high, peasants are willing to adopt technology on short-term tenures including

leasehold and sharecropping. This finding also holds for adoption of complicated watershed management regimes in degraded watersheds with multiple ownership.

The importance of these factors sheds light on the alleged preeminence of tenure as a constraint, and the fundamental importance of social capital in agricultural development. These results also suggest that development agents should give a higher priority to assessing and strengthening local social capital resources rather than updating title to land.

There is an important caveat to the finding that tenure does not generally constrain technology adoption. The research reviewed in this paper examines relations between tenure and technology adoption by peasant farmers. Therefore, findings from these studies may not hold for potential adopters who are not integrated into peasant society or influenced by traditional peasant social and cultural relations. Such cases would include the modern, capital-intensive agricultural sector and land marked by speculative values in urban areas, transportation arteries, and some lowland irrigation works. For this reason, the conclusions drawn in this paper pertain primarily to traditional, peasant smallholders.

PEASANTS ARE PREOCCUPIED MORE BY POLITICAL AND ECONOMIC INSECURITY THAN INSECURE TENURE

For most peasants in Haiti, the basic source of insecurity is poverty not tenure. The agrarian poor are preoccupied above all with protecting themselves in a broader context of

⁴¹ This was the Agroforestry Outreach Project (AOP) and Agroforestry II (AF II) projects funded by USAID between 1981 and 1991 and implemented by the Pan American Development Foundation and CARE (see Smucker and Timyan, 1995).

political and economic insecurity.⁴² This insecurity goes far beyond land tenure and the normal risks of rain-fed agriculture on degraded sites. The pivotal constraints on peasant investment are political and economic uncertainty and the growing scarcity of productive land. Formal instruments of land registration, title, and the judicial process have high transaction costs and do not ensure land tenure security. Therefore, the peasantry's first line of defense is access to land via kinship ties and other social capital resources. The Haitian land tenure system is unlikely to evolve toward a more public, formalized system unless there is progress in solving underlying sources of insecurity, including an agricultural sector in severe crisis and the absence of credible recourse in a court of law.

In this sense, peasants are more interested in personal security than tenure security. They manage land access rights to enhance personal security. They seek security in tenure rather than tenure security. The formal system, derived from the state, is not responsive to peasant needs, nor is it credible, transparent, fair, and affordable. Peasant incentives to update title will remain weak unless more fundamental problems are addressed.

Haiti's informal land tenure system provides a modicum of social security via flexible and affordable land transfer and tenancy. The system prioritizes concerns for stability of access over particular modes of access to land. Due to impoverishment, most peasants are preoccupied with food security and risk management in a context with little margin for failure.

⁴² Political uncertainty includes but is much broader than the elections cycle or its absence. Peasant farmers have historically been excluded from the national political system, and the Haitian state has been deeply marked by a predatory character, few public services, especially in rural areas, and by very limited protection of the rights of citizens.

Peasants promote food security by strategic management of their social capital resources, including access to land.

POLICY MAKERS SHOULD PRIORITIZE RURAL SECTOR AND BROADER JUDICIAL REFORMS RATHER THAN TINKER WITH THE TENURE SYSTEM

The sum of evidence suggests that Haiti's land tenure situation is largely compatible with smallholder agricultural development. Furthermore, rural poverty and technological stagnation are due to fundamental constraints other than tenure. These constraints are driven by the paucity of investment in human and social capital and rural infrastructure, lack of investment in agricultural research and extension, deficits in capital and credit markets, lack of off-farm labor opportunities, a dysfunctional judiciary, and disenfranchisement of the rural majority.

In general, the evidence suggests that intensification and landscape wide rehabilitation will not be achieved simply by diffusing a limited range of technologies. Such technology transfer is often very useful but its impact is generally marginal—both in terms of economic and environmental impact. The evidence suggests that smallholder agriculture in Haiti has successfully intensified where fundamental constraints are alleviated and indigenous social capital has diminished peasant insecurity. Haitian peasants have long demonstrated their ability to adapt tenure maneuvers to new conditions and new opportunities.

Ultimately, formal land tenure insecurity is a subset of the generalized insecurity that peasants experience in their dealings with the legal system and the state. Land law reform is certainly needed, but premature investment in national cadaster and titling amounts to tinkering on the margins of a historically corrupt judicial system. Unless the fundamental issues are first

addressed, titling programs run the risk of undermining goals of enhanced tenure security and agricultural intensification. At the very least, a viable system of justice is an essential pre-condition for land tenure security and title reform.

Investment in cadaster and titling programs is undoubtedly premature until there is clear demand for it from the peasantry, and unless titling programs are implemented directly at the local level, building on local concerns and local economic opportunities rather than the interests of powerful outsiders. Pre-conditions for such programs include local demand, access to credit and markets, and a functioning system of justice.

Titling programs could prove useful in the long run, once peasants have gained an active voice in the political system and peasant rights are better protected in the law and related formal institutions. In the meantime, in order to address rural poverty and modernize the agricultural sector, policymakers should focus on the fundamentals and the creation of an enabling environment for change.

IMPLICATIONS FOR THEORY AND FURTHER RESEARCH

Prevailing property rights theory predicts that in situations of land scarcity, tenure arrangements evolve towards more private and individuated tenures and that these forms are the most efficient. In Haiti increasing land scarcity and population pressure have coincided with private property, but these rights have remained relatively insecure, informal, and not fully individualized—a land regime characterized by legal pluralism. In this light, the attenuated status of private property rights in Haiti can be explained by the absence of a functioning state, the

evolution of non-formalized resources of social capital, and the distributional concerns of peasants. Given these fundamental conditions, it appears to us that the trajectory of Haitian customary tenure remains largely efficient—and will remain efficient unless the fundamental conditions change.

Despite the growing scarcity of land, the critical issue in rural Haiti remains access to labor and social capital resources. Social capital mediates access to land. Labor substitutes for scarce cash—the most scarce of the classic factors of production. In effect, labor is the primary medium of exchange in rural Haiti, the primary currency of social relations, and the primary vehicle for personal security and survival.

This paper has addressed some aspects of Haitian land tenure but much more work remains to be done. New avenues of research and a broader diffusion of information on land and justice issues could help diffuse a tendency toward polemic and favor a more reasoned debate over agricultural policy and the requirements for legal-political reform in Haiti.

Useful lines of research might include the following: further study of rural land disputes and their disposition in Haitian courts, additional field research on the social and economic impacts of the few cadastral surveys initiated in the country, field research on informal mechanisms for regulating land disputes and on institutional alternatives to statutory mediation that build on these informal mechanisms, political analysis of the constraints to reforms in the legal system, and piloting institutional innovations that may contribute to enhancing the security of peasants in Haiti.

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