FACTS ABOUT U.S. LANDOWNERSHIP

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ABSTRACT

Knowing who owns U.S. land is important because landownership affects how wealth is distributed nationally and how land is used. Yet the currently fragmented and incomplete status of ownership data means only gross generalities are possible. Private individuals and corporations own about 60 percent of U.S. land while Federal, State, and local governments own the rest. Getting detail is difficult because no central source of information exists and records often do not show separated interests. The U.S. Department of Agriculture is conducting a national survey of landownership that will resolve several of these data problems.

KEYWORDS: Landownership, tenure, ownership, land.

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CONTENTS

	Page
SUMMARY	v
THE IMPORTANCE AND USES OF OWNERSHIP DATA	2
Property Acquisition	3
Property and Equality	3
Property and the Distribution of Wealth	3
Property and Political Power	4
FACTS OF NOMINAL OWNERSHIP	4
Land-Use Categories	4
Informational Deficiencies	8
AMBIGUITIES AND REFINEMENTS IN DATA AND CONCEPTS	9
Owners, Persons, Ownership	9
Parcels and Size	11
PUBLIC RECORDS	12
RIGHTS IN OWNERSHIP	12
Limited Ownership	13
The Bundle of Rights Concept	13
Mineral and Water Rights	14
Easements and Other Rights	15
VALUES	15
Market Price	16
Transaction Costs	17
OWNERSHIP FACTS: SURVEYS AND SYSTEMS	19
Intelligence Data	19
Statistical Data	20
CURRENT IMPROVEMENTS	21
ESCS Survey Underway	21
Use of Regularly Collected Information	21
THE DISCLOSURE ISSUE	22
REFERENCES	24

SUMMARY

Because land is one of the Nation's most precious assets, current, accurate data on landownership are essential, especially to policymakers involved with land use. However, information is scattered, incomplete, and often unavailable.

We can only generally characterize U.S. landownership. The Federal Government owns about 33 percent of the 2.3 billion acres; private individuals own 60 percent; State and public agencies and American Indians own the rest.

HOW IS THE LAND USED?

About 7-8 million farm, ranch, and forest owners hold close to 95 percent of all privately held land in 14-17 million parcels. Between 47 and 58 million persons own land used for housing on 2 percent of private land--25 million acres. Commercial, industrial, recreational, and other uses account for the remaining 3 percent--44 million acres.

In sum, 60-77 million owners hold the 1.3 billion acres of private land in 84-99 million parcels. These estimates are useful only for overall perspective because they come from many sources, some extend ancient estimates, and many depend on reasoning rather than empirical foundation.

Land held by the Federal Government (762 million acres) comes under the management of agencies within the U.S. Department of Agriculture (188 million acres) and the U.S. Department of the Interior (USDI) (538 million acres). USDI's Bureau of Indian Affairs manages land belonging to the American Indians (51 million acres). States and other jurisdictions own the remaining public land (136 million acres).

WHO IS AN OWNER?

Ambiguity in ownership data arises from who (or what) comprises an "owner." Owners may be one person, a corporation, a husband and wife. Public records rarely provide more information than names, which may or may not represent all persons involved nor always the actual persons.

Further ambiguities are possible. An owner can sell certain rights (mineral, water, airspace, and others) within a parcel. Aggregated statistics on separated rights cannot now be obtained economically. Besides rights the owner can sell, governments reserve or acquire rights through powers of taxation, regulation, eminent domain, and escheat. Finally, the data sources lack uniformity; a list of owners from tax

records, for example, would differ from a list from the grantee index in the recorder's office.

HOW DO WE VALUE THE LAND?

The land's market value (net after taxes) generally is the exchange price of nominal ownership. Market price may or may not include a value for rights separated. Attaining these values is hard because the price of the resource, identity of its holder, and value of specific rights in the resource must all be determined. Values of these individual rights are not separately listed in land sale records.

The market price also understates the land's value by an amount equal to the capitalized value of real property taxes; this value must be added. Thus, in 1975, the market value of all U.S. land equaled $1.285 billion, to which we add $717 billion, the value of the $43 billion real property tax, capitalized at 6 percent.

HOW CAN LANDOWNERSHIP DATA BE IMPROVED?

Data can be grouped in two categories: intelligence--complete profile on each owner; and statistical--descriptive parameters about all owners. Several local governments, regional organizations, and professional groups are designing land data systems that can handle both types of data.

The type of detail needed sometimes can best be obtained by a direct survey of owners. USDA's Economics, Statistics, and Cooperatives Service has designed such a survey and it is being implemented.

Certain issues remain to be resolved. Should names of landowners be secret? Does the right to own property carry the obligation to report such ownership publicly? How will the information be used? Any information system will need to be designed with landowners' needs and concerns in mind.

FACTS ABOUT U.S. LANDOWNERSHIP

Gene Wunderlich *

"What information exists today concerning the ownership of rural America is scattered and incomplete..." (10) 1/

"One of the reasons why we must ask who owns the land is that we simply don't know..." (68)

Who owns America's land? Administrators of particular land and land use policies must have basic data on ownership before they can implement these policies. Yet the reports from national censuses, Federal agencies, commerce and industry, State land agencies, universities, local governments, and public interest groups produce only interesting fragments of data or inferential information. For determining who owns America, these sources are inadequate, partial, and inconsistent. In many situations and jurisdictions, accurate information is just not available. Nationally, the situation is chaotic.

As a policy issue, landownership rather quickly reduces to a problem of facts. Discourse on the appropriate measures for influencing a certain class of landowners, for example, has a hollow ring if the measurable existence of that class is in doubt. And widespread ownership of land as a policy has little substance if the actual distribution is unknown or so ambiguously defined that descriptions defy interpretation.

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1/ Underscored numbers in parentheses refer to items in References at the end of this report.

The facts problem consists not only of finding, collecting, and reporting available data. It extends to the definition of concepts, interpretation of data, and methods for obtaining data easily and inexpensively. This report presents a summary of currently available data on landownership in the United States, an examination of concepts and meanings that affect interpretation of the data, and a discussion of systems by which more useful landownership data are, or might be, obtained.

First, however, let us look at the concern for landownership distribution from which the need for facts arises.

THE IMPORTANCE AND USES OF OWNERSHIP DATA

Landownership is regarded as important not only because it is an important feature of the distribution of a nation's wealth but also because it is thought to influence the nation's political and social structure. 2/ The notion of equality of opportunity and political liberty is reflected in a frequently quoted passage from Jefferson's letter to Bishop Madison:

> . . .it is not too soon to provide by every possible means that as few as possible shall be without a little portion of land. The small landholders are the most precious part of the state (27).

When many of America's precepts of freedom and equality were being forged during colonial and revolutionary times, the control of land was closely related to economic opportunity and political democracy (20). These precepts of equality have been extended to property generally as exemplified by the Sabre Foundation's recent appeal for:

> . . .a nation characterized by a widespread distribution of genuine private property ownership, under the effective control and direction of responsible individual citizens (31).

2/ In 1975, land was valued at 23 percent of the national assets in current dollars. J. Kendrick with Lee and Lomask (26) shows net national wealth of $5.7 trillion, of which $1.3 trillion is land in current dollars. In constant (1958) dollars, comparable data are $2.8 trillion and $0.47 trillion (17 percent). He follows with a discussion of land as a national rather than business asset.

Property Acquisition

While agreeing on the principle of widespread property ownership, observers do not agree on the eventual consequences of unrestricted acquisition of private property. Lester Thurow describes the property system as a mechanism whereby chance and inheritance conspire toward increasing inequality:

> Once fortunes are created, they are husbanded, augmented, and passed on, not because of homo economicus desires to store up future consumption but because of desires for power within the family, economy or society (53).

Property and Equality

The issues of equality of wealth and opportunity pertaining to landownership surfaced most recently in the administration of the Reclamation Act. The Congressional hearings on Federal Reclamation Policy contain the observation that:

> . . .in the case of the national reclamation program, there is literally no question but that one of its fundamental purposes and intents was to encourage the development of independent, small-business, family-sized farms--to settle people on the land or near it, and to enable them to own the land they farmed; to spread the benefit of subsidized irrigation water to just as many people--independent, bona fide farm families--as possible (66).

Such policy statements clearly emphasize objectives relating to the distribution of holdings, the use of resources, and the distribution of benefits of public programs.

Property and the Distribution of Wealth

Landownership is economically significant primarily as an aspect of the distribution of wealth. Land trades as a commodity; land stores value; land generates utility and income. Land is a resource and, in combination with other resources, it produces goods and services. Thus, decisions about its use are economically significant from the standpoint of both distribution and production. The supply of land for a particular use will depend upon the price to the decisionmaker(s) holding the controlling right(s).

Property and Political Power

Why, from a political perspective, do we need to know the facts of ownership? Policies concerned with the distribution of political power must account for the influence of property, including land. Well-being and status of the members of society are affected by their ownership and control of resources. To the extent that decisions concerning land use are made through a system of private property rights among many owners, the availability of land for particular uses will depend on the impact of various incentives on the diverse owners.

FACTS OF NOMINAL OWNERSHIP [3/]

Within certain broad limits, and subject to some interpretation to suit a political philosophy, widespread ownership as a political, social, and economic goal is reasonably well established in the United States. It is less clear how ownership is in fact distributed. In other words we know where we want to go. The problem is knowing where we are.

Land-Use Categories

Currently available facts permit only a gross characterization of the pattern of landownership in the United States. From table 1 and some supplementary sources, it is possible to represent this overall pattern.

The Federal Government, largest single landowner, holds approximately one-third of the 2.3 billion acres of U.S. land. Beneficial ownership is vested in all the people of the United States. Data on quantity, use, and location, available from administering agencies, are relatively abundant and current. [4/] The U.S. Department of Agriculture's (USDA) Forest Service manages the National forests. The Forest Service and the Bureau of Land Management, U.S. Department

3/ Nominal ownership here means owner of record, as distinguished from some hidden, beneficial owner or owner of a particular, separated interest. It is intended to connote the owner of fee interest or principal bundle of rights. The definition of nominal owner is intended to reflect the common notions of ownership and, as discussed later, is necessarily ambiguous.

4/ See (65, 61). Most Federal land, 92 percent, is retained from original public domain. The remainder has been obtained by purchase and exchange.

Table 1. Major classes of land, by use and ownership, 1977

Ownership 1/	Crop-land	Grass, pasture, and range	Forest land 2/	Special and other use	Total
	Million acres				
Federal	1	159	277	324	761
State and other public 3/	2	41	38	55	136
Indian 4/	2	33	13	3	51
Private	462	365	420	69	1,316
Total	467	598	748	451	2,264

1/ Federal, State, local government, and Indian land acreages are approximations based on public records and reports. Private land is the rest of the land area in each major use.

2/ Includes 30 million acres of reserved forest.

3/ Does not reflect land grants from public domain to State of Alaska.

4/ Tribal and individually held trust lands. Does not include Federal lands used by Indians.

Note: All 50 States.

Source: T. Frey. Supplementary data for "Major Uses of Land in the United States," Aug. 1977, unpublished.

of the Interior (USDI), manage rangelands. USDI's Park Service serves tourism and other intensive land-use interests. USDA agencies administer 188 million acres. USDI administers 538 million acres. 5/ Similarly, the data on 51 million acres of Indian lands are available in some detail (62, p.3; 61). These lands are often included in statistics of federally owned lands.

The remainder of the public lands are owned by States, 97 million acres; and other governments, 39 million acres. It is not known how many of the 27,000 jurisdictions and agencies which could own land actually do. 6/ The much less

5/ (61, table 9, pp. 11-13). The Bureau of Land Management administers 470 million acres.

6/ This number includes States, counties, municipalities, and townships (60, table 419, p. 257).

detailed data on 136 million acres of State and other lands are adaptations of relatively old estimates.

Private citizens hold 1.3 billion acres but data are extremely limited. 7/ Little more than the total area of private ownership is known, and it is determined as a residual, by deducting all other owner classes from totals in each use category.

From a variety of sources, one can compose a general picture of the number of owners, the number of parcels (ownership units) into which land is divided, and the area owned, in broad classes of use. In some cases, the numbers must be expressed as ranges which mean, simply, "cannot reasonably be less than or more than the numbers shown." 8/

Agricultural and Forest Use

Over 63 percent of the privately held land is in farms and ranches (16). 9/ Another 32 percent of privately owned land is in forests (16). The number of farm and ranch landowners is between 3 to 4 million (59). 10/ The number of forest landowners is less certain but an estimate of 4 million has been made (54, p.ii). 11/ There may be some overlap with the farm and ranch owners. The Bureau of Census and D. Lewis estimate the number of agricultural, forestry, recreational and idle parcels to be 14-17 million (28; 58, p.85). Thus, about 95 percent of private land is divided into 14-17 million parcels and is held by 7 to 8 million owners.

Housing

While agriculture and forestry account for most of the area of privately held land, housing use accounts for most of the

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7/ Supplemental data are in (16). The most recent reasonably complete survey was undertaken by the Public Land Law Review Commission in 1968.

8/ See, for example (55, 7).

9/ Of the agricultural land reported in the Census of Agriculture, approximately 37 percent is rented. Of the rented land, 87 percent is rented from landowners who are not farm operators. Prepared from (59). See also (25, 38).

10/ Range results from different assumptions of number of landlords per tenant.

11/ The "4 million or so" is an old estimate believed to understate the current situation substantially.

number of owners. There are at least 47 million, possibly as many as 58 million, owners of land used for housing. 12/

The number of parcels may differ from the number of owners. More than one housing unit may be located on one parcel of land. Multiple occupancy of a single parcel reduces the estimate of parcels by 1 million. 13/ However, vacancies which do not represent any more owners, do represent parcels. The number of parcels increases by 3 million when vacancies, adjusted for multiple units, are considered (57, p.1). The net number of parcels estimated from housing data, therefore, is 49 to 60 million. Other estimates place the number of residential parcels near the midpoint of that range, 55 million (28).

From Manvel and Frey, quantity of land in residences, urban and rural, appears to be about 25 million acres.14/ To summarize on the midpoints of the above ranges, residences apparently use 2 percent of U.S. land but represent 78 percent of the owners and 60 percent of the parcels.

Commercial, Industrial, Recreational and Other Uses

The remaining 3 percent of private land is in commercial, industrial, recreational, institutional, and other uses. Some owners of housing and of farm and ranch land also hold commercial and industrial land. On net, however, at least 6 to 11 million additional owners can be added to the total to account for nonfarm/forestry partnerships and

12/ Owners are estimated as one to one with the number of owner-occupied units in 1976. The lower estimate of 47 million assumes no additional owners for vacant units; that is, owners are assumed to be counted in the owner-occupied units. The upper estimate, 47 + 11 = 58, assumes one owner for each of the estimated 11 million multiple-rental structures (57, table A-1).

13/ In 1975, cooperatives and condominiums numbered 988,000 (57, p.1).

14/ A. Manvel (30, p.20) states that one-third of urban area is in residences. Frey (16) estimates urban areas at 34.9 million acres. Thus, urban areas would contain 12 million acres of residences. Rural residences are estimated to occupy 13 million acres, of which 8 million are farms, farmsteads and farm roads (16, p.22).

corporations. 15/ Lewis estimates the number of vacant, commercial, and industrial parcels to be 21 million (28; 58). The remaining area of private land is 44 million acres.

In sum, the 1.3 billion acres of private land in the United States are held in 84-99 million parcels by 60-77 million owners (table 2).

Table 2. Owners, parcels, and private land 1/

Item	Agricultural and forestry	Housing	Other	Total
		Million		
Owner....	7-8	47-58	6-11	60-77
Parcels..	14-17	49-60	21-22	84-99
		Million acres		
Area.....	1,247	25	44	1,316

1/ Preliminary, 1977.

Informational Deficiencies

This simplified picture of landownership, while useful for overall perspective, should not be regarded as an adequate statistical pattern. The facts are taken or adapted from a variety of sources, 16/ some of the data extend ancient estimates, and many data depend upon reasoned rather than empirical relationships with other data. There has been no recent national survey. 17/ Data in tables 1 and 2, intended to

15/ Projected number of businesses in 1975 based on Internal Revenue Service statistics for 1974. The 11 million is all nonfarm business; 5 million are those who do not pay rent, presumably owning their assets including land (64, pp.12, 127; 63, p.10).

16/ For a thorough review of secondary data, see (35).

17/ For report of a 1946 survey limited to farmland, see (23).

show only general magnitudes, possess not only estimation limitations but conceptual ambiguities, discussed below.

AMBIGUITIES AND REFINEMENTS IN DATA AND CONCEPTS

Measuring the ownership of land can be ambiguous on at least two counts: (1) Specification of the owner; that is, principal holder of rights; and (2) identification of other persons who hold separated interests in land other than those of the owner. To these conceptual ambiguities can be added a third problem, valuation; for it is through price or some other expression of value that ownership gains weight and substance.

Owners, Persons, Ownership

Who (or what) is an owner? The owner, as distinguished from all other holders of interests in the property object, land, here connotes the principal or focal owner of record--the apparent or nominal owner. 18/ As discussed here, even this nominal owner may be hard to identify and count.

Ownership is a relation among persons with respect to an object--a parcel of land, in this case. 19/ Owners may be persons, combinations of persons, or legal entities, such as trusts and corporations. Any particular parcel may be owned solely, jointly, or severally. One person may own several parcels. The chart illustrates how numbers of persons, owners, interests, and parcels of land might be counted.

The distribution of ownership can be affected, in one sense, by the composition of an "owner." An owner may be more than one person; most commonly, a husband and wife. In studies of landownership in the Great Plains and Southeast, for example, over half of the owners owning about half of the land are

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18/ "The word 'interest' is used in this Restatement both generally to include varying aggregates of rights, privileges, powers and immunities and distributively to mean any one of them" (32, ch. 1, pp.3-26, 27).

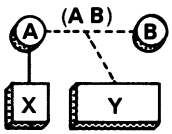
19/ The significance of the parcel is that it is a unit of land over which there is uniformity of relationship, such as time of acquisition, level of equity, proportion of interests, and conditional agreements. The parcel, in a sense, is the ownership equivalent to the physical measure of acre or hectare as a measure of land. For discussion of the land parcel, see generally (74; 37).

WHAT IS A LANDOWNER?

PEOPLE, OWNERS, INTERESTS, AND LAND PARCELS

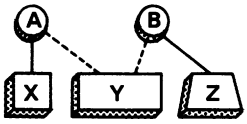
1 person
1 landowner
1 ownership interest in land
1 land parcel

One person (**A**) owns one land parcel (**X**) and has not sold any interests in (**X**).



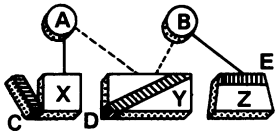
2 persons
2 landowners
2 ownership interests in land
2 land parcels

One person (**A**) owns one land parcel (**X**). Two persons (**A** and **B**) jointly own land parcel (**Y**) and have not sold any interest in it.



2 persons
3 landowners
4 ownership interests in land
3 land parcels

Person (**A**) owns land parcel (**X**); person (**B**) owns land parcel (**Z**). Persons (**A** and **B**) own land parcel (**Y**) in common.



5 or more persons
6 landowners
7 ownership interests in land
3 land parcels

Person (**A**) owns land parcel (**X**); person (**B**) owns land parcel (**Z**). Persons (**A** and **B**) jointly own land parcel (**Y**). Person (**C**) owns mineral rights on land parcel (**X**), person (**D**) has an easement on land parcel (**Y**), and county (**E**) has a zoning restriction on land parcel (**Z**).

husbands and wives. 20/ Partnerships, estates, and corporations are legal entities also consisting of more than one person. At some indefinite point in combining persons into an ownership entity, the control, identity, or interest of an individual person becomes so small that it loses its relevance. For example, the shareholder in a large public corporation which owns land cannot be regarded as a landowner by virtue of holding stock. From the data on husband/wife, partnerships, and other owner entities, it seems safe to assume the number of persons who own an interest in land is at least twice the number of owners.

The number of owners, by itself, only partly indicates the distribution of ownership. An owner, to be so defined, must own at least one parcel, but may own more than one. Therefore, the number of parcels must equal or exceed the number of owners. Because owners may consist of one or more persons, the number of persons who own an interest in land may be as great as or greater than the number of parcels. The actual number of persons involved in an ownership relationship with parcels of U.S. land, however, cannot be determined from available information.

Parcels and Size

Parcels may vary in size and value, so the distribution of ownership can be measured in at least two more dimensions. With number of parcels, area, and value data, one can measure the distribution of ownership as the number of units of control or decision, span of area controlled, and the value of economic assets.

Some of the ambiguity in ownership data, therefore, may result from which unit of observation or measure is selected. Other ambiguities may result from the lack of uniformity of data sources. A complete list of names of owners taken from tax records would differ from a list of names of owners shown on the grantee index in the recorder's office. Both would differ from the names actually contained in the deeds, also found in the recorder's office.

20/ Strohbehn and Wunderlich (51, p.18) report 59 percent of owners and 49 percent of land by husbands and wives; Strohbehn (50, p.4) reports 64 percent of owners and 53 percent of land by husbands and wives.

PUBLIC RECORDS

Conceptual problems aside, how does one identify owners of land in the sources available? A practical difficulty in assembling information on nominal ownership from public records is that each county or town is a self-contained unit. Because some persons own land in more than one jurisdiction, additions across jurisdictional lines will result in an overcount of numbers of owners and some owner characteristics unless there is additional information from outside the public records. While it is possible to estimate the number of owners and degree of concentration of landholding within a county or town from public records, it is difficult to make such estimates at any higher level of aggregation such as a region or State without supplementary information.

Public records rarely provide more information about owners than name. Even the name inadequately represents all the persons or the proportion of interest involved in multiperson ownership. Spelling is not uniform or often even accurate. Even if names were complete, accurate, and uniformly spelled, it would be difficult to classify owners without additional information about their characteristics. Public records, if standardized and fully exploited, could greatly improve data on ownership, but they are not now an adequate substitute for detailed surveys.

The conceptual and practical problems of obtaining facts about nominal ownership are further compounded by the possibility that nominees, strawmen, trusts, corporate layering, output contracts, equitable interests, and other devices are used to conceal beneficial ownership. The differences between nominal and beneficial ownership may not be great, but the doubts are sufficient to warrant specific studies on the methods for, and extent of, masking actual ownership.

RIGHTS IN OWNERSHIP

The distribution of control of, and returns from, land is determined not only by nominal ownership but by a bundle of

interrelated rights, duties, privileges, and obligations. 21/ When the question who owns America's land is asked, then, it is important to know whether the questioner means nominal ownership or possession of a particular set of rights. Ownership can be distributed by fracturing the bundle of rights. The collection and use of data on separated rights also provides information on who owns America's land.

Limited Ownership

Rights to explore and drill for oil may be separated from surface rights through reservation, sale, or lease. An easement for a pipeline may be granted. A property may be mortgaged. A mechanics lien may be created. Zoning restrictions may be imposed. Ownership may be splintered and distributed among a wide variety of rights holders. Data on these separated interests can be determined for an individual parcel of land by examining tax and title records, ordinances of local jurisdictions, and the physical appearance of the property. However, aggregative statistics on separated rights cannot be obtained economically from public records in their current state. 22/ Is there, then, any useful relationship between the bundle of rights idea and designs for land information systems?

The Bundle of Rights Concept

Although rich logically, the bundle of rights concept is poor as a practical guide for collecting and assembling land data. Its shortcoming as a working format for a data system, however, does not diminish its usefulness as a conceptual model. It can serve in the way Bonnen describes a

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21/ The bundle of rights concept has been widely used to describe Anglo-American notions of property in land; see (41), or more generally (21). Recent overviews of the property concept in economics are indebted directly and indirectly to the bundle of rights notion; see (73; 17, pp.1137-62). An even more recent but somewhat obscure use of the bundle of rights notion of property is contained in B. Ackerman (1, p.39). S. Simpson (48, p.7) has preferred to call ownership a container for the bundle of rights, where the owner has the "right to give out the sticks."

22/ See generally on state of land records and difficulty of obtaining them--(36; 29, p.369; 71, p.333; 24, p.213).

metatheory of information:

> A metatheory for information system design may well be an impossible goal, but the logic of its necessity is valid and has the virtue of keeping in front of us as designers of information the true complexity of the task (5, p.760).

While general systems for land information are being designed, special-purpose records for various sets of rights may be created, developed, and improved. Within the current state of the arts, it is possible to improve land record systems vastly without awaiting the millenium of some complete land data bank which can measure simultaneously all the separable sets of rights. Facts on nominal ownership can be made more accessible through better tax or title records (8, ch.4) and then the separable sets of rights can be developed as improvements in subsystems.

Mineral and Water Rights

Some of the complexity of the rights system, and the records reflecting it, can be seen in the extensions and modifications of nominal ownership, such as mineral and water rights, easements, leases among private holders; and in taxation and eminent domain in relation to government. For legal and administrative purposes, many of these rights must be recorded. Documents and records for all of the rights, duties, immunities, and liabilities separated from or attached to a parcel of land do not now exist. Mineral and water rights separations have a long history in the United States, and, in many of the Western States, these rights are recorded in separate books. 23/ Airspace rights emerged in urban development in the early 1900's 24/ and their separate status is acknowledged in public records. Solar rights are beginning to be defined in statutes as a distinct right rather than as immunities from a nuisance. 25/

23/ The United States is one of the few nations in the world wherein mineral rights can be private property. See (18, p.5). On water law, see generally (22).

24/ (12, p.3); also generally (69).

25/ 1977 New Mexico State, Ch. 169, H.B. 294. Concern has been expressed by some legal analysts that the water rights model of law (such as New Mexico's) is misplaced in solar law.

Easements and Other Rights

Easements, restrictive covenants and conditions, transferable development rights, leases, and condominiums are separations of interests in land which are often recorded. 26/ These separations of interests while adding to the complexity of documentation and records also attenuate the access and control associated with ownership.

Ownership may be further qualified by some possible event or the passage of time. Documentation of conditional, reversionary, and future interests is usually a part of deeds and other records of interests. However, some events, for example, intestate death, adverse possession, and preemption of title, will influence the ownership structure even though there is no documentation.

In addition to the separation of interests contracted by private parties, landownership is qualified by powers of government which have the effect of rights reserved or acquired by government. Some of these rights are created by the powers of taxation, regulation, eminent domain, and escheat.

Documentation for such rights of government to control land use does not appear in title or cadastral records. Nevertheless, those sticks in the bundle of rights are held by government.

A complete analysis of the rights, duties, privileges, and liabilities associated with a parcel of land is an extremely complex process and, because some interests are conditional, results of such analysis cannot be entirely accurate. Nominal ownership is only a first, although important, step in the answer to "Who owns America's land?"

VALUES

The complexity of the network of rights in land is only part of the ownership data problem, however. How does one weigh the relative importance, in a given circumstance, of each of

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26/ See, for example, J. Rose (45, p.20); also D. Carmichael (45, pp.38-51) sees the transfer of development rights as analogous to unitization of oil and gas fields. The friendly critics of transfer of development rights, for example, acknowledge some administrative and political problems but rarely trace the full implications of separating rights and developing a whole new system of markets, records, and enforcement to maintain them.

the rights? The issue is not merely theoretical. Courts, for example, must decide the value of a "taking." The transferable development right may have a price. Real property tax administration in the United States requires the assessment of the value of land. Leases imply rents for the value of rights held by the tenant.

The market value of land is usually the exchange price of nominal ownership. That price will normally account for expected income and expenses, such as rentals, consideration for easements, and taxes. The nominal owner usually functions as rent collector and taxpayer. Values of the individual rights, duties, liabilities, and privileges are not separately enumerated in the records of a land sale. Empirically, therefore, values of sticks in the bundle of rights are more difficult to establish than values of nominal ownership.

Market Price

The market price of land systematically understates the value of land by an amount equal to the capitalized value of real property taxes. The market price is the net amount after taxes. 27/ The full value of land should include both market price and capitalized value of taxes. The asset value of all U.S. land, estimated by Kendrick in current dollars, was $1,285 billion in 1975 (26, p.68). That value should be raised by the capitalized value of $43 billion of real property taxes, which, at 6 percent, for example, would be $717 billion. 28/

27/ See E. Pasour (42, pp.539-548), for example. Pasour's study of farm real property is "consistent with the generally accepted hypothesis that changes in property taxes are largely capitalized into farm real estate values" (42, p.547). Pasour refers to a number of other studies that affirm the idea that real property prices are responsive to taxes.

28/ Another national data deficiency is the distinction between real and personal property tax revenues. Census of Governments reports (as is reported to them) only revenue from all property (real and personal) taxes combined (58, p.1). For 1975, we estimate that the value of real property revenue was $43 billion of the $54.3 billion total property revenue. The proportion of property tax based on real property, 79 percent, is estimated from the 1972 data in (2, p.267).

The market price placed on the nominal ownership of land is one particular value for land. It is a price that may or may not include a value for rights separated. For example, mineral rights owners who are not the nominal owners may have their interests separately assessed and taxed. However, some nominal owners may have their land assessed without regard to separated mineral rights (49, p.2). An easement for buried cable may not affect the price of land; yet the easement might be valuable to the owner of the cable and its customers. A restrictive covenant which limits the use of land for a higher priced purpose has a value but not one likely to appear in any land record.

The distribution of wealth and income will be affected not only by the distribution of nominal ownership, but also by some separations of interests and by the values attached to those interests. Data which accurately reflect the distribution of interests and their values are not easily obtained. Costs must be incurred to determine not only the price of the resource but also the identity of the holder, and value of specific rights in the resources. These information costs are part of a more general class of transaction costs.

Transaction Costs

Transaction costs 29/ are the costs incurred by all public and private parties involved in the negotiation, transfer, and protection of property. 30/ To the extent they are identifiable, transaction costs appear as reductions in the values attached to the (separable and marketable) sticks in the bundle of rights. However, not all of the costs of funding, evaluating, exchanging, and enforcing property are assignable to a particular interest or party. Inability to assign such costs results in a so-called externality

29/ Crocker refers to these as ICP costs for informing, contracting, and policing (11, p.280). See also E. Furubotn and Pejovich (17, p.46), for discussion of costs of defining, exchanging, policing, or enforcing property rights.

30/ For an example of one type of transaction costs--the conveyancing of residential real estate--see B. Burke's carefully documented book (8).

problem. 31/

Nonassignability of some transaction costs does not imply neutrality of economic effect. For example, the fees for title examination or title assurance are a larger proportion of low-valued than high-valued property. Police protection of property may differ by geography or economic class, and these affect differently the values of various rights. Further, land use regulations may not impact on properties evenly.

The real estate industry incurs over $8 billion of transaction costs, many of which are spent to determine who owns the land. 32/ Finding out is not limited to title examination. Market studies, location of sellers and buyers, site evaluation, tax appraisals, and land use plans require various levels and types of ownership information. Unfortunately, much of the information about ownership is duplicative and partial, and it loses value over time. Public information on landownership is concentrated in county, city, and town offices, most of it in a form requiring additional processing to be usable. 33/ Private information is not freely exchanged; indeed, it is often controlled and tightly restricted.

The distribution of benefits and costs cannot be completely identified through the market. Economic weighting of sticks

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31/ The economic literature on property in the early sixties and seventies, resting on the Coasian theorem of social cost, was concerned primarily with issues of externalities. The Demsetz extension toward a theory of property measured the value of a property interest against transaction costs to determine whether a benefit or cost could be assigned. Because the externality issue emphasized microeconomic efficiency issues, the broader issues of the costs of a whole property system were not addressed (9, pp.1-44; 13, p.347; 17). For general treatment of the implications of the Coasian theorem, see W. Samuels (46). The cost of and returns from obtaining, organizing, and distributing facts are the economics of the property system.

32/ Gross national product contributed by the real estate industry was $180 billion in 1976 (56, p.44). Of that amount, $8 billion was compensation to employees and the remainder was profit, interest, taxes, and capital consumption. The $8 billion is therefore a conservative proxy for transaction activity to which some portion of profit might be added. These transaction costs are over and above the productivity value of land; they might be assigned as costs of decisionmaking rather than land *per se*.

33/ See, for example, the detailed study of real estate transaction costs in (33), also (8).

in the bundle of rights is not accomplished entirely through the land price market. The non-neutrality of transaction costs--the cost of a functioning property system--results in a grey area of value surrounding the sticks in the bundle of rights and, consequently, ownership.

These transaction costs are a major challenge to researchers. Identification and measurement, and the analysis of effects of these costs on decisions and on the distribution of wealth and income will contribute much to the functioning and improvement of the property system.

OWNERSHIP FACTS: SURVEYS AND SYSTEMS

The limitations of available facts about landownership and some of the conceptual and empirical complications in obtaining better facts have been examined. 34/ One can now ask how the quantity and quality of data might be improved. Improvement can be expressed in terms of particular needs, some of which extend beyond research or a general enhancement of the knowledge base. It is useful, following Edgar Dunn, to group these needs and data for them into two broad categories: intelligence and statistical (14). Intelligence data connote a complete profile of information on every relevant unit (owner) in a population under observation. Statistical data connote descriptive parameters about the population under observation without regard to an individual unit (owner). Statistical data might be from a sample; intelligence data would not.

Intelligence Data

Intelligence data on landownership require such specific information as the owner's identity, the particular parcel of land, its characteristics, the legal interest or value. Such information is needed for transferring title, administering a property tax, investigating a source of income, granting a building permit, or reviewing a zoning. Users of such data would include, for example, title attorneys, building inspectors, and program administrators.

34/ The presumption underlying the critique of ownership facts is that such facts would be useful for a better understanding of the functioning of the property system. For literature on the institution of property, see (17, 73). For a slightly different approach, see (72; 70, p.80) and (47).

Statistical Data

Statistical data on landownership would be reported in classes, categories, or measures without regard to specific people, parcels, or places. Such information may be used for research, background for legislation, planning, and policy and program development and evaluation. Users of such data would include, for example, statisticians, analysts, planners, legislators, and citizens. The distinction between intelligence and statistical data is not always sharp. Statistical information may require the owner's identity to classify, assemble, and report on categories of owners, land, or tenure. Often, the difference between intelligence and statistical data use is not the source but the final report; that is, the data's rather than their collection.

These two categories and their uses may call for different organizations and procedures to obtain, store, and report or retrieve the data. Intelligence data require some continuous or periodic process, such as inspection, regulation, conveyance, or recording, that often generates information as a byproduct. Statistical data may be obtained by special surveys, perhaps on a one-time basis, independently of any function other than data collection.

The distinct requirements of intelligence and statistical data challenge the information systems designer hoping to serve both classes of needs. Such multiple-purpose information systems have been suggested as a proper way to serve many of the needs of local, State, and Federal governments as well as private traders, brokers, merchants, financiers, and users of land. The American Bar Association's Committee on Improvement and Modernization of Land Data, under the acronym CULDATA (Comprehensive Uniform Land Data) has proposed and continues to encourage the development of such systems (3, pp.343-351). Local governments, regional organizations, and professional groups are designing land data systems that can also serve several intelligence needs as well as provide statistical data periodically or on call. 35/

35/ Examples of each are, respectively, Forsyth County, North Carolina Land Information System; Computer Assisted Mapping and Records Activities System, sponsored by American Public Works Association; test project Memphis, Tennessee (CAMRAS); and Land Registration and Information Service (LRIS) in the Maritime Provinces, Canada. Another experiment, Regional Mapping and Land Records (RMLR) in Norristown, Pennsylvania, is supported by utility companies.

Two Federal enactments contain authorization for the improvement of land records. Section 4(d) of the International Investment Survey Act of 1976 36/ specifically authorizes study of feasibility of multi-purpose data systems to acquire landownership information both foreign and domestic. Title 13 of the Real Estate Settlement Procedures Act of 1974, 37/ seeks to improve the recording procedures and related land records. The Uniform Simplification of Land Transfers Act contains suggestions for tract indexing to improve the referencing system of land records (39). The North American Institute for the Modernization of Land Records, a nonprofit corporation representing professional groups and government agencies, supports the design, evaluation, and development of multiple-purpose land data systems (40).

ESCS Survey Underway

The awareness of needs for better land information continues to grow, as does the commitment to design systems for improved information based on the multipurpose concept. However, secondary sources, such as tax and title records in county offices, while potentially useful are now neither coordinated nor sufficiently detailed to portray landownership adequately.

The detail of owners, ownership, and the land owned in the United States is best obtained by direct survey of current owners. The Economics, Statistics, and Cooperatives Service has begun such a direct survey, from which first data are to be produced late this year. This national survey of non-Federal landownership will provide data on characteristics of owners, method of acquisition, and land use. Ownership will be linked to physical features, such as soil type, structures, improvements, cover, and current use. This survey will provide a core of data on nominal ownership of U.S. land. Beginning with this core data, researchers will be able to build a more refined picture of the separated interests in land.

Use of Regularly Collected Information

If, in the future, ownership information can be obtained from files and records used to serve regular functions such as

36/ 22 USC 3103.
37/ 12 USC 2611, 12 USC 2612.

title transfer and taxation, it is possible that no special system or additional surveys need be created. In their current form, however, title records are not suitable for aggregating data. Tax records, although offering more potential than title records for aggregating data, often do not contain sufficient information. Tax-exempt properties, for example, may be omitted. In some jurisdictions, not all assessment data are accessible. Lack of uniformity in title and tax records even within States is an obstacle to obtaining ownership statistics on anything other than a local basis. Finally, tax and title records often do not carry detailed information on owners, such as their occupation, income status, or organizational form. Although ownership statistics from public records can be improved greatly, special surveys will be needed to obtain detailed information.

Statistical surveys will provide aggregative information for broad policies. But one-time, special-purpose surveys are expensive because their costs cannot be spread over many functions. Also, sample surveys cannot serve the needs for information on particular owners or units of land.

THE DISCLOSURE ISSUE

Combinations of surveys and public land records may yield data with only a minimal reporting burden. However, the mixing of public record data with confidential survey data, unless scrupulously administered, could result in unintentional, perhaps illegal, disclosures. Therein lies another ownership information issue: Should the names of landowners be secret? A preliminary examination has revealed no constitutional or economic reasons for allowing landholdings to remain secret (15). 38/ However, there are public agencies, private plants and listings, and individual wealthholders whose interests might be affected by complete disclosure of ownership information. Often on the grounds of privacy, they might resist improved surveys, systems, or combinations, even improved access to information in public records.

The issue of disclosure goes much beyond the collection, assembly, and reporting of ownership data. Does the right to own property carry a correlative obligation to report that fact publicly? What is the need to know and for what purposes is the information to be used? If the intention of revealing beneficial ownership is to regulate or control specified classes of owners or ownership arrangements, a

38/ See especially (68).

registration or reporting requirement may be needed to administer the regulation.

The concern for ownership as a policy issue, and the implied threat of regulation or control, is likely to increase the desire of some owners to shelter or obscure information about their holding. If better data are to be obtained, therefore, it becomes increasingly important to design information systems to acquire only needed data and to enlist the cooperation of the owners of interests in land as well as those who record, tax, and protect those interests.

The use of America's land will be strongly influenced by a large number of decisionmakers who own land outright or have a significant interest in it. Policymakers concerned with land use must take into account policies affecting landownership. But planner Frank Popper reminds us that ownership is important not only for its possible effect on use but also on the distribution of power and wealth:

> The long-range consequences of land ownership are staggering, not only from a political viewpoint but from the standpoint of how land is controlled for ulterior motives, by whom, and how it might or might not be developed. 39/

The distribution of wealth and income, and the flow of benefits and costs from many public programs will be influenced by the pattern of landownership. Underlying almost any of the issues of landownership, however, is a factual base. Policies and programs which seek to implement the policies will be no better than the facts on which they rest.

39/ (43). See also (34, p.147) and, generally, (20, 44, 6, 4, 7).

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