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Government often finds itself in the position of having to acquire property. These acquisitions may involve isolated pieces of property, or the assembly of numerous contiguous parcels. Eminent domain (ED) is commonly used by government, and its agents as a means of securing rights to real property.

The use of ED is of particular interest to economists because condemnation may be used to force the transfer of property to the government. While compensation to owners of condemned property is required by law, the amount of the payment is determined by the court. This thesis explores the effects that this non-market transfer may have on (1) the allocation of private property to public projects, and (2) the distribution of payments to owners of said properties.

These issues are addressed theoretically in the context of property assembly. A model for the comparison of market and ED assembly is developed, incorporating the elements of assembler strategy and the bargaining strengths of the parties involved. Analysis of assembly efficiency suggests that neither method is

superior in all assembly scenarios. Comparison of the distribution of payments to owners reveals significant differences between market and ED assembly methods.

Finally, hypotheses regarding the distribution of payments to owners are tested with data from a Federal property assembly in North Bonneville, Washington. Results support the conclusion that owner bargaining strength is an important determinant of payment price under ED assembly.

Economic Issues In Assembling Properties With Eminent Domain

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ECONOMIC ISSUES IN ASSEMBLING PROPERTIES WITH EMINENT DOMAIN

Chapter 1

Introduction

Microeconomic analysis has traditionally focused upon the interaction of various agents through markets. Theoretically, market exchange is often viewed as an insulated occurrence, involving only interested buyers and sellers. But markets do not exist in a vacuum. The ability to participate in exchange as we know it is facilitated and/or constrained by a multitude of government rules and regulations.

The effects of government activity--whether it takes the form of regulation, taxation, judicial decision, or direct action--on the allocation of resources and the distribution of wealth have concerned both economists and legal scholars for years. In general, lawyers, have devoted most of their effort to examining the basis or foundation for existing law and government decision-making. Some have sought to justify governmental rule-making as an attempt to promote economic efficiency (Posner), while others have accounted for the development of the law in terms of a broader set of values (Michaelman).

Alternatively, economists have generally limited their role in the discussion to assessing what welfare impacts may arise from changes in the legal structure. The government activities of greatest interest have been regulation and taxation. This is not surprising, since the effects these types of activities have on resource allocation can be

assessed rather directly through analysis of the affected markets (Just, Hueth, & Schmitz).

This characterization of research interests is, naturally, quite generalized. Realistically, the disciplinary boundaries of this sort of endeavor are likely to have significant overlap. Such is the case with the work comprising this paper. In the tradition of economics, efficiency and distributional issues are the focus of attention in this study of government activity. The kind of government activity being considered, however, is not regulation or taxation, but direct government action. Additionally, this action involves the exchange of property rights outside their normal market setting. As a result, a working knowledge of the appropriate laws, their intent, and their interpretations is essential to the development of meaningful economic analysis.

The transfer of property rights is a commonplace occurrence in this country. On a daily basis, countless voluntary exchanges take place within an extremely diffuse, localized market structure. The bulk of these transactions involve private individuals. But there are frequent circumstances in which governments and their designated agents need to acquire private property. Unique sites such as valleys where reservoirs can be constructed, as well as highway and urban renewal sites are examples.

Every year, millions of acres of private property are acquired by government. The federal government alone acquired no less than 50 million acres per year over the past decade. Two of the more active agencies--HUD and the Army Corps of Engineers--acquired approximately

20,100 parcels in 1979 and 20,500 parcels in 1980, with payments for property totalling \$365 million and \$411 million in the respective years. Additionally, the two agencies paid out over \$216 million in relocation benefits for that period.

Eminent domain (ED) is a means of acquiring property used regularly by governments and their agents. With ED, the majority of property rights transfers are facilitated by direct purchase from the owners. But these transactions are not strictly voluntary--in a market sense--because ED includes the ability to condemn if price agreement is not reached.

Condemnation affords the government an opportunity to force property exchange, where the responsibility for price determination is transferred to the courts. Hence, the way in which decisions are made in a judicial setting and the transactions costs which accompany this process will be important determinants of settlement price when agreement cannot be reached voluntarily. Even where a settlement is reached without condemnation, an owner's decision to accept an offer may be influenced by these factors. In other words, the costs associated with condemnation may encourage owners to accept a price below the minimum they would have accepted in a free exchange setting.

For owners, the costs associated with this process may be psychic as well as financial in nature. While the former play an important role in determining individual owner response, the nature of this role is less predictable--in a quantitative and a qualitative sense--over all owners. For this reason, this paper will focus primarily on the structure of financial costs faced by owners desiring to challenge an offer.

The presence of these transactions costs merits inquiry as to the extent to which they may add to the net social costs of assembling property. The structure of these costs may have important consequences for the distribution of property payments to owners of assembled properties. The importance of understanding these effects is underscored by the frequency with which ED is used to acquire property.

The two-fold purpose of this research is: First, the development of a model of ED property assembly which incorporates the effects that these transactions costs have on the processes and outcomes of ED use, and second, the testing of propositions arising from this model which may indicate the degree of its consistency with an actual ED assembly.

A detailed discussion of ED is presented in chapter 2. Limitations on its use are discussed. The types of ED usage to be included in the analysis are identified. Finally, a basic set of rules governing the use of ED is presented. These rules form the legal framework within which the economic analysis of this paper is conducted.

Chapter 3 focuses upon the foremost economic work in the area of property assembly. A model for assessing the efficiency of ED and market assembly is critically reviewed with respect to the consistency of its underlying assumptions and the results of empirical work. In addition to their impact on the assessment of efficiency, these results indicate patterns in the distribution of payments to owners that are not captured by the original model.

In chapter 4, an alternative framework is developed for the analysis of assembly efficiency. This framework incorporates the importance of assembler and owner bargaining strengths and assembler

strategy. Based on these components, property acquisition curves are constructed which lead to a new analysis of efficiency.

Additionally, this new framework is seen to yield distributional results which are more consistent with previous empirical work. The chapter concludes with discussion of these results.

In chapter 5, a case study of the assembly of properties constituting the town of North Bonneville, Washington is presented. Hypotheses adapted from the work of the preceding chapters form the basis for analysis of data from this assembly. Additionally, some observations drawn from personal interviews of former owners of assembled properties is presented. The chapter concludes with a comparison of case study results and the theoretical conclusions of chapter 4.

Concluding remarks are presented in chapter 6. Theoretical and empirical results of this research are summarized. Potential improvements in the analysis of property assembly provided by this work are noted. And the areas in which further research is called for are reviewed.

Chapter 2

Eminent Domain

The body of law and judicial opinion embodied in the use of Eminent Domain (ED) is both complex and extensive in scope. The purpose of this chapter is two-fold: first, to narrow the focus of the research to workable proportions, and second, to provide the reader with a basic understanding of the mechanics of ED, which will serve as a framework for the economic analysis to follow.

Thus far, ED has been identified as a means of securing rights to real property. In a general sense, property rights include not only ownership but assorted usufructory rights, such as mineral, water, access, or development rights. It is not uncommon for many of these rights to be vested in or transferred to individuals other than a property owner. For example, ED has been suggested as an alternative by which some use rights could be obtained by government as an alternative to zoning (Ervin and Fitch). This paper, however, concentrates exclusively on the role of ED in obtaining ownership to real property.

More specifically the role of ED in assembling properties will be addressed. ED can be used to obtain isolated properties, but its use in assembling contiguous properties presents different problems. Most importantly, analysis of property assembly involves a more thorough examination of the efficiency and equity issues. Within this assembly context, discussion will focus on the effects of ED on affected owners of real property. This is not to say that the effects of ED on

affected business owners and renters are not worthy of further study. Indeed, there remains much unresolved debate on the topic of displaced businesses. It is hoped that this research will foster additional work in these areas.

ED may be defined as "the power to take private property for public use by the state, municipalities, and private persons or corporations authorized to exercise functions of public character" (Black's Law Dictionary). This authority is based on provisions of the Fifth Amendment to the Federal Constitution and the constitutions of the individual states. The power to take property by this method is limited by the 'public use' and 'just compensation' requirements of the Constitution.

The judicial interpretation of the 'public use' requirement has varied throughout American legal history. Two opposing viewpoints have dominated judicial opinion on this issue. The narrower of the two has held that 'public use' means the ability or right of the public to use the property that has been condemned. The broader view has been that the acquisition simply be to the advantage or benefit of the public. The latter interpretation is regarded as prevalent today (Berger).

In addition to weighing the merits of the 'use' and 'advantage' doctrines, two other criteria are identified as important considerations in the substantiation of 'public use'. The first involves a weighing of the public benefits and the condemnor's need against the cost that would be incurred by the condemnee. The second is whether purchase in the market place is a practical alternative

means of acquiring the property in question (Berger). The chief consideration, on this point, is whether the condemnee(s) holds some monopoly power over some or all of the desired/feasible property for a project. If this is not the case, purchase of the property through the market may be a reasonable alternative.

Meidinger notes, however, that in the normal day-to-day workings of the eminent domain process, "almost any taking can meet the public use requirement," as interpreted via the 'advantage' doctrine. Consequently, in the requirement's new role as "a slight added drag on takings . . . the main question is not whether a taking is for a 'public' purpose, but whether it is for a legitimate purpose" (pp.42-43). The courts, by retaining this criteria and, more importantly, by seldom ever explicitly defining it, have retained the prerogative of reviewing the legitimacy and wisdom of candidate public uses.

The issues surrounding the just compensation requirement are of primary importance in this thesis. Attention is focused on property values and prices paid for property under different assembly conditions. The issue of compensation to owners who have had their property taken is addressed not only from the perspective of what the law intends that compensation to be, but also with regard to the nature of actual compensation payments. The presence of relocation payments, to be explained shortly, may also effect comparison between ED and market assemblies.

Some past research has assessed the equity implications of ED statutes which differ between certain jurisdictions (Edens). While some differences remain, significant progress has been made in

standardizing ED provisions. Two such efforts are the passage of the "Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970"--which pertains to all federal or federally-funded projects--and the development of the U.S. Uniform Eminent Domain Code (the Code)--a model statute based on the act which has been adopted by many jurisdictions. Some question remains, however, as to how equitably owners are treated within the context of a unified set of procedures.

Eminent Domain Procedures

The remainder of this chapter is devoted to highlighting the procedural requirements for the use of ED found in the Code. These procedures provide an integral part of the framework within which the economic analysis of chapters 4 and 5 are conducted. The section numbers provided throughout refer to the Code.

After having been authorized to use ED, the empoweree may initiate procedures for property acquisition. Before any condemnation action is submitted to the courts, an effort must be made to purchase the property directly. The offer of the condemnor must be at least as high as an appraisal of the amount that would constitute just compensation for its taking (§ 202-3). If this offer is rejected by the condemnee, the condemnor may negotiate further¹ or

¹ While the Code does not require that offers above the appraised value be made, it does provide that "every reasonable and diligent effort to acquire property by negotiation" be made.

file a complaint for condemnation in the appropriate court. Contained in this complaint are the identities of the plaintiff(s), the defendant(s), and the property sought in the suit, along with a statement alleging the legal authority and purpose of the plaintiffs' action to acquire the property through the use of ED (§ 404).

Within 30 days of the filing of the complaint, a deposit for the probable amount of compensation may be required of the condemnor by the court. Failure to make such a deposit in accordance with an order by the court can result in the dismissal of the condemnation complaint (§ 303;601). With authorization from the court, all or part of the deposit may be withdrawn by the condemnee (§ 604). While this may enable the condemnee to meet legal and other interim expenses more conveniently, by making a withdrawal, he effectively waives all of this objections to the condemnation proceeding, with the exception of the level of compensation (§ 606).

Just Compensation

The determination of the amount of compensation that justly should be awarded to the condemnee for his property is the second check on the use of ED authority. The court is charged to award the condemnee the fair market value of his property, assessed at the date on which the condemnation complaint was filed (§ 1001-2). For property owned by the public or other nonprofit organizations, fair market value is an amount not less than the cost of a functional replacement, including the cost of relocating existing or constructing new improvements, and the cost of betterments required

by law or construction standards. For other properties where there is a relevant market, fair market value is defined as "the price which would be agreed to by an informed seller who is willing but not obligated to sell, and an informed buyer who is willing but not obligated to buy" (§ 1004).

In contrast to the criterion of fair market value, the suggestion is made by some that more consideration be given to the value of the property to the present owner (See Posner). If the owner has chosen to continue owning his property, then his valuation of the property has been higher than whatever the market may have offered him. If this were not the case he would have previously sold the property. It is important to recognize, though, that included in the owner's weighing of his valuation of the property vs. an offer from the market are the costs of relocation. If an offer from the market does not cover these costs in addition to the value of the property itself, he will be unwilling to sell. Traditionally, the determination of a fair market value for land and improvements has ignored these costs.

Relocation Assistance

Not until 1970 was there an effort to systematically provide compensation for relocation and related expenses incurred as a result of the use of ED. With the passage of the Uniform Relocation Assistance and Real Property Acquisitions Policies Act, guidelines were established for the provision of such assistance for all federal or federally assisted projects. In 1974, similar provisions were

recommended for nonfederal projects, as well, with the development of the Uniform Eminent Domain Code.

Under these guidelines, different provisions are made for homeowners, renters, and businesses, but all are entitled to receive, from the condemnor, a reasonable sum for the transportation of person and business or personal property to a new location (§ 1403). In addition to this amount, homeowners are eligible for an additional payment not to exceed \$15,000 (§ 1403). This payment is intended to offset increased expenses associated with acquiring new comparable housing that is decent and safe. Included in this category are increased construction and property costs, increased interest costs--if the property was encumbered by a valid mortgage for at least 180 days prior to the start of negotiations--and some closing costs associated with the purchase/construction of a replacement house.

The relatively recent developments in the relocation assistance programs reflect the growing belief that those who are displaced by project development should be made "whole" again. These changes have been made in recognition that simply providing compensation for land and improvements--with no regard for the burden relocation may bring--often places a disproportionate share of project costs upon those who are displaced.

Chapter 3

Assembly Efficiency and Equity:

The Monopsonistic Model

Comparison of the relative efficiency of ED assembly versus that using market techniques is a complex undertaking. It is a task which has received very little attention in the economic literature. This chapter reviews the theoretical and empirical results of one of the few systematic efforts to compare relative efficiency of ED and market acquisition. In this research by Patricia Munch at the University of Chicago important inconsistencies are revealed between the theoretical construct used for efficiency comparison and empirical evidence gathered from several assemblies in the City of Chicago. In chapter 4, an attempt is made to present a more realistic theoretical depiction of the assembly problem, which leads, in turn, to a new comparison of efficiency for ED and market assembly.

At the outset, it should be noted that numerous factors complicate a straightforward theoretical discussion of this problem. One of the most problematic is the heterogeneity of property, particularly when land and improvements are viewed as a single unit. One strategy for simplifying this element of the analysis is to view assembly properties as groups of relatively homogeneous properties. The simplest case of this approach is where all properties for a particular assembly are assumed to be entirely homogeneous. This is the method used by Munch. The importance of extending this basic

approach to include more than one group of internally homogeneous properties is explored in the next chapter.

A second problem involves the market structure for property and the internal evaluations made by owners of their property's worth. It is usual to assume that even where a group of homogeneous properties is being considered, the reservation prices of owners will not be uniform. They will, by assumption, form a distribution skewed to the right, where the mode lies to the left of the mean. Reservation price is used here to mean the minimum acceptable offer price for a property. An owner will not willingly sell below his reservation price, but will sell at or above it.

Third, while reservation prices are generally reflective of the value owners attach to their properties, some of the variation in reservation prices may be accounted for by the fact that they may also include implicit relocation allowances. Resident owners, who are under no pressure to sell, will likely refuse an offer which does not meet their expenses of securing and moving into a new home.

A fourth consideration which must be combined with the assumed distribution of reservation prices stems from the existence of individual negotiations between a buyer and a seller or their respective agents. These conditions will not generally produce a single market price for properties within a homogeneous set. Instead, transactions will take place within some range of a mean market value, which will be less than the modal reservation price. If a prospective buyer need not acquire a specific parcel and if he is allowed an average amount of search time, he will seek out owners

with low reservation prices. In the context of an assembly of properties, the need to acquire specific parcels may force the buyer to obtain them from owners with high reservation prices.

Efficiency of Market and ED Assembly

In this section, Munch's analysis of assembly efficiency is presented. Her model is based on the assumptions concerning reservation prices outlined above. Transactions will occur "within a range around a mean market value" (Munch 2, p. 476). For purchases of randomly scattered similar parcels, given an average amount of search, Munch proposes that the "supply curve is infinitely elastic at a price equal to mean market value" (Munch 2, p. 476). For an assembler attempting to purchase contiguous properties, however, the supply curve is upward-sloping, and "an increasing function of the number of properties to be purchased in a given period" (Munch 2, p. 476). This slope results from the increasing likelihood of encountering owners whose reservation prices exceed the mean market value.

Figure 1 depicts the resulting supply and demand conditions for the free-market and ED assemblies. MC_m is the supply curve of randomly scattered parcels, and MC_a is the supply curve for contiguous properties. Under competitive circumstances, where alternative sites and assemblers are available, the owners reflected by MC_a may have incentive to reveal their reservation prices, allowing the free-market assembler to discriminate along MC_a . If the site is unique or if there are significant costs associated with the

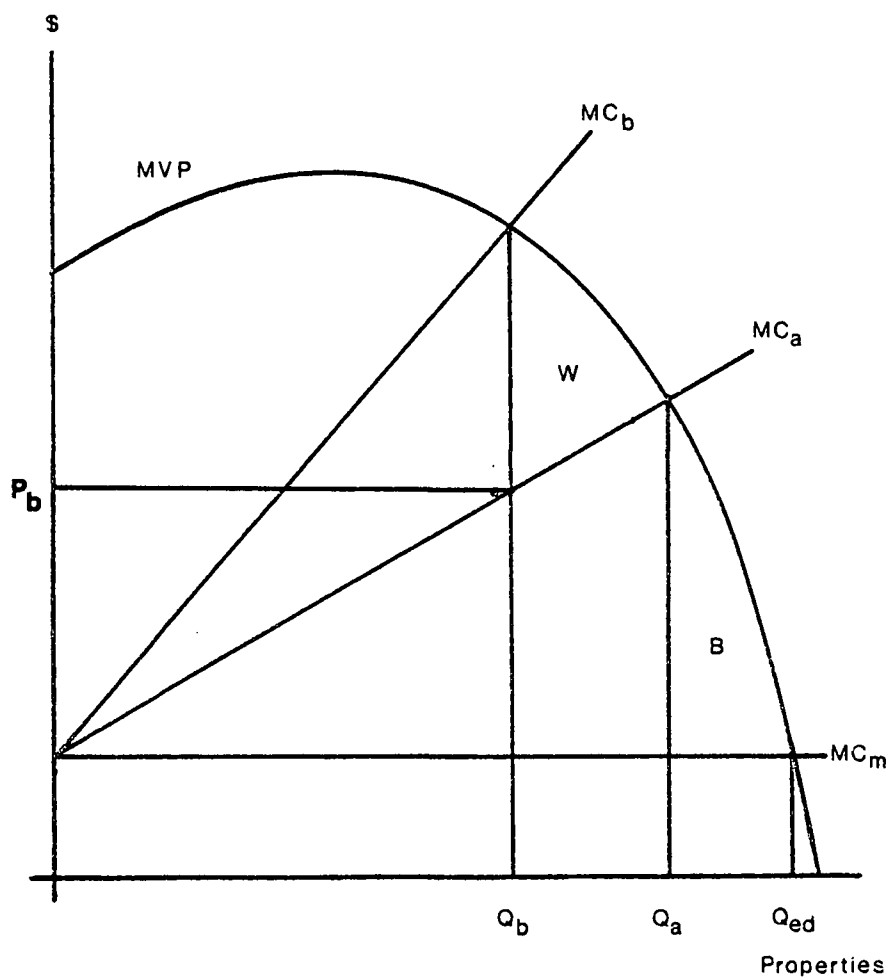


Figure 1. Comparison of assembly efficiency: the monopsonistic model.

discovery of and maintenance of options for an alternative site, and if there is a lack of competition among assemblers and potential sites, reservation prices are more likely to be concealed. Under these later, presumably more realistic conditions, a monopsonistic assembler will equate MVP with MC_b , curve marginal to MC_a . Since reservation prices are concealed he will make a single offer at price P_b , securing all properties out to Q_b . This implies a welfare loss equal to area W. The incidence of this loss is upon the producers of inputs complimentary to the assembly project and to the consumers of project outputs.

The assembler using ED, however, has the power of condemnation. If he condemns all properties not transacted voluntarily at the mean market value and if the court awards this mean value to all remaining owners as just compensation, the ED assembler will acquire properties along MC_m to Q_{ed} . This results in a welfare loss equal to area B. This loss is incidental to those consuming outputs of the properties in their previous uses. Note carefully, however, the importance of assuming a flat MC_m schedule in obtaining this result. Since B may be greater or less than W, the comparison of efficiency between the two methods of assembly remains ambiguous.

In addition to this theoretical comparison of assembly efficiency, Munch presents a model of price determination under ED and empirical results of the testing of ED prices for several assemblies.

Price Determination Under ED

The formulation of the price determination model is presented in the Appendix (see also, Munch 2, pp. 480-85). Equation five of this model is worth noting, here, because of its relevance to Munch's empirical results and the model developed in chapter 4.

Algebraically, the equation is formulated:

$$P_c = P_m - h^b(C^b) + h^s(C^s) + v; \quad v \sim (0, \sigma_v^2(P_m)),$$

where P_c = price awarded in court, P_m = market value, C^b = buyer's court costs, C^s = seller's court costs, and v = a stochastic error term. The functions $h^b(\)$ and $h^s(\)$ relate court expenditures, of the buyer and seller respectively, to influence on the court decision. The equation states that, "Any systematic deviation of court award from market value is the result of expenditure by both parties on court inputs" (Munch 2, p. 481) and the functions relating those expenditures to influence on the amount of an award.

The importance of this claim lies in the constraints that exist on the ability of an assembler and owners to adjust the quantity and quality of legal inputs for litigation. The choice of legal personnel is often restricted by statute. As an example, Munch cites a requirement for the Chicago Department of Urban Renewal to be represented in court by the City's corporation counsel. As a result, an assembler is typically more constrained than owners in choosing the quality of legal inputs. Owners, on the other hand, are more constrained in selecting the quantity of legal services because of minimum time requirements for litigation and assembler ability to

group similar parcels.

For a number of reasons, the structure of these constraints suggests that court awards will be proportionately higher for high valued properties than for low valued ones. First, if the value of an owner's property can be taken as being generally representative of his wealth, the owner of an expensive property will have a greater ability to afford high quality legal inputs. Second, the cost of legal inputs, relative to property value, decreases for any given level of quality as property value increases. Hence, owners of expensive properties will be more likely to use higher quality legal inputs. Alternatively, owners of low valued properties, because of the constraints on their budget and expected return, will employ lower quality inputs.

Empirical Results

These constraints on the choice of legal inputs suggest that a regressive pattern of court awards--if not all settlements--may result. In addition to affirming this pattern, Munch's empirical work offers several other insights.

Using sales and other data, equations were developed for estimating market values for a sample of non-assembly properties sold on the market. These equations were then used to estimate the market values of the properties in the ED and market assemblies under study. Actual prices paid through negotiation or litigation were then compared with these estimates for individual properties.

Her results revealed that under ED, regardless of the means of

settlement, "high-valued parcels systematically receive more than market value and low-valued parcels systematically receive less than market value" (Munch 2, p. 495). This finding, while consistent with Munch's model of price determination is not consistent with an important assumption underlying her comparison of efficiency: that an ED assembler will pay the mean market price for each property in a homogeneous set obtained through condemnation. This inconsistency strongly suggests that analysis of assembly efficiency would be better served by a model capable of directly addressing these differences in property payments. This task is the focal point of the next chapter.

Another finding at odds with the predictions of the monopsonistic model was reported in Munch's dissertation, but not published. She calculated the sum of prices paid in ED and market assemblies and compared the totals with the sum of estimated market values for the same properties. For the ED assemblies, total property costs were found to be "roughly one third above market value. Very crude estimates for the market assemblies were of the same order of magnitude (Munch 1, p.89). According to the efficiency analysis ED costs should have been both reasonably close to market value and significantly less than those of market assembly.

One final observation, also not published, is the relationship she noted between assembler appraisal values and market value. Both high and low "appraisals systematically understate market value for low valued properties and overstate market value for high valued properties (Munch 1, p. 74). Hence, the regressive bias seen in settlement prices is already present in assembler appraisals and offers.

Distributional Issues

The distributional implications of the regressive pattern in settlements are also inconsistent with the monopsonistic model. In fact, as a result of the underlying assumption that all owners will receive mean market value under ED, the model has very little to say about distributional patterns in settlement prices. What is needed is a better understanding of the mechanics of ED, e.g. "Why does regressive bias in appraisals carry over into settlements?" Munch has attempted to address some of these issues, particularly those relating to court awards. Her analysis of assembly efficiency, however, does not reflect a concern for the forces which generate disparity in settlement prices.

Concluding Observation

This chapter has reviewed an attempt to characterize the ED acquisition process both by a model of comparative statics and by a reduced-form model relating price received, in part, to expenditures on court inputs. Particularly with regard to the former, several inconsistencies were identified between both the assumptions and predictions of this model and inferences drawn from empirical results. The latter model, while providing a better explanation of differences in the level of court awards, does not incorporate other transactions costs components and provides no generalized comparative statics results.

In the next chapter, a model is developed which attempts to

account for much more of the dynamics of ED. If this model is more consistent with actual ED strategy, behavior, and outcomes than the models reviewed in this chapter, comparison of the efficiency and equity of the two assembly methods may prove to be more informative.

Chapter 4

Assembly Efficiency and Equity:

The Bargaining Strength Model

In this chapter, an alternative framework is presented for analysis of assembly property acquisition. The first major objective is the development of a model of assembly efficiency which is more consistent with observations of assembly processes and outcomes. Considerable attention is paid to the identification of assembler and owner strategies that may affect outcomes, and to the incorporation of these behavioral elements into a model which yields meaningful efficiency comparisons. The second objective is to identify how these elements may effect the distribution of payments to owners of assembled properties.

Munch's analysis is developed around the concept of an assembler as a monopsonist. This characterization by itself fails to incorporate the power potentially held by property owners. Posner has observed that negotiations to settle a lawsuit possess significant elements of a bilateral monopoly, in that neither party has good alternatives to dealing with the other. If competitive conditions are not present in the acquisition of an assembly site, that is, if there is a single potential assembler and one prospective site, these elements carry over to the general assembly problem. Additionally, if the assembler has ED authority, the early acquisition process must be viewed in the same context as pretrial negotiations, since the assembler has the power to take properties

through ensuing court action if settlement is not reached.

Exploration of the bilateral monopoly aspects of assembly may, thus, yield greater understanding of the processes at work.

Implicit in the determination of price under conditions of bilateral monopoly are the bargaining strengths of the parties involved. In the assembly problem, bargaining strength is largely a function of the ability and willingness to pay various transaction costs which form an integral part of the ED procedures. These costs include appraisal and legal fees and court costs, and other factors such as the financial and psychic costs of a lengthy negotiation/litigation proceeding. A property owner's bargaining strength is composed of (1) his understanding of ED procedures and his rights therein, (2) his ability to acquire legal and appraisal services, (3) his ability to sustain negotiation/litigation over an indefinite period of time, and (4) his desire to contest an unacceptable offer. These components will, in general, be a function of the individual's wealth, income, and legal and general education. Age, health, and temperment should also be considered as important factors.

While bargaining strength of an assembler consists essentially of the same components, it is reasonable to expect that an assembler will operate from a stronger position than most owners. In general, the assembler will have (1) a good knowledge of ED requirements, (2) a professional staff that can be called on for at least a share of services and/or a project budget that includes expenditures for these services, (3) the ability to conduct quick takings, where the property

is acquired before just compensation is decided, and (4) the desire to litigate a case if no other solution can be found.

Certainly, there are limits to the resources of an assembler. And what resources there are must be spread over the acquisition of all properties in an assembly. As noted in the last chapter, some of the flexibility in allocating resources which might be inferred from an assembler's centralized bargaining position is restricted by statutory provisions. The assembler retains, however, the ability to develop a comprehensive strategy for dealing with owners as a whole. Owners, on the other hand, will not ordinarily possess a unifying strategy for negotiating with an assembler. This advantage in the development and implementation of an assembler strategy which may discriminate between owners is an important part of the analysis that follows.

Transactions Costs

Before the components of assembler strategy are presented, it remains to be shown how bargaining strength may affect settlements. There are certainly circumstances where owners receive a fair settlement without incurring the transactions costs described below. There is no guarantee, however, that this will be the case. The ability and willingness to pay these costs is an important assurance that a fair settlement will result.

Property owners may elect to bear the costs of information concerning the ED process and of professional guidance and assistance--e.g., appraisal and legal services. Improved understanding of

ED procedures and rights will generally make an owner more inclined to challenge an offer for his property which he finds unsatisfactory. It will also be likely to increase the effectiveness of the challenge. Hence, there is good reason to believe that acquisition of such information and services will have an upward influence on settlements.

In the early 1960's, Curtis Berger and Patrick Rohan undertook an examination of ED practices in Nassau County, New York. Because of the datedness of this study, many of the practices cited are not consistent with current federal guidelines. For instance, owners were regularly offered only up to a percentage--somewhere between 60 and 85--of appraised market value before cases were transferred to litigating attorneys. This practice would not be allowed under the current federal guidelines. And its presence in these cases undoubtedly accounted for much of their finding of "gross underpayment" to owners of acquired properties. Their investigation does, however, illuminate many concerns about settlement equity which are relevant within the context of the federal guidelines.

This practice of restricting offer amounts provides some useful insights into the attitude of a typical assembler. He may see few problems in shortchanging owners if his objective is to pad operating budgets or 'save the taxpayers money'. Owners cannot be offered less than appraised value under the provisions applicable here. But, if an assembler has the ability to influence the level of appraisals, he may achieve a similar result with even more discretion. For example, instead of offering \$8,500 on a \$10,000 appraisal, he can present the owner with an appraisal and offer of \$8,500. In this way, he may be

able to convey an image of offering full market value to the owner.

Berger and Rohan suggest one important reason why appraisals for ED acquisitions may be subject to bias. As they put it,

"One should expect that any semi-conscious 'adjustment' by a(n) . . . appraiser is done to further his client's interest, . . . to limit project costs. The appraiser whose figures were consistently well above the county attorney's (or other experts') notions of valuation might doubt his continuing employment" (pp. 443-4).

As Munch's evidence shows, however, bias in appraisals need not always imply underassessment. She comments,

". . .if the appraisals are interpreted as good proxies for optimum offers, then the regressive pattern is consistent with the hypothesis, that cost minimization dictates a regressive pattern of offers relative to market value" (Munch 1, p. 75).

It will be demonstrated, shortly, why this is the case.

While Berger and Rohan made no attempt to compare appraisal values with estimated market values, they did speculate as to why so many people--over 50%--accepted settlements below the County's lowest appraisal. The first reason given was owner ignorance of market value. Although owners were not shown County appraisal(s), few had independent appraisals made of their property. And, as property values had increased considerably in recent years, they concluded, an "uneducated judgment was more likely to err low than high" (p. 445).

The ability and desire to have a current appraisal made are clearly important. Without one, the owner may be very uncertain as to his property's worth. Even worse, he may be errantly believe that his property is worth less than it really is. This is particularly

likely if the property was purchased many years before. In circumstances where property values have increased, a current appraisal will raise the price expectations of many owners. Alternatively, for owners with high reservation prices that have established them on the basis of desired internal return and not marketability, an appraisal may not lower their reservation prices for market transactions, but may force them to develop more realistic expectations for the ultimate settlement price under ED.

Federal guidelines do provide that an owner be informed of the amount of approved appraisals of his property's value, and that he cannot be offered less than the highest of these. But if the owner has little bargaining strength, he is still likely to accept an offer based on an appraisal which is below market value.

They argued that duress is also an important factor, if fair value is to be determined as if there were a willing seller and a willing buyer. The seller in this type of action is generally not willing and "he is seldom a carefree negotiator." As noted in Chapter 1, the pressures of an ED acquisition may intimidate an owner so that he effectively lowers his reservation price.

Next, those who retained legal counsel were found to fare somewhat better than those who did not. While many in the former group still received less than the lowest appraisal, counsel was often retained in these cases only after negotiations had been completed for the purpose of closing the sale. In general, it is expected that there will be positive returns to securing legal counsel as a result of better owner understanding of options, and better representation

and case organization.

Even before the prospect of going to court becomes imminent, the costs of settlement delay must be faced by owners. The negotiation process alone may carry on for one or two years, or even longer. Those who are not willing to accept an offer must be willing and able to withstand the costs and pressures implied by the indeterminate time-frame of assembly negotiation. This may be particularly difficult if many surrounding owners have already settled. An owner's determination and desire to fight for a fair settlement will generally increase his chances of getting one.

These costs of delay for the owner are compounded when condemnation results from lack of agreement over settlement price. In addition to the costs of delay and legal counsel, there are other costs involved in being condemned and having to litigate a claim for compensation. There are appropriate court costs, the securing of expert witnesses, and travel costs to and from the court location. Some of these financial costs are eased by the ability of the owner to draw upon the just compensation deposit made with the court by the condemnor.

Even with this ability to withdraw funds, the owner may be forced to carry on a rather transitory existence throughout the litigation, particularly if his property has already been claimed through quick taking. If the assembler condemns and his estimate of just compensation is low, the owner may be unable to find comparable replacement housing without incurring substantial debt. Given the uncertainty of the court's award, this debt may or may not be

reimbursed by the amount of the award. The psychic costs involved with facing this uncertainty and/or coping for several years with the transition to a new permanent home cannot be ignored. Those unable to bear these costs will be more likely to settle for an amount they perceive as unfair.

Berger and Rohan report a clear relationship between the length of the settlement process and the amount received. The longer an owner held out the more likely he was to receive an amount at least equal to the County's appraisal of fair market value. "Conversely, the claimant who was most "cooperative" or could least afford inordinate delay, suffered the greatest degree of underpayment" (p. 457). Berger and Rohan conclude that owners with the capability and desire to obtain independent appraisals and legal counsel and to challenge a low offer have a greater chance of obtaining a fair settlement. This finding supports the hypothesis that owner bargaining strength is important in determining prices under ED.

Uncertainty and Its Costs

Uncertainty plays a significant role in the decisionmaking process on both sides of the assembly problem. An assembler does not know owner reservation prices, and consequently is uncertain as to which or how many owners will accept a particular offer. He does not know if or how much a court award will be higher than his offer. In addition, he does not know the extent of the bargaining strengths of individual owners.

Likewise, an owner is faced with uncertainty. She may not know

her property's correct worth and may not know whether the assembler will offer and negotiate in good faith. She is also uncertain about the prospective amount of a court award. As alluded to above, a poor understanding of rights and responsibilities under the law may foster much uncertainty about the prospects of successfully challenging an assembler's offer.

Owner uncertainty plays an important role in the ability of the assembler to affect reservation prices. Normally, the prospect of an assembly would be thought to increase owner reservation prices, vis-a-vis perception of monopoly holdings. An assembler with the power of ED, however, may be in a position to cause many owners to lower their reservation prices.

The threat of condemnation is fundamental in this regard. Without ED, an owner would know that his reservation price must be met if an assembler is to acquire the property, even if this price represents only his personal evaluation of the property's worth. Facing an assembler empowered with ED, however, the owner should realize that a personal evaluation which (1) is higher than the mean market value for properties of the type owned, and (2) cannot be supported by independent appraisal has little chance of being upheld by the courts. It is certainly in the assembler's interest to inform an owner of this fact.

A more basic form of intimidation which may arise from owner uncertainty is the fear of possibly having to go to court--of being "condemned". This fear is expected to depress the reservation prices of many owners, especially those with negligible legal or courtroom

background. Others may identify both the assembler and the courts as "the government" and see little benefit from challenging an offer.

Naturally, this intimidation factor will have a greater impact on individuals with little bargaining strength. The limitations of their perceived choices will tend to compound one another. But this factor will also affect those with a stronger position, particularly those with high reservation prices.

Assembler Perceptions of Owner Bargaining Strength

While owner bargaining strength is an important factor in determining at what price settlement will occur, it is the assembler's perception of this strength that plays the dominant role in shaping the acquisition process. Not only does the assembler begin from a stronger bargaining position than many owners, he also controls key variables such as offer amount, timing of offer, and the decision to condemn.

An assembler's perceptions of owner bargaining strength will shape his expectations of owner behavior. They will also influence his expectations of owner effectiveness in court, and hence the level of court award. If the value of an individual's property can be assumed to be a reliable indicator of bargaining strength, then Munch's findings of regressivity in court awards lend support to the notion that owners with greater bargaining strength will fare better in court. Property value, then, is expected to be a significant variable leading to an assembler's estimation of expected court award and in formulation of assembler strategy.

In addition to its apparent importance in determining bargaining strength and level of court award, property value is a characteristic that is comparatively observable to the assembler. Through consideration of the property values in an assembly site, he may be able to develop relatively homogeneous groupings of properties to which the analysis of ED assembler behavior developed below will apply.

An owner's age and general health are also characteristics that an assembler will be able to ascertain by inspection and use for estimation of bargaining strength. And while a complete inventory of such characteristics would be expensive and perhaps unnecessary, the potential for a government assembler to develop detailed files on owners through access to computer records could have far-reaching possibilities.

The aspects of bargaining strength which may vary significantly over the timespan of the assembly are also worth noting. One obvious use for assembler estimates of bargaining strength is to determine which owners will be best able to withstand lengthy negotiation/litigation. In addition, several variables such as desire to contest, ED understanding, perception of monopoly position, and inclination to holdout may change as owners are given a chance to learn from the proceedings. For owners with a wealth position suitable to convert this new information into higher settlements, the assembler will be inclined to make higher initial offers in order to avoid the potentially higher costs implied by this learning process. For owners without the funds to mount an effective challenge to an offer,

information alone will be inadequate to change assembler strategy.

Owner bargaining strength is important in the determination of prices under ED. Directly, it represents an owner's ability and desire to meet transactions costs and avoid settling at an unacceptable price. Indirectly, assembler perceptions of owner bargaining strength will shape the negotiation and settlement process. Finally, even though bargaining strength is a multi-dimensional characteristic, empirical evidence suggests that property value may be a good measure of its relative magnitude. The importance of this relationship rests with the observability of general property values by an assembler.

Construction of Market Supply Curves for Property

Before considering what the acquisition curves for ED and market assemblers might look like under the bargaining model, a brief discussion of the competitive market supply conditions is necessary. Recall that in Munch's analysis, the supply curve for random parcels with some search (MC_m in Figure 1) was said to be infinitely elastic at a price equal to mean market value. In theory, an infinitely elastic supply curve would imply that no owners would sell below this price and all would sell at or anywhere above it. This is clearly not the case, since given the distribution of reservation prices there will be owners with reservation prices both below and substantially above this mean value.

Munch seemingly ignores the assumption made at the outset that reservation prices for a homogeneous set of properties will form a

distribution skewed to the right. By inverting the associated cumulative distribution function of these reservation prices, so that price appears on the vertical axis, the appropriate representation of the supply conditions is obtained. In Figure 2, a typical distribution of reservation prices is shown by the curve DRP. Their cumulative distribution is shown by curve RPC, which reflects the number of properties that may be obtained at a given price. The larger the number of properties, the more predominant will be the flatter central portion of the curve. Line MMV represents the mean market value of properties transacted. This value will be lower than that shown by MV, which represents the mean value of all reservation prices within the homogeneous set.

While this formulation shows a large area of the distribution as having relatively little slope, it also recognizes that 1) price paid will be an increasing function of the number of parcels to be obtained, 2) different properties may be obtained for either more or less than the mean market value, and 3) although there is a relatively flat portion of the curve surrounding the mode of the distribution, this section lies predominantly above the mean market price.

*Munch may mean that for the large area in the middle of the distribution the supply curve will be essentially elastic at the mean price. But the validity of this interpretation relies greatly on the sizes of the population and the sample of properties taken. If the population contains 'n' owners with reservation prices at or below the mean and the sample required is greater than 'n', the curve will

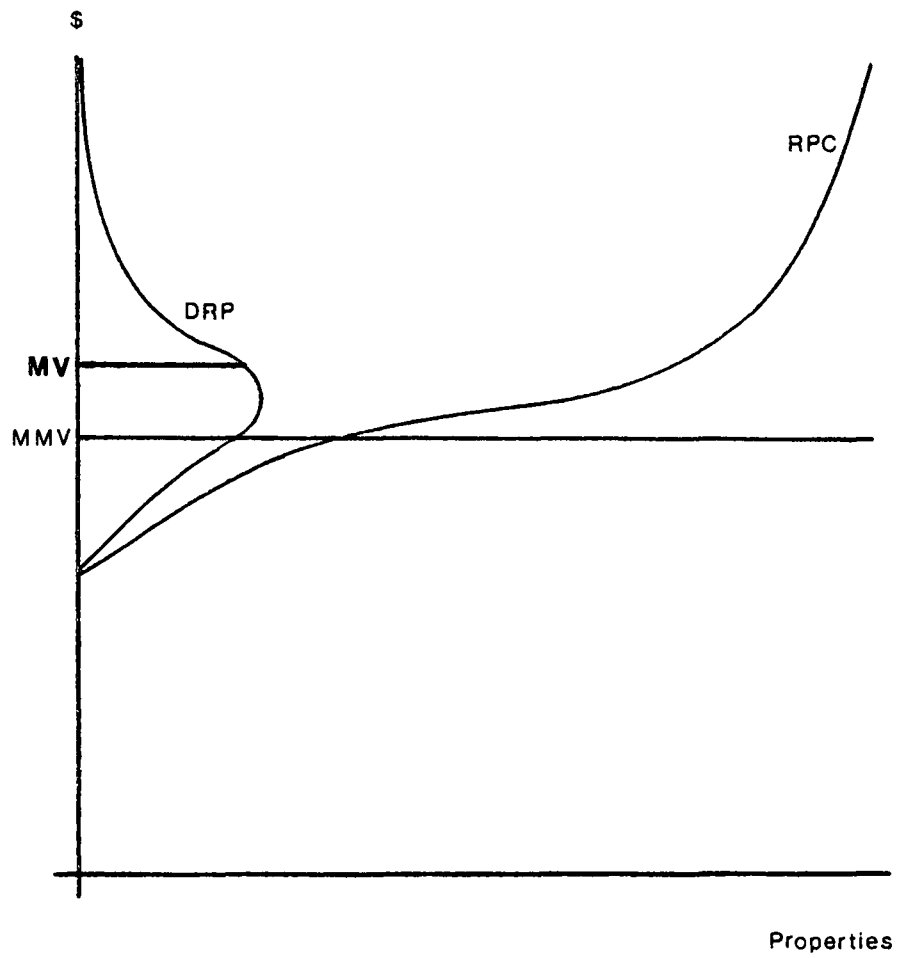


Figure 2. The supply curve for homogeneous properties as a cumulative distribution of owner reservation prices.

certainly not be horizontal at mean value past the n^{th} owner. Construing elasticity in this fashion, it would seem even less arbitrary to say that the supply curve is infinitely elastic at the modal reservation price.

Property Acquisition Curves Under ED

The discussion above suggests that there is likely to be some upward slope for the supply of random parcels with market exchange. This upward slope becomes more exaggerated as the pool of potential properties becomes smaller, as in the assembly case which is restricted by the need for contiguous properties. But what effect does this upward slope have on the supply conditions facing an assembler empowered with ED. In Munch's analysis, the ED supply curve is assumed to be perfectly elastic at mean market value. The bases for this construction are that (1) the courts will award mean market value, (2) an ED assembler will not attempt to purchase properties below mean market value, and (3) an ED assembler will not negotiate with, but will condemn all owners with reservation prices above the mean market value.

As indicated previously, there are several reasons for presuming that the courts do not consistently award at mean market value. The first of which Munch's findings of regressivity in the pattern of court awards. While awards may approximate mean market value for some middle range of values, the evidence suggests that this will not be the case for high and low valued properties.

Second, the courtroom proceeding is "essentially a battle of

appraisers" (Berger and Rohan, p. 434). Differing appraisal methods and quality may produce differing awards. Related to this is the fact that the mean market value is only an average of many transactions which may have a sizable variance. What just compensation for a property is will be a judgement based on the expertise of appraisers and evidence presented for a particular case.

Regarding the second argument, the ED assembler has good reason to attempt settlement for at least some properties at price below the mean value. Assuming that an assembler attempts to minimize the property acquisition cost for a project, he has an incentive to acquire any property he can below the mean value in order to develop a contingency fund. This fund may be used to offset settlements above the mean value or provide more funds for project development. This strategy is most likely to be pursued when the assembler perceives little owner bargaining strength.

Finally, with respect to the third argument, it is reasonable to expect some offers made by the assembler to exceed mean market value. This is most likely to occur when owner bargaining strength is perceived to be great, and then in cases where settlement may be reached above mean market value but below the sum of the expected court costs and award.

The shape of the ED supply curve will likely vary with the type of property(ies) being assembled. If the assembler can develop an expected value for the average court award for a particular group of properties he may then develop a minimum cost strategy for determining at what price level he will discontinue offers and

commence condemnation. This expected value is formulated not only on the basis of what the assembler believes the properties are worth but also on his opinion of the bargaining strength of group owners.

Figures 3a and 3c illustrate the difference in assembler strategy for two different levels of expected court award. Figure 3a shows a case where the assembler expects court awards for the group to be low, even somewhat below the mean transaction price for the group. In this circumstance, one of the more likely strategies would be to offer first at a minimum reasonable price. Price P_1 might correspond roughly to the low end of the range of transaction prices for similar properties. After making this offer and obtaining Q_1 properties, he may make a final offer at the level of expected court award or he may simply proceed to condemn the remainder. In either case he expects to obtain $(Q_C - Q_1)$ for no more than price P_C .

Assuming that the assembler's expected value of court award is accurate, area A represents a surplus to the assembler and a loss to owners with reservation prices above P_C . Areas O_1 and O_2 represent a loss to the assembler and a surplus to owners with reservation prices below P_C .

In figure 3b, a low court award is again expected, but curve RPC' reflects the intimidation effect that ED assembly may have on owner reservation prices. Assuming that the assembler makes a second and final offer at price P_C before condemning, he is able to obtain $(Q_2' - Q_2)$ additional properties without condemnation. As can be seen, the savings on property expenditures is not great, but there would also be a savings in court costs not reflected in the graph.

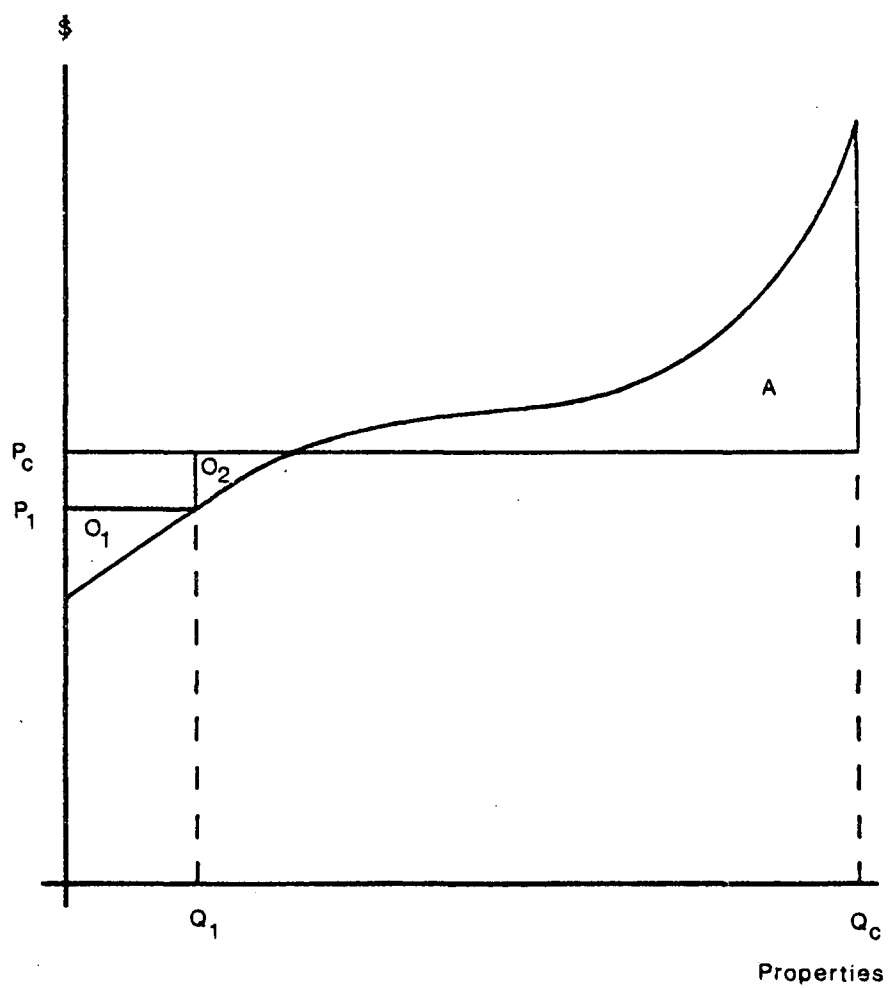


Figure 3a. Acquisition curve for the ED assembler; low expected court award.

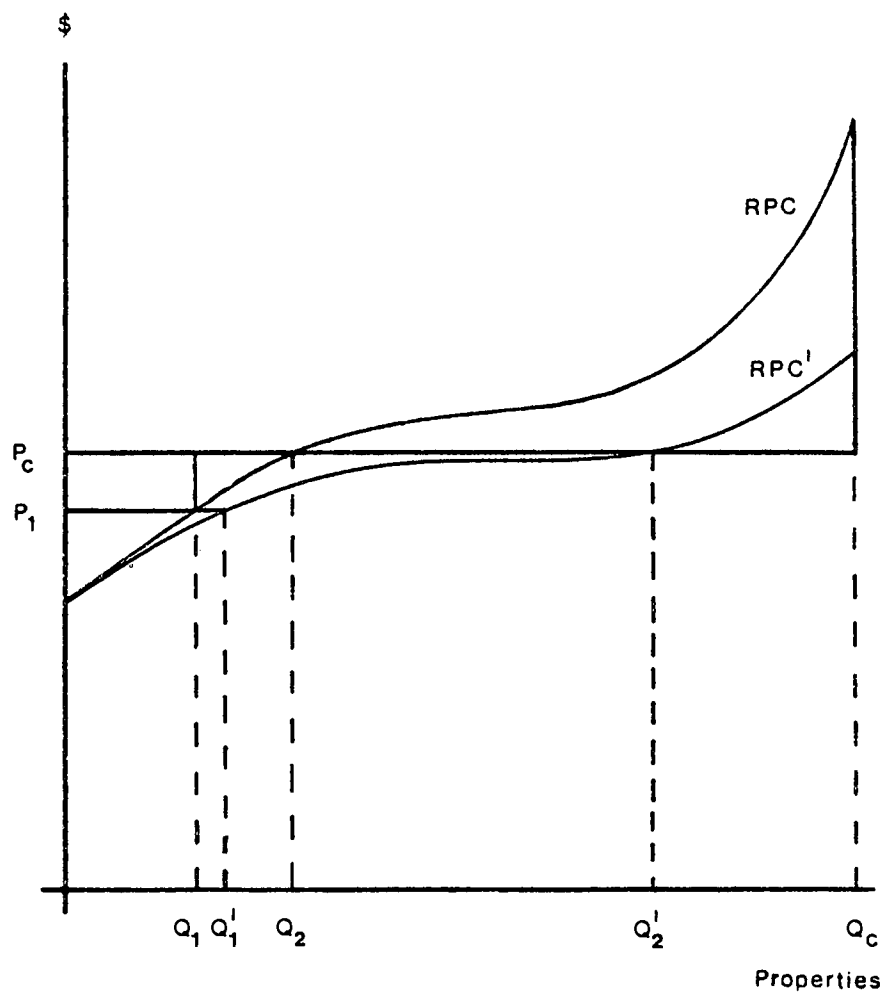


Figure 3b. Acquisition curve for the ED assembler; the effect of intimidation.

Figure 3c shows a case where the assembler expects court awards for the group to be high, perhaps at the upper end of the transaction range or somewhat higher. After making an initial offer of P_1 , the assembler has an incentive to offer a higher price to the owners of the remaining properties. Through subsequent offers at P_2 and P_3 the assembler is able to avoid much of the loss of his potential surplus that would accompany condemnation of all owners to the right of Q_1 . After offering P_3 the assembler condemns the remaining properties. If his expectations of court awards are correct, area A indicates the surplus accruing to the assembler, while areas O_1 , O_2 , O_3 , and O_4 show the surplus accruing to owners.

One important restriction that must be considered in this strategy formulation is that there are costs associated with and often institutional limitations on the number of offer increases that are made. In government takings, limitations are generally placed on the number of appraisals that may be made for a given property. This number is usually three. Since negotiators are limited in their offers by appraisal values, the ED assembler is restricted from closely following the reservation price curve.

Additionally there are two types of costs associated with continued negotiation which are mentioned here. The most obvious is that involved directly with appraiser and negotiator time. The other type of cost involves shifts in the reservation price curve resulting from continual increases in offer amounts. If owners who have not sold have received several incremental offers from an assembler, they may come to expect those increases to continue. Thus they may

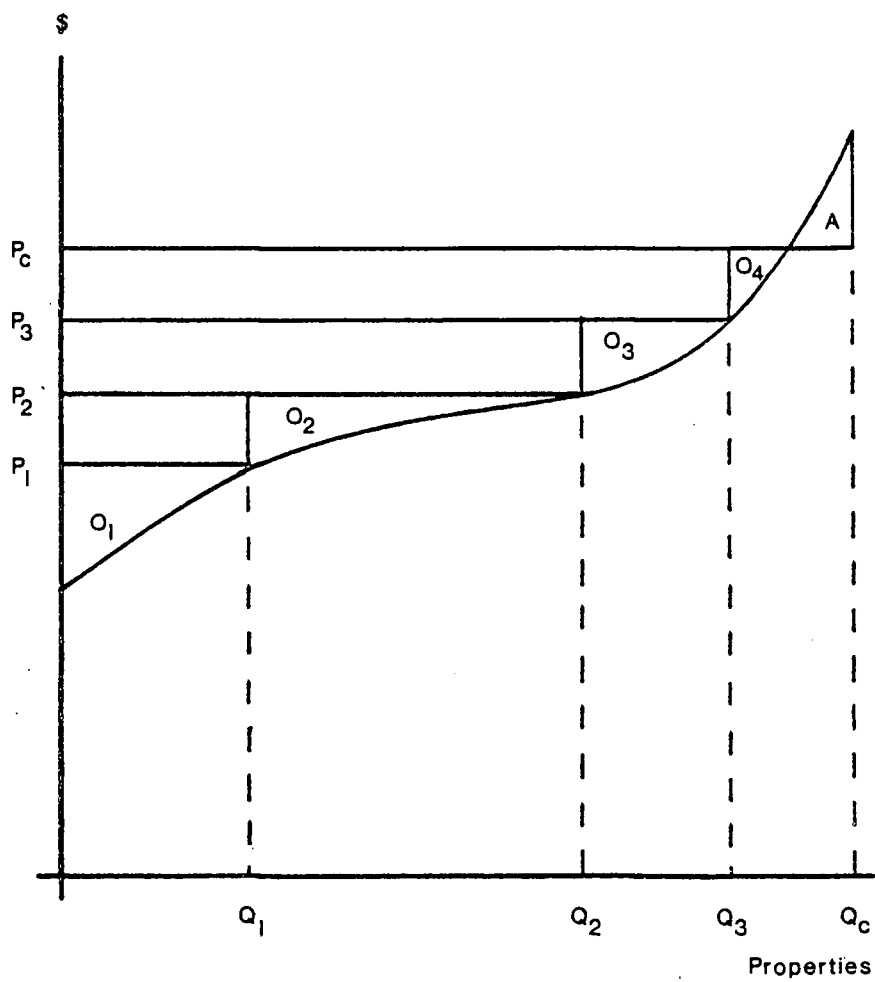


Figure 3c, Acquisition curve for the ED assembler: high expected court award.

perceive benefits from holding out and raise their reservation prices accordingly. While this is less of a problem for the ED assembler--particularly when the number of offers is limited--it is a significant consideration for the market assembler.

Acquisition Curve for the Market Assembler

The market assembler cannot rely on condemnation to secure properties from owners with high reservation prices. He must design a strategy which allows for maximum discrimination along the reservation price curve without causing substantial shifts in the curve due to holdout behavior. Munch observed that owner reservation prices are not freely observable. The assembler may presume an underlying distribution of reservation prices without knowing where individual owners fall on the curve. The only way he may discover the individual's price is by making the same offers to all owners. Assuming that owners do not reevaluate their reservation prices, the market assembler could identify and discriminate along the reservation price curve by making small incremental increases in his offers. With the implausibility of this assumption, however, the assembler must choose the appropriate incremental increases so as to minimize the holdout reaction of owners.

Figure 4 illustrates the acquisition process for a typical market assembler. The entire set of properties represented by the reservation price curve (RPC) must be obtained through a sequence of increasing offers. Acting as discriminating monopsonist, the assembler faces some loss of expected surplus due to the discrete

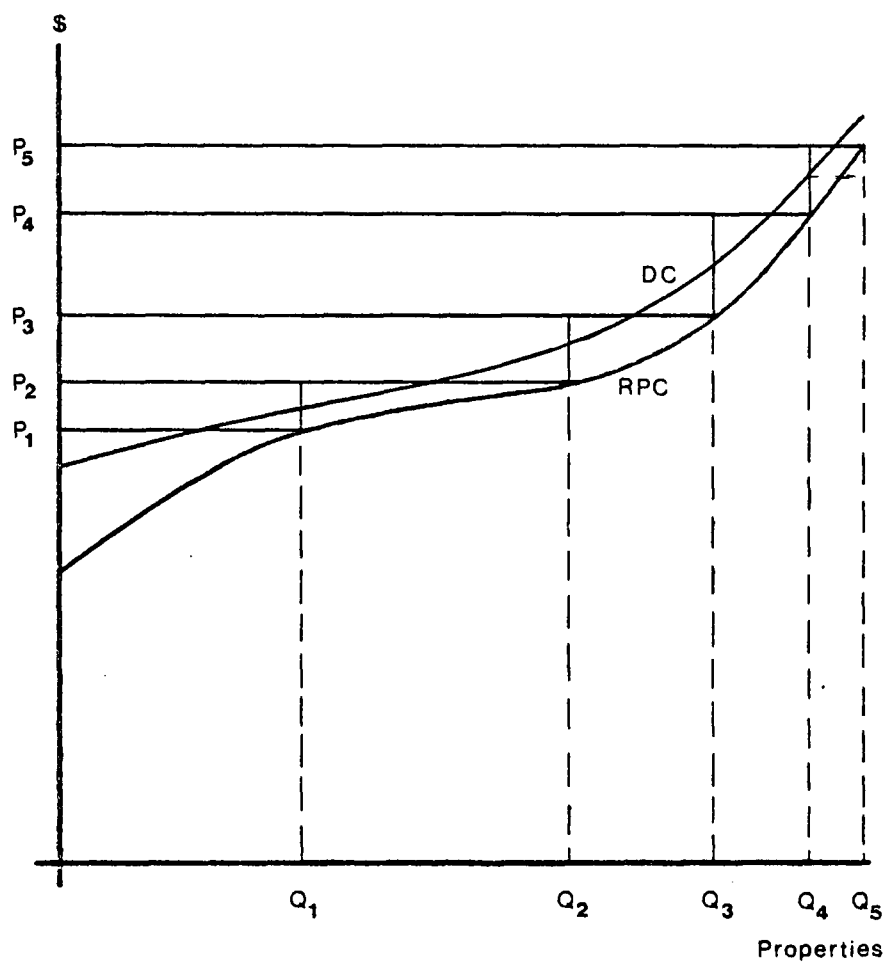


Figure 4. Acquisition curve for the market assembler.

nature of the negotiation process. Averaging these losses along RPC, the assembler may be assumed to act as a perfectly discriminating monopsonist along the effective discrimination curve (DC).

Given the same distribution of reservation prices the market assembler will place a priority on obtaining the properties along the flatter portion of the curve before owners are encouraged to hold out. This is reflected in his obtaining Q_2 number of properties with only two offers, P_1 and P_2 . At this point the assembler faces the alternatives of 1) raising his offer significantly--to P_5 -- and closing out the remaining owners, 2) raising his offer more progressively--to P_3 , then to P_4 and P_5 --hoping that the curve will not shift much, or 3) taking what he can get with an intermediate offer--perhaps P_4 --and attempting to do without the few high-priced properties at the end of the distribution. The flexibility of project size and time horizon will clearly affect his ability to pursue any of these options.

Effects of Monopoly Perceptions By Owners

The potential effect of a monopoly or scarce resource perception on the part of owners requires some elaboration. However, the problem of monopoly must be explicitly defined. It is distinct from the holdout situation arising from the negotiation process. In a monopoly situation, owners perceive that there is a uniqueness to the assembly site and that they can share in a rent accruing to their property as a scarce resource (Munch 2, pp.478-9). This effect shifts the reservation price curve upward. This shift is more likely to

occur sometime into the acquisition process, rather than before it has begun, for several reasons.

First there may be some flexibility for the assembler as to project location. It may be unclear, at least to property owners, how unique the assembly site really is prior to initial property acquisition. This ability of the assembler to influence owner perceptions and expectations is certainly an important strategy concern.

Even if the site is recognized by owners as being unique, individual shares of a monopoly rent area likely to be poorly defined, particularly at the outset of acquisition. For this reason, shifts in the reservation price curve resulting from owner perceptions of monopoly are more likely to occur as the number of owners remaining unsettled decreases. Another contributing factor to the onset of a monopoly situation is that after a number of properties have been purchased, the costs to the assembler of switching to another site may be prohibitive.

In a market assembly, all property owners will be paid their reservation price with the exception of any who are dropped from consideration because of the expense. Hence, any surpluses created because of imperfect discrimination will accrue to the owners. If a monopoly position is perceived by the remaining owners following the first round of offers, even greater surpluses will be gained by owners.

The development of effective means for inhibiting owner monopoly perceptions--through option contracts or disguised buying, for

instance--is an area which deserves much more attention. But, a discussion of the use and effectiveness of such techniques is not attempted here.

How will owner perceptions of a monopoly position affect the ED assembler? In the first case, where expected the court award is low, there will be little or no effect, since the assembler will likely condemn following the first offer. But when the expected court award is high, owners will receive an additional surplus.

A Model for Assessment of Assembly Efficiency

Munch's analysis of assembly efficiency, as depicted in Figure 1, is noticeably simplistic in its assumptions about supply conditions and assembler behavior. The preceding discussion provides a basis for enhancing the realism of these assumptions as well as accounting for the bargaining strength which may be held by owners.

Evaluation of assembly efficiency for a generalized case is constrained by the use of a single reservation price curve to represent the supply curve for assembly properties. The major problem arises from the fact a particular reservation price curve is specific to a set of parcels of a given size at a given time. As the number of properties being considered changes, some change must be accounted for in the RPC as well. As noted previously, the larger the number of properties, the more predominant will be the flat central portion of the curve.

This characteristic presents some challenges to performing standard welfare analysis of the type attained in Figure 1. Recall

that areas of dead-weight loss are assessed through the identification of appropriate areas under the MVP curve resulting from purchase of too few or too many properties. In order to illustrate the analytical problem presented by the use of an alternative supply curve construction, Munch's results for the ED assembler are reconsidered.

In Figure 1, The ED assembler purchased too many properties-- Q_{ed} --resulting in a welfare loss equal to area B. If Munch's supply curve is replaced by a reservation price curve for Q_a number of properties, so that its intersection with the MVP curve remains the same, it is tempting to claim that area B remains the amount of welfare loss. This is not strictly correct, however, because the properties from Q_a to Q_{ed} are not reflected in the original RPC.

There are two general approaches to incorporating these additional properties into the analysis. The first is to employ a shift in the RPC which reflects the larger total number of properties (Q_{ed}). The shortcoming of this approach is that there is no guarantee that acquiring properties sequentially from the lowest towards the highest reservation price will always yield a contiguous set. Reservation prices may be dispersed such that some properties with high reservation prices that are also necessary for contiguity would be excluded from the optimal solution.

One reply to this criticism is that if the properties being considered are assumed to be homogeneous, then spatial differences between them should be ignored. Conceiving the analysis in this way, however, belies the very nature of the assembly problem. As Munch

realized, if some attention is not paid to the need for a contiguous set of assembled parcels, it is impossible to differentiate the assembly problem from the acquisition of random parcels with search. One need only expand the domain of potential assembly properties in order to remove all owners with high reservation prices from consideration. Unfortunately, Munch's modeling of the assembly problem is, in the end, subject to the same shortcoming. She, too, assumes that acquisition of properties along the upward sloping supply curve will always yield a contiguous set.

An alternative to assuming away spatial considerations is to approach assembly in terms of sets of properties. The boundaries of these sets are designed to insure that the properties in a particular set will always be contiguous with the block represented by the previous set.

In the analysis below, it is assumed that there exists some minimum set of properties, all of which are essential to the development of the project. If all properties within this core area cannot be acquired, then the project will not be completed. Establishing the boundary in this way insures that owners of strategic properties will not be ignored if they happen to have high reservation prices. If this essential set can be acquired, the assembler may consider additional acquisitions in the adjoining set of properties.

This model is somewhat restrictive, in that it requires acquisition to take place in an orderly and consistent pattern around a group of essential properties. For many types of assemblies,

however, this condition is not overly unrealistic. In general, the benefits of insuring that a contiguous set of properties is acquired are seen to outweigh any drawbacks arising from restricting the pattern of acquisition in this way.

In figure 5, this framework is used to compare the efficiency of market assembly with that using ED, where a low court award is expected. Properties lying to the left of $Q_{\min}$ are considered essential to the project. The decision rule assumed for the assembler is that no properties are acquired in the second, adjoining set of properties-- $Q_{\min}$ to Q_2 --until all those in the first set have been secured. If marginal factor cost (MFC) to the assembler is still less than or equal to MVP, money expended on the first set is appropriately viewed as a sunk cost, so the marginal analysis continues for the second set along the appropriate acquisition curve. The same rule is assumed for proceeding from the second to the third set of properties-- Q_2 to Q_3 .

Using the assembler acquisition curves developed earlier in this chapter, the ED assembler purchases properties along DC up to price P_C . At that point he condemns properties to the end of the set or to the intersection of MFC and MVP, whichever is encountered first. Here, the ED assembler acquires all properties out to 'b', in the third set. The market assembler purchases along DC to 'w', also in the third set. Optimal property acquisition, defined by the intersection of RPC and MVP, includes all properties out to 'a'.

A welfare loss equal to area W results from the acquisition of too few properties by the market assembler. Area B represents the

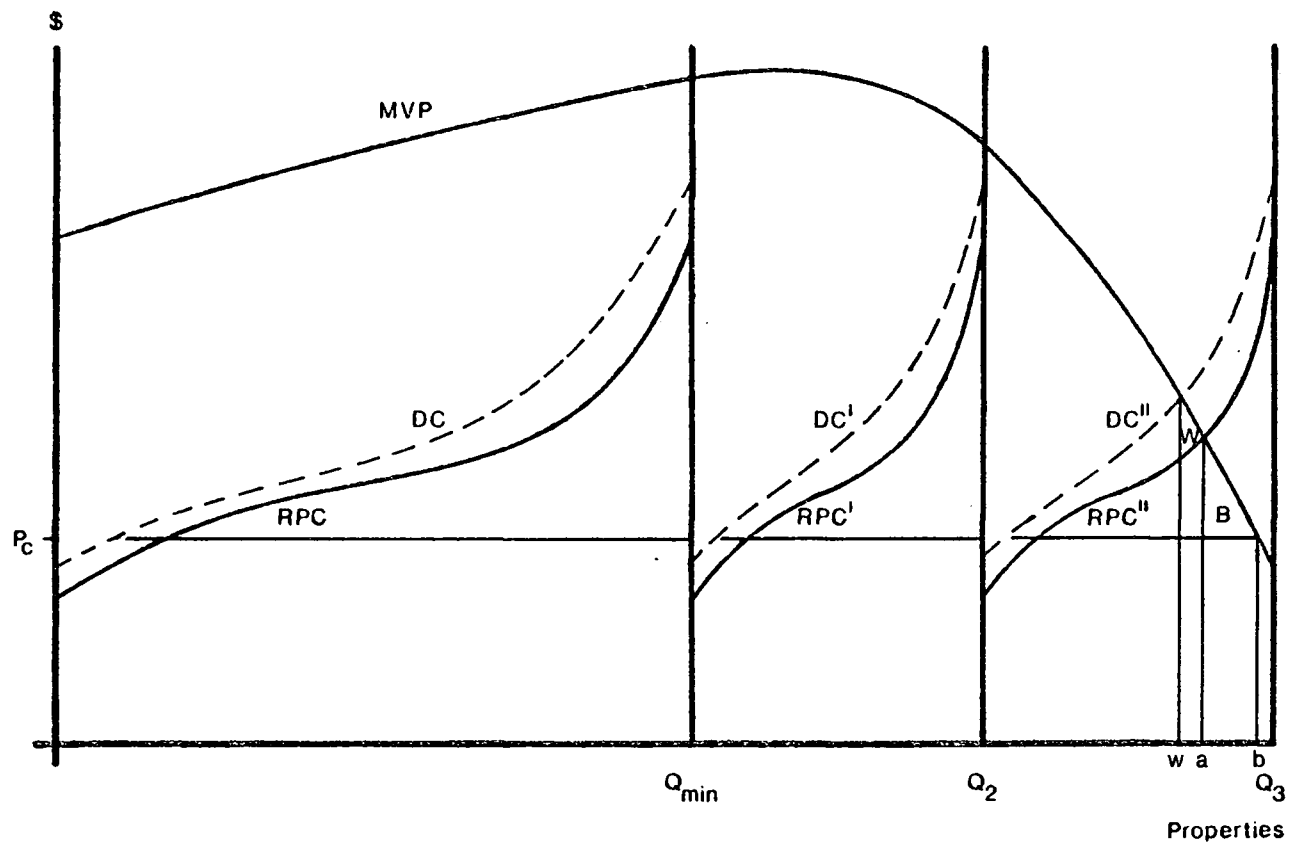


Figure 5. Comparison of efficiency; low expected court award.

loss resulting from the acquisition of too many properties through the use of ED. These results are quite similar to those derived by Munch, though in this case a smaller loss would seem to be associated with the market technique.

Figure 6 illustrates the assembly problem where a high court award is expected. Market acquisition is unchanged. In this case, however, acquisition with ED also leads to too few properties being assembled. Also, the welfare loss associated with ED assembly in this case is clearly smaller than that resulting from market assembly.

One observation from this model, which is basically consistent with Munch, is that even if mean market value were awarded by the courts, the resulting property acquisition would still tend to be at odds with the achievement of an efficient assembly. This is particularly true in the case of low valued properties, where the acquisition of too many properties is almost a certainty. The likelihood that this result will be obtained in an actual assembly is increased by the desirability of inexpensive parcels to a cost-minimizing assembler.

There are three underlying factors which can significantly effect the magnitude of welfare loss areas in the context of the proposed model. The first is the slope of the MVP curve in the vicinity of the optimal solution. As this slope steepens, the quantity of property acquired, with either method will tend to converge upon the optimal solution. Conversely, property acquisition will tend to diverge from the optimal the flatter the MVP curve. Second, the results are influenced by the

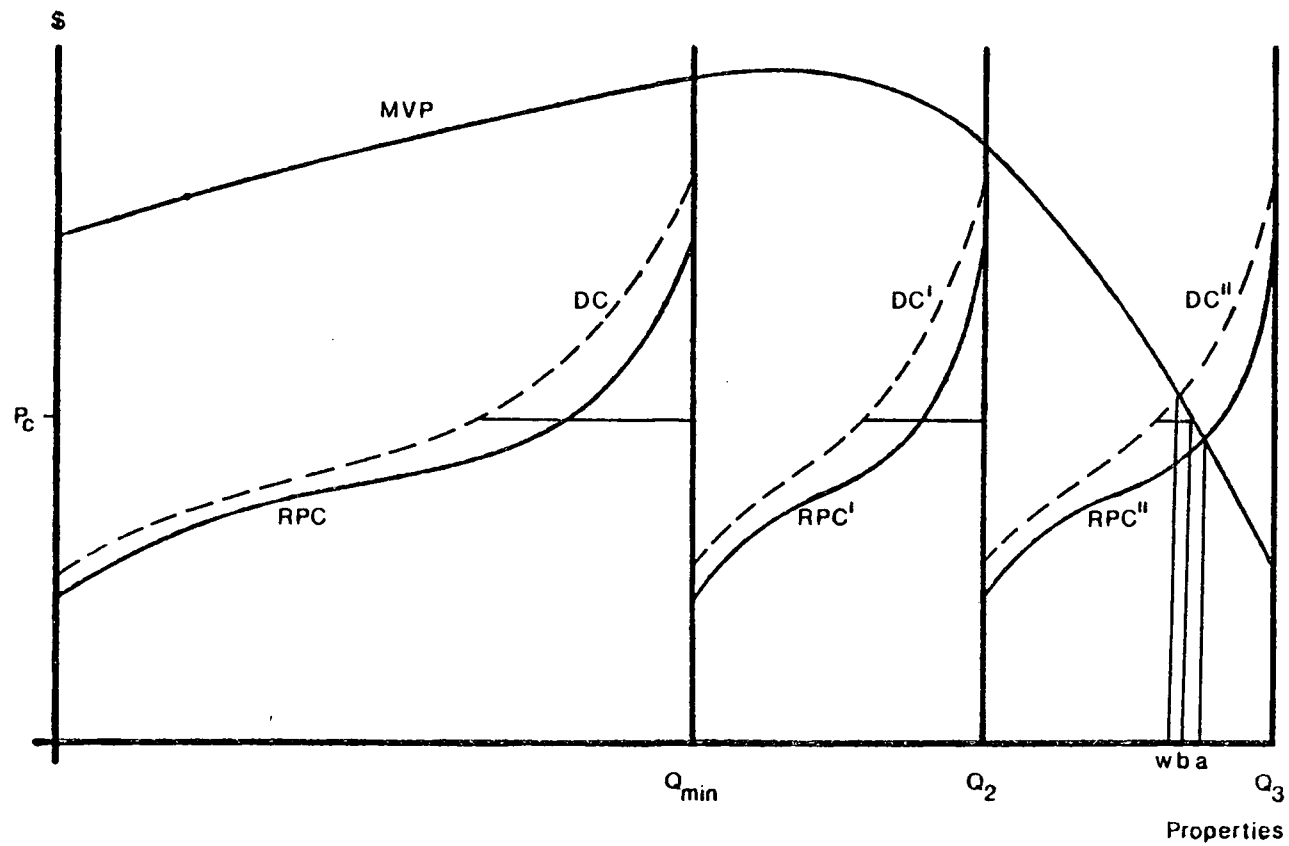


Figure 6, Comparison of efficiency: high expected court award,

particular price level at which the MVP and RPC curves happen to intersect in the terminal property set. For instance, intersection at a low (high) price level will increase (decrease) the efficiency of ED when expected court award is low. Third, the selection of property groups is also important. If the requirements for contiguity are ignored, and sets of properties combined, the optimal solution will be altered. Additionally, set boundary lines are somewhat troublesome because of the discontinuity they create. This can best be illustrated by considering the effect that monopoly perceptions on the part of owners might have on the example presented in Figure 5.

In Figure 7, MRPC represents a shift in owner reservation prices resulting from owner perceptions of monopoly holdings. This new curve also has a companion DC curve along which the assembler can effectively discriminate. The market assembler is able to purchase all properties in the essential set. But, because of the upward shift in owner reservation prices, he falls short of acquiring the entire second set. Because of the decision rule insuring contiguity, he purchases no properties in the third set. As a result, the associated welfare loss--shown by the dotted area--is quite large by comparison to that for ED assembly. Of considerable importance is the fact that this same result occurs even if only the owners in the second set perceive a monopoly position.

While a rather large welfare loss might be anticipated for the monopoly case, the discontinuity at set boundary lines yields a similar result whenever the MVP curve crosses a boundary line between the DC and RPC curves. It is apparent that, in some cases, an

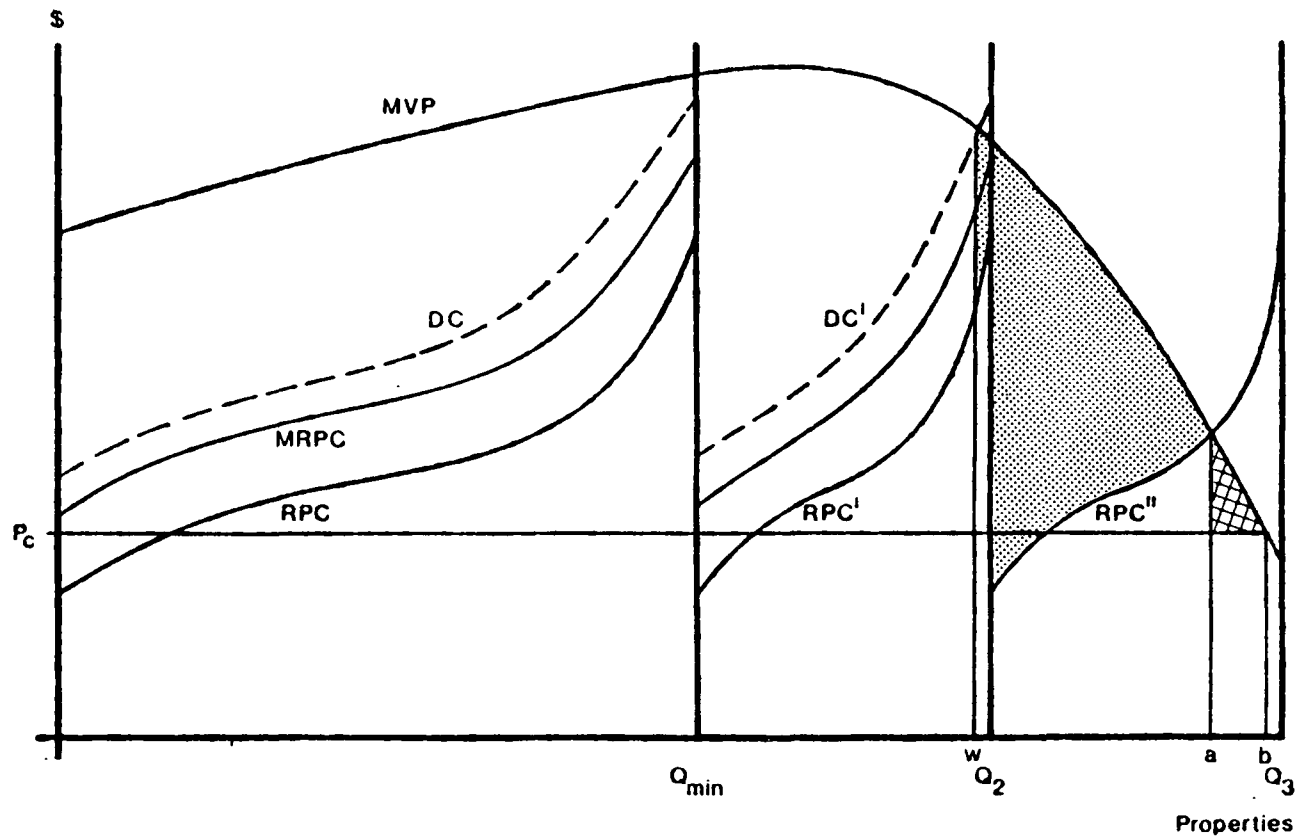


Figure 7. Comparison of efficiency; owner monopoly holdings.

assembler might be able to reduce the welfare loss by acquiring some properties in the next set, where those properties happen to adjoin the ones which were secured from the previous set.

ED assembly is not affected to a lesser degree by this continuity problem. Figure 8 shows a case where the MVP curve intersects RPC at a relatively high price in the second set of properties. In this case, area T, in the third set is not included as an area of welfare loss. Since marginal analysis must be employed for the properties acquired in the third set, the total welfare loss is the sum of the two cross-hatched areas.

Effect of Relocation Payments on Assembly Efficiency

One factor that has been ignored throughout the discussion, thusfar, is the effect that possible relocation payments may have on the efficiency comparison. As provided by the federal legislation and the Code, displaced homeowners are entitled to receive up to \$15,000 from the assembler to cover many costs associated with obtaining replacement housing. In situations where assembly properties are held largely by absentee owners, the preceding analysis remains essentially the same. But when many resident owners are affected by assembly, the presence of these payments will alter the efficiency analysis.

The general guideline for provision of relocation payments is that the replacement housing be comparable to that previously owned. This guideline is intended to restrict owners from improving the value of their holdings at the expense of the assembler, while at the

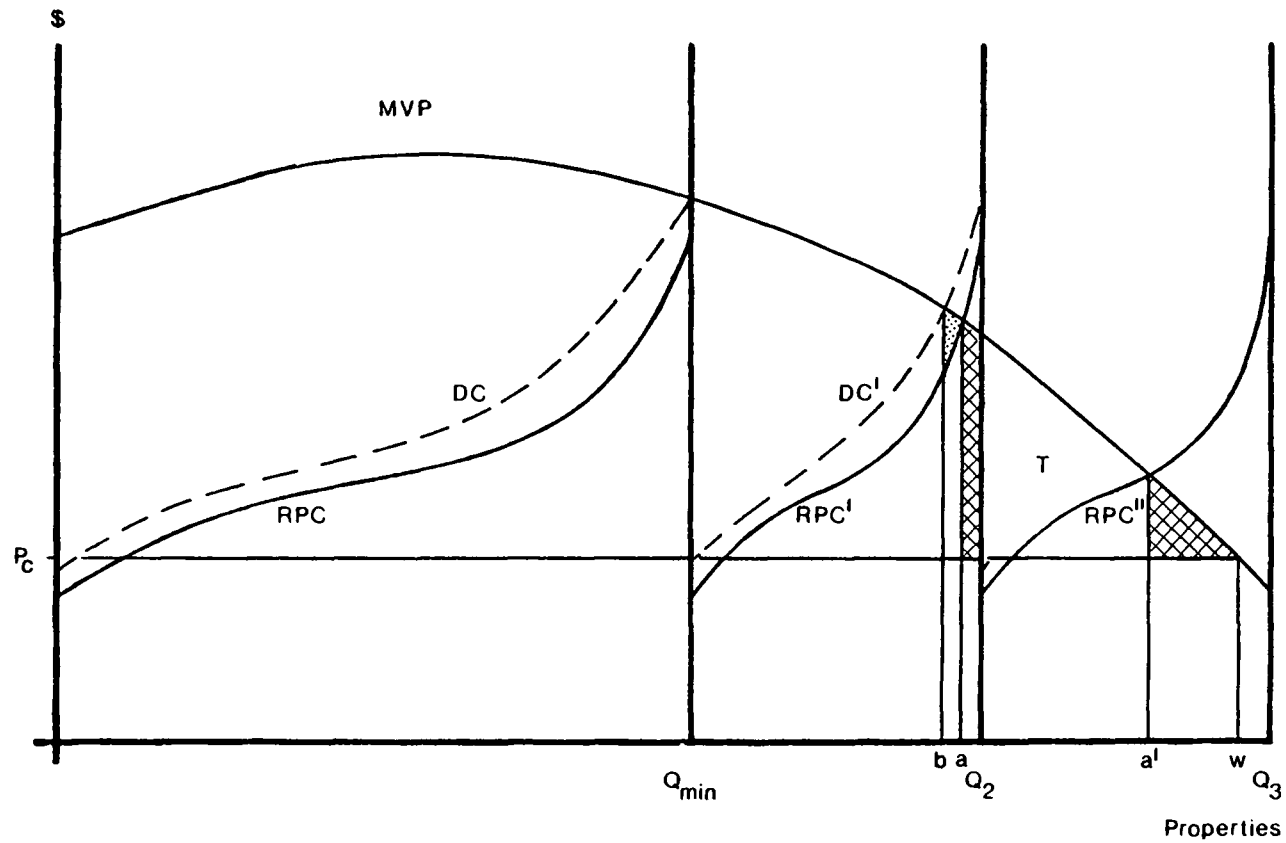


Figure 8. Comparison of efficiency: acquisition beyond optimal property set by ED assembler.

same time providing some degree of insurance that owners will be as well-endowed after as before the assembly.

If there is a large active market for properties of the type(s) assembled in the near vicinity of the assembly, it is expected that relocation costs will be relatively small. If, as the preceding analysis suggests, compensation is provided within a range slightly below to somewhat above mean market price, then owners should be able to find replacement housing at a price near the value of their settlement.

If nearby availability of similar housing is not great, a number of components create large relocation bills for an assembler. First, the increase in demand for local property may elevate market prices faced by displaced owners. Additionally, seller awareness of relocation benefits may create short-term increases in asking prices, as they attempt to capture some of this additional money. If there is a severe lack of properties being offered at comparable prices, a displaced owner may see new construction as the only alternative for maintaining residence in the same vicinity. In areas where construction and mortgage costs have risen, comparable replacement housing may be significantly more expensive than the amount of compensation, particularly for owners of older housing stock.

In addition to meeting the guideline of comparability, replacement housing must be both decent and safe in order to qualify for relocation assistance. In general, this means that it must conform to current applicable building codes. Many owners of extremely low valued, run-down properties will be unable to find

comparable housing on the market. These owners are likely to require the maximum relocation payment in order to secure replacement housing that meets the "decent and safe" requirement.

Thus, relocation payments will enter into the analysis only when resident owners are involved, and then primarily in circumstances where surrounding housing markets will not accomodate the influx of displaced owners at price levels existing before the assembly.

In order to consider the impact of these payments in the extreme, it is assumed that all owners are residents who will be displaced by the assembly and that surrounding housing markets will accomodate no influx of owners at or below the previous mean market value for the particular type of property. Additionally, it is assumed, that owners of low valued properties will require larger payments in order to acquire decent and safe replacement housing.

The case of a homogeneous group of low valued properties is depicted in Figure 9. A hypothetical total payment curve for an assembler is shown by TPC, reflective of the initial settlement/award amounts and relocation payments based on the assumptions noted above. TPC may have some upward slope, as seen here, primarily as a result of the \$15,000 limitation. While owners with the lowest settlements may qualify for the full payment, this may also be true of owners with higher settlements/awards, resulting in higher total payments for them. As illustrated, an assembler may expend much more in total payments for low valued parcels than the analysis for property settlements alone would indicate.

Assuming that these relocation costs are taken into account by

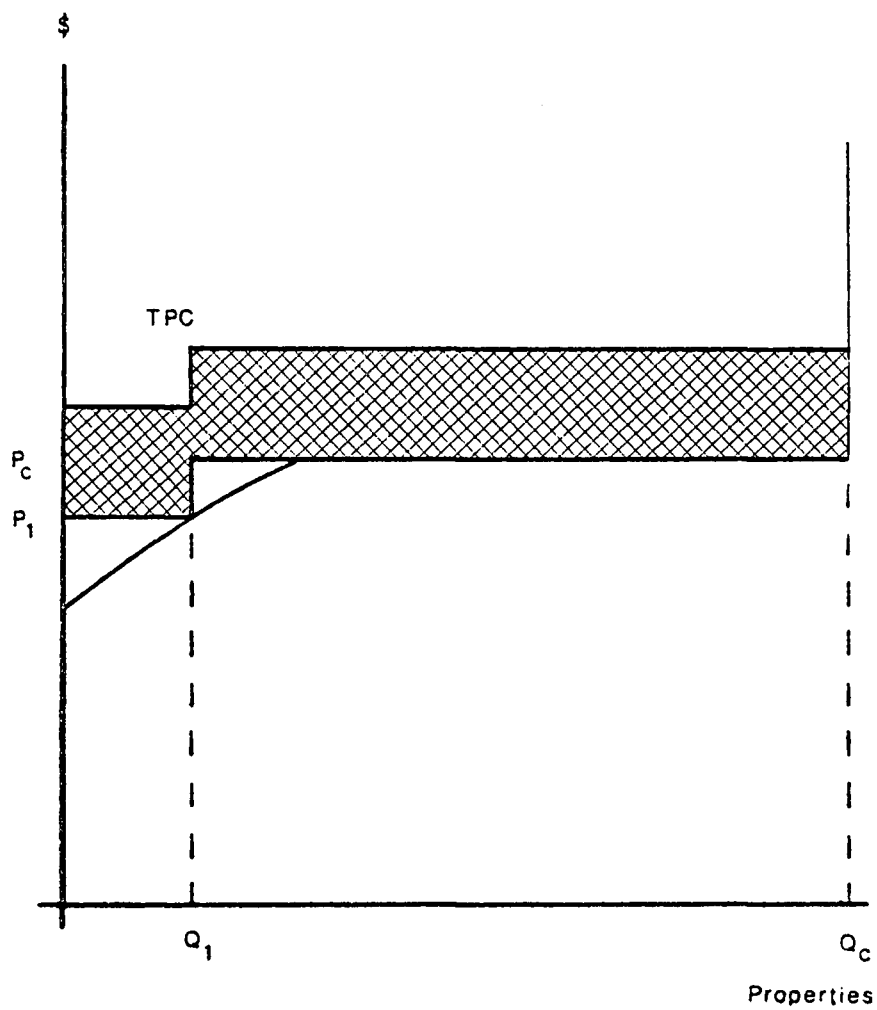


Figure 9. Additional cost of relocation payments to the ED assembler: low expected court award.

an ED assembler as he acquires property, they will shift his acquisition curve upward. In the case of low valued parcels, this shift will be relatively constant over the entire set. In most cases this will result in fewer properties being acquired. Thus the area of welfare loss identified in Figure 5 will be diminished.

For a group of high valued properties, the anticipated effect of relocation payments is smaller. If high expected court awards shape the acquisition of these properties, most owners will be paid more than mean value for their properties. They will be able to find replacement housing more easily, with less reliance on relocation payments. As shown by the total payment curve (TPC) in Figure 10, relocation payments for this group are not likely to add significantly to the owner's property acquisition costs.

The additional costs represented by relocation payments will be less constant across a set of high valued properties. In general, they will be inversely related to reservation price. In some cases where the optimal solution price level is relatively high, welfare costs may be unchanged. For most of the range of possible solution prices, however, the upward shift in costs will reduce property acquisition. As opposed to the previous example, the reduction of acquired property in this instance is likely to increase welfare loss.

Since relocation payments are mandated for all federal property acquisitions, their effect on assembly vis-a-vis strictly market techniques must also be considered. Since payments to most owners exceed mean market value, initially, it is expected that relocation

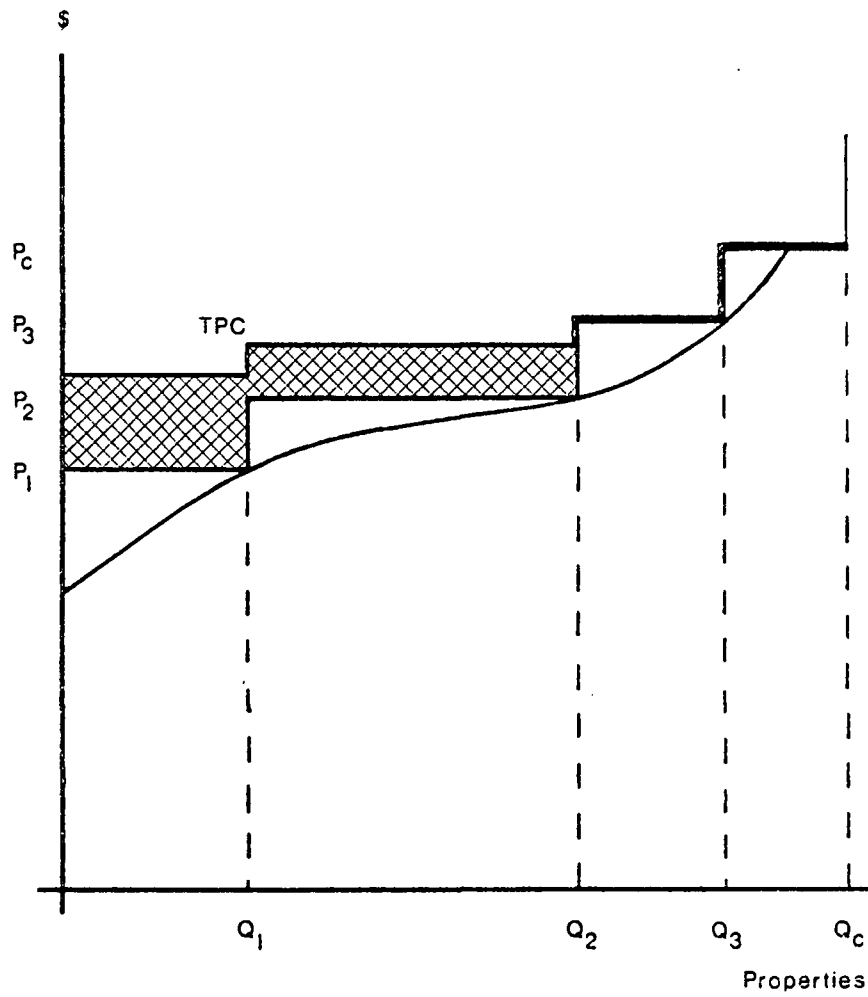


Figure 10. Additional cost of relocation payments to the ED assembler: high expected court award.

exceed mean market value, initially, it is expected that relocation payments will be somewhat less with market assembly. This conclusion is reinforced by the likelihood that many resident-owners will include some amount of relocation compensation in their reservation price.

As with the last example, the addition of relocation costs will generally be inversely related to reservation price. If anything, the number of properties purchased will decrease, increasing the amount of welfare loss regardless of the value of the properties involved.

Distributional Implications

Equity in settlements is an important consideration in assembling property with ED for two major reasons. The first arises from the just compensation requirement. The law provides that owners be paid fair market value for their property. However, the artificial establishment of market value is almost certain to produce some degree of inequity because: 1) sellers are often not "willing" participants in the transfer of their property, and 2) the market does not yield a uniform price for homogeneous properties.

The second, perhaps less obvious reason follows from the public use requirement. According to the prevailing interpretation of this requirement, ED is appropriately used only for the advantage or benefit of the general public. An important justification for the use of ED has centered around the government's ability to avoid payment of monopoly rents to owners in the pursuit of beneficial

public projects. The argument, naturally, has been that private citizens should not reap windfall profits at the expense of the public treasury.

This concern is not without merit. But, in turn, too little attention has been focused on "taxes" or "subsidies" that may result from reliance on ED as a solution to the monopoly problem. The development of relocation payment provisions for displaced homeowners was, fundamentally, an attempt to insure that private citizens will not have to pay more than their fair share of the cost of a public project; they will not have to subsidize the benefits of a project to a greater degree than their fellow taxpayers.

This section addresses the distributional implications of the use of ED. Assessment of distributional patterns in ED settlements and the underlying causes of those patterns will be made on the basis of previous research and the model formulated in this chapter. These results will then be compared to those derived from a generalized market assembly case in order to identify possible "tax-subsidy" trade-offs implied by the two methods. The purpose of this comparison is not to pass judgment on which method of assembly is the fairer, though the author reserves the right to comment on the degree to which ED usage may fall short of implied standards of fairness in the law. Primarily, the intent here is to identify more clearly the trade-offs involved for the benefit of policy-makers, legislators, and judges who are forced to weight the appropriateness of one of these or perhaps alternative means of property acquisition.

Using the model from this chapter, assessment of the

distribution of just compensation payments is straightforward, and consistent with Munch's overall findings. Low valued property owners will receive less than market value. The tax placed upon them will be used to help offset subsidies to owners of high valued properties, most of whom will receive more than market value. Depending on the degree of overpayment, and the number of high valued properties, this subsidy may also include funds from the assembler.

In addition to the benchmark of market value, and perhaps more important in a comparison of ED and market assemblies, is the fact that a similar outcome is predicted with respect to owner reservation prices. In general, low valued property owners will receive less than their reservation price in an ED acquisition. With the exception of those having extremely high reservation prices, however, owners of high valued properties will receive at least their reservation price, as a result of extended assembler negotiation.

Returning, for a moment, to the dictum of fair market value, it is certainly relevant to ask whether, even if mean market value were awarded by the courts, this system of ED payments would be fair. As Posner observes,

"If I refuse to sell for less than \$25,000 a house that no one else would pay more than \$15,000 for, it does not follow that I am irrational, even if no "objective" factors such as moving expenses justify my insisting on such a premium. It follows only that I value the house more than other people. The extra value I place on the property has the same status in economic analysis as any other value" (p. 40).

Within ED law, however, this additional value has been subordinated for fear that it may actually represent a monopoly rent.

If the assumed distribution of reservation prices is more or less accurate, a majority of owners will face the forfeiture of this value if mean market value is awarded.

By comparison, all owners will receive at least their reservation price in a market assembly. Ignoring monopoly and holdout possibilities temporarily, subsidies--payments above market value--will be paid to a majority of owners, given the skewed distribution of reservation prices. But owners will receive an amount they believe to be a fair price. Obviously, subsidies will increase if reservation prices shift upward to reflect monopoly or holdout expectations.

An interesting observation arises from Munch's calculations of payments above market value for ED and market assemblies. Recall that total property payments for both methods were approximately one-third above market value. Since low valued property owners received less than market value, if the mix of property types was similar owners of high valued properties must have received larger subsidies with ED assembly than would have been the case with a market acquisition. The result is that while subsidy payments may have had approximately the same mean percentage above market value under both methods, the variance of ED subsidies was larger.

Effect of Relocation Payments on Equity

This assessment of the distribution of payments does not include possible relocation payments. If, as previously assumed, all owners are residents and surrounding housing markets are "tight", the

distribution of payments to owners is changed considerably by the presence of relocation payments. Owners of high valued properties will receive little in the way of relocation assistance since their settlements will generally be above market value. Even if surrounding property values are temporarily inflated, their subsidy will help offset the added cost of replacement.

On the other hand, owners of low valued properties will likely receive substantial relocation assistance, as their settlements will normally be below market value. In this way, payment of relocation benefits acts to counter the regressive pattern of property settlements. Thus the degree to which low valued property owners will achieve total payments of at least market value will depend, primarily, on the percentage of resident owners.

Comparison of market assembly with that using ED becomes more ambiguous with the presence of relocation payments. Since federal market acquisitions are also liable to pay relocation benefits, it is expected that total payments to most owners will be roughly equivalent under both methods. Owners with the highest reservation prices will fare better with market assembly, while the owners of high valued properties will tend to receive more with ED. As noted in chapter one, however, increased fairness in ED payments to owners of low valued properties comes at the expense of total project costs, and hence efficiency. This fact is expected to increase assembler efforts to obtain even lower settlements with owners of low valued properties.

In summary, ED assembly does not compare favorably with market

assembly in its distribution of "just compensation" payments to owners of acquired properties. Because of the regressivity in these payments, achievement of a price, by the owners of low valued properties, that is reflective of the informed, willing buyer/willing seller negotiations mandated by law would appear to be a myth.

While market assembly promises payments above market value to many owners, if these payments are reflective of only the normal reservation prices of owners they are not inconsistent with an economically efficient solution. Even recognizing that most owners will likely receive a bonus above their reservation price--due to the assembler's inability to perfectly discriminate--this bonus 1) will be distributed more evenly across property classes, and 2) will likely not be greater than that accruing to high valued properties vis-a-vis ED acquisition.

The possibility of relocation payments improves the ED comparison, but only to the extent that such payments are actually made to owners of low valued properties. In cases where these owners are largely non-resident, or where some form of replacement housing may be obtained at a comparable price, ED acquisition remains effectively a net tax on owners of low valued properties. If substantial relocation payments are made, however, the regressivity of property settlements will, to a great extent, be corrected.

Summary and Conclusion

The nature of the laws governing property acquisition where ED authority has been granted creates an array of transactions costs which are faced by owners wishing to assure a fair settlement for their property. The ability and willingness of owners to pay these costs--in short, their bargaining strength--provides the basis for an alternative framework for analysis of the property assembly problem. Also important to the development of the model of assembly outcomes presented in this chapter is the characterization of market supply curves for homogeneous properties as the cumulative distribution of owner reservation prices.

While this model is perhaps more useful than previous work in clarifying some of the dynamic aspects of property assembly, the results obtained in comparing the relative efficiencies of market and ED assembly methods are no more conclusive. This results primarily from the sensitivity of efficiency outcomes to the design of the graphical portrayal. What can be said using this model is that ED assembly exhibits less variability in the magnitude of potential welfare losses if attempted extraction of monopoly rents by owners is included as a possible strategy.

In addition, the efficiency of ED assembly is likely to improve with the payment of relocation benefits to owners. This increase in efficiency is a result of the increase in cost to the assembler of obtaining inexpensive properties, where settlement price alone is expected to be below the reservation price for most owners.

Finally, analysis of the distribution of payments to owners reveals significant differences between the two methods of assembly. With market assembly, payments for property are generally distributed on the basis of owner reservation price, though monopoly rents may distort this relationship. With ED assembly, they are distributed in a regressive manner according to owner bargaining strength. The structure of ED transactions costs and the empirical evidence of payment distribution provide little hope that owners with low bargaining strength will consistently receive even the 'fair market value' for their property mandated by the law. Only in circumstances where relocation benefits are paid to these owners does the government begin to meet its responsibility to them.

Chapter 5

Case Study: North Bonneville, Washington

In the spring of 1981, a site was selected for testing several hypotheses derived from the bargaining model. North Bonneville, located 40 miles east of Portland, Oregon, was situated adjacent to Bonneville Dam along the north shore of the Columbia River. The town was established during the construction of the dam in the mid-1930's. At the close of construction, the population was over 600. Though there was a decline over the years, population of the town and surrounding unincorporated areas remained above 500 throughout the 1960s and early 1970s.

For the purpose of enlarging the generating capacity at the dam, the U. S. Army Corps of Engineers received authorization in 1972 for the construction of a second powerhouse unit to be situated directly upon much of the North Bonneville townsite. Initial plans called for acquisition of the needed property through the use of ED and dispersal of the displaced residents to nearby communities or to other locations in the Northwest. These plans were changed, however, as a result of federal legislation providing for relocation of the town to a new site. This action enlarged the scope of property acquisition to include such property as needed for the new town.

The acquisition of town and surrounding property began in 1974, with nearly all settlements completed by August of 1981. Data for 266 property acquisitions associated with this project were obtained from the Portland District office of the Corps of Engineers. The

available data for each settlement included 1) the highest approved appraisal value, 2) the settlement price or court award, 3) the date of the settlement/award, and 4) the amount of any relocation payments.

There were some notable limitations to the data which could be compiled for the properties. Foremost was the inability to construct reliable estimates of market value. Chief contributors to this problem were 1) non-standardized county assessment/appraisal data and 2) a deficiency of local sales data across all property types.

Additionally, there was an unforeseen misunderstanding regarding the appraisal values received, which will be discussed in reporting the results. In general this assembly was seen as desirable for examination because of the large number of properties affected by a single federal project.

In the absence of estimates for market value, development of hypotheses was focused on distributional aspects of the bargaining model which could be tested with the available data. The difference between the values of the final settlement and the appraisal was recognized as the key variable. The first hypothesis was that this difference would be greater for high valued properties than for low valued ones. In the bargaining model, owners of high valued properties were assumed to have greater bargaining strength and hence a greater ability to secure larger increases through negotiation or court action. Initially, appraisals were viewed as approximations of market value. The effect of possible regressive bias in appraisal/offer values, as identified in the preceding chapters, is assessed in the discussion of results.

The method of settlement also figured to play an important role. The second hypothesis tested was that high valued properties, in particular, would receive larger increases if price were determined by a court award rather than by negotiation. The model predicts that owners with a strong bargaining position will receive more from a court award than they would from a negotiated settlement.

Finally, the ability of an owner to protract negotiations or to hold out, even if it resulted in litigation, was considered. According to the model, high valued properties will receive the greatest increases from holding out, and the longer they hold out the greater will be the increase. This became the third hypothesis. Directly related to the benefits for high valued properties, it was expected that few low valued properties would delay settlement because of (1) lack of resources and (2) the small absolute gain that would likely be realized.

Results

In order to test the first hypothesis, the difference between the settlement/award and appraisal values (DVAL) for each property was regressed against the appraised value (APVAL) over the entire set of 266 properties. The result is shown as equation 1 in Table 1. The APVAL coefficient is significant above the 95% level, and the magnitude of the coefficient supports the hypothesis that high valued properties receive larger increases than low valued ones. The magnitude of the negative intercept implies that a property would have to have been appraised above \$11,600 in order for any increase

Sample		C	APVAL	DATE	R ²
(1)	Total n=266	-2799.24 (-4.670)	0.2394 (24.919)	---	0.7017
(2)	APVAL \$27,774 n=63	-6843.20 (-2.370)	0.2602 (11.316)	---	0.6773
(3)	APVAL \$27,774 n=203	-60.92 (-0.309)	0.0610 (4.018)	---	0.0743
(4)	Court n=42	-2787.57 (-1.532)	0.3171 (10.046)	---	0.7162
(5)	Voluntary n=224	-2975.14 (-4.851)	0.2284 (23.456)	---	0.7125
(6)	Court-High n=13	-4322.85 (-0.511)	0.3312 (3.989)	---	0.5912
(7)	Voluntary-High n=50	-8475.03 (-2.796)	0.2537 (10.968)	---	0.7148
(8)	Court n=42	-3332.62 (-0.741)	0.316427 (9.770)	13.874 (0.133)	0.7163
(9)	Voluntary n=224	-5542.99 (-5.889)	0.222410 (23.087)	171.526 (3.619)	0.7286

Table 1. Regressions on DVAL

(t-values in parentheses)

to have been expected.

Additionally, the data were divided into two groups, on either side of the mean appraised value of \$27,774 for further testing. equation 2 shows the results for the group above the mean, equation 3 for the group below the mean. Even though a Chow Test showed the equations to be significantly different at only the 80% level, they do illustrate the difference in the effect of the appraised value for the two groups. The low R-squared value in equation 3 is largely attributable to the large number of zero DVAL values--106--for this group. In an additional 94 cases, DVAL was less than \$4,000. This left only three settlements out of 203 with increases above \$4000, as opposed to 23 out of 63 in the high valued group.

For properties in the high valued group, the mean appraisal was roughly \$81,000 with an average increase of \$14,300--approximately 17%. In contrast, the mean appraisal for the low valued group was \$11,200 with an average increase of \$620--only about 5%. Attempts to regress DVAL as a percentage of appraised value against APVAL were, however, less revealing than for the absolute values. This was due, primarily, to nonlinearities in the percent increases of both ends of the appraised value spectrum. In both cases, percentage increases commonly were above the norm. But throughout the range, from \$8,000 to \$90,000 there was a consistent upward trend in this variable. In general, then, a positive relationship was seen between appraised value and the percentage, as well as the absolute, increase witnessed.

To test the second hypothesis, the original data set was

initially divided into two groups based on the method of settlement: court or voluntary. Equation 4 shows results for the court group, equation 5 the results for the voluntary group. The APVAL coefficient is significantly higher for the court group than for the voluntary group. In addition, confidence intervals at the 95% level for B_1 in each equation substantiate the difference at these point estimates. For the court awards, $0.253 \leq B_1 \leq 0.381$ while for voluntary settlements, $0.209 \leq B_1 \leq 0.248$.

This preliminary testing suggested, first of all, that high valued properties received larger increases if they went to court. Also of interest, however, was the implication that low valued properties received larger increases in court as well. In order to facilitate a more direct comparison between the various groups, the court and voluntary groups were subdivided on either side of the mean appraised value, as before. Regressions of DVAL against APVAL for the high valued properties in the court (equation 6) and voluntary (equation 7) groups confirm the predominance of larger increases in the court group. Mean appraised value for both groups was about \$81,500. The average increase, however, was sizably different--\$22,000 for the court group and only \$12,000 for the voluntary group. Thus, direct comparison provided further support for the second hypothesis.

As expected, a smaller percentage of low valued properties (14%) than high valued ones (21%) were litigated. Also consistent with the model were the smaller increases realized by the former group. Low valued properties averaged an 8% increase in court while high valued

properties received a 28% increase. Correspondingly, the benefits of going to court were much smaller for low valued properties, as those settled voluntarily had a mean increase of 5%.

In order to test the final hypothesis, a variable (DATE) expressing the length of time (in months) from January, 1974, to the settlement date was added to regressions for the court and voluntary groups. Equation 8 shows the results for the court group, equation 9 for the voluntary group.

The DATE coefficient for the voluntary group is significant above the 95% level. Its magnitude supports the hypothesis that delaying settlement will result in larger increases. Within the voluntary group, 15 cases were resolved after the 30th month. Their mean appraisal was \$78,000 with an increase of 26% as opposed to \$26,800 and 7% respectively for the entire voluntary group. This evidence supported the predictions of the model that owners of high valued properties will be better able to hold out longer and that they will receive larger increases as a result of their effort.

For the court group, the DATE coefficient is small and insignificant. This is not entirely surprising, as the court cases as a group were settled an average of 18 months later than voluntary ones already and with less variance in settlement date. As found above, the appraised value of a property is of greater importance in determining the amount of increase in litigated settlements.

It should be noted that, in part because of the appraisal data, the values used in this analysis were not adjusted for inflation. The appraisal process for many of these properties was a sequential

one, with a second or third appraisal conducted only if a settlement was not reached with the preceding appraisal. Since only the highest of these values was received from the Corps of Engineers, the true increase for many of the later settlements is larger than the data set used indicates. Efforts to secure these additional appraisals were unsuccessful. It has been assumed that inclusion of the additional appraisals, and the associated enlargement of increases, would generally tend to balance inflationary effects, leaving the results essentially unchanged.

One additional remark should be made concerning the use of assembler appraised values as estimates of market value. Both the model presented here and previous work by Munch suggest that there may be a regressive bias in appraised value with respect to market value. If this is indeed the case, then this bias only reinforces the findings of regressivity in settlement increases seen in the North Bonneville data.

Results of Interviews

In addition to the data obtained from the Corps of Engineers, information was also gathered through interviews with city officials and some individuals who had owned property in the old town prior to government efforts to acquire the property. Much of what was learned from these interviews pertained to the relocation of the town and related community impacts of the powerhouse project. Those findings will not be reported here. Instead, this section will focus on the observations which relate directly to the property acquisition process.

Before proceeding further, some qualifications should be made regarding the pervasiveness and reliability of the findings reported. First, the number of owners interviewed was relatively small, only about 35. This was due, in part, to the difficulty in locating their new places of residence. Second, the interviews sought to reconstruct happenings that occurred, in most cases, five to seven years before. Most of the people interviewed had the events surrounding the government purchase or taking of their property appeared indelibly etched in their minds. However, specific details, such as the date and amount of offers were not as easily recalled. Finally, the findings presented are not intended as an indictment of the Corps of Engineers. They are offered only to illustrate further the dynamics of the assembly problem.

Owners were generally found to fall into one of two opposing groups regarding their approach to the ED acquisition of their property. In one group, the owners resisted the initial offer made to them. Typically, these owners approached the acquisition much as one would a game. They knew the rules and took steps to acquire independent appraisals and legal counsel, when necessary, in order to secure what they believed to be a fair settlement. They were not intimidated by the assembler or the process, and as a result they were usually satisfied with their settlement.

Owners in the second group, by analogy, either did not want to play the game, did not know the rules, or thought the game's outcome was already decided at the outset. They usually relied upon their own judgment of their property's worth. They were more apt to be

frustrated by the process and dissatisfied with the outcome. In some cases this dissatisfaction with the property settlement was tempered by a large relocation payment, but this was not always the case.

While the generalization is made with caution, owners in the first group usually possessed higher valued properties and received larger increases than those in the second group. Thus, the interviews provided some degree of support for the framework and assumptions of the bargaining model with respect to owner behavior.

Several elements of assembler behavior were also revealed by the interviews. Beginning with the negotiation process, it was common for owners to have to deal with two or three different representatives of the Corps. According to several owners, the encounter with the first negotiator was friendly and cooperative. Throughout negotiations, however, this agent was replaced by another whose role was perceived as that of a "hatchet man." His demeanor was cooler, more detached. And his message was, "Settle, now!"

A survey had been conducted in association with the relocation to determine how many owners were interested in moving to the new town. It was suggested by several owners that the results of this survey were used by the Corps to identify owners who might be willing to make a quick settlement and leave town. Whether or not this was actually the case, the Corps did acquire many relatively low valued properties early and nearly all of their owners received no increase above the appraised value. It was also suggested that most of these owners had a poor idea of what their property was worth.

Another interesting element of strategy followed the early

acquisition of these properties. After a contiguous block of properties was secured, the Corps, in some instances, proceeded directly to clearing and even execution activities. The resolve of many owners to hold out was reportedly dampened by the sight and sound of the physical destruction of their community. This kind of activity would seem to be a good example of assembler attempts to lower owner reservation prices.

Summary and Conclusions

The bargaining strength model of Chapter 4 implied certain patterns in the value of property settlements in an assembly situation. While the data available for acquisitions in North Bonneville did not allow for direct testing of some of the model's key variables, they did facilitate the testing and resultant affirmation of three hypotheses which suggest that the model is not inconsistent with an actual ED assembly.

The amount of the increase, above the assembler's appraisal, an owner could expect to realize was positively related to property value. High valued properties showed the highest returns from price determination in court. And they showed higher returns if settled in this manner than if they were settled voluntarily with the assembler. A positive relationship was also seen between prolonging the length of negotiations and the increase realized above the appraised value.

Interviews with affected owners also supported the bargaining strength concept. In particular, three factors which appeared to be well correlated with an owner's satisfaction with his eventual

settlement were: (1) the owners understanding of the ED process, (2) the amount of available time which could be devoted to challenging an offer, and (3) the amount of financial resources available for challenging an offer. Also revealed by the interviews were various assembler strategies which are not inconsistent with the model developed in the last chapter.

Chapter 6

Conclusion

The two-fold purpose of this research has been (1) to develop a model of property assembly which, more realistically than previous work, reflects the interplay of forces between owners and an assembler in the determination of settlement price, and (2) to assess the consistency of this model with respect to an actual ED assembly.

In chapter 2, the legal framework, within which the economic analysis was conducted, was described. ED was defined. Restrictions placed upon its use were identified. And, a set of uniform rules for ED use was presented.

Chapter 3 reviewed an existing model of assembly efficiency. The model characterized the assembler as a non-discriminating monopsonist, and made no attempt to incorporate owner behavior, other than that which might result from monopoly holdings. Comparison of ED assembly efficiency with that vis-a-vis a market approach revealed no clear advantage of either approach.

The empirical results reported in Chapter 3 suggested that restructuring of the assembly model was called for. Perhaps most significant in these findings was the regressive pattern in payments to owners under ED, which was not reflected in the model. In addition to its potential effects on the analysis of efficiency, the regressivity of payments suggested that a closer look be taken at the distributional effects of ED.

In chapter 4, the development of an alternative framework for

analyzing property assembly was initiated. This new approach stressed the importance of owner bargaining strength in the determination of payment price. A new representation of the supply conditions for property assembly was presented, based upon an underlying distribution of owner reservation prices. Even though these reservation prices are not freely observable to an assembler, an offer process was described which allowed him to discriminate, albeit imperfectly, between owners. These features provided the basis for the development of generalized acquisition curves for cases of high and low owner bargaining strength.

Analysis of assembly efficiency was then conducted, using these curves in the context of a multi-stage assembly process. The principal area of advantage for ED inferred from the analysis was in the reduction of the variability of potential welfare losses. This finding, however, did not eliminate the likelihood that under some conditions, assembly through the market will be more efficient.

The identification of real-world assembly situations in which the market is more efficient was seen as an important area for continued research. Related to this was the need for a better understanding of techniques designed to reduce the payment of monopoly rents with market assembly. If effective, these techniques could reduce the variability of potential welfare losses dramatically, and provide assemblers with relatively efficient means of acquiring property through the market.

Also addressed in chapter 4 was the distribution of payments under the two assembly methods. In general, payments for property

were observed to be distributed on the basis of reservation price with market assembly, and according to owner bargaining strength with ED.

For ED assembly, the courts are mandated to award owners 'fair market value' for their property. Even if this mandate were realized, it could be argued that owners who place a higher value on their property would be treated unfairly by this system. While further work in estimating the distribution of owner reservation prices might alter this conclusion, if the assumptions made in this thesis are correct, a majority of the owners of assembled properties may be the victims of this kind of inequity.

In reality, just compensation awards are often not consistent with the market value of the properties condemned. Any relief to the owners of high valued properties from the inequity mentioned above comes at the expense of the owners of low valued properties. Not only are they more likely to be intimidated by an ED assembly, they face a greater chance of being awarded less than market value by the courts. This inequity is compounded by the likelihood that an assembler will seek out inexpensive parcels, whenever possible, in an effort to minimize property acquisition costs.

Two comments are offered in defense of ED, regarding the issue of equity. In assemblies where there is an unavoidable owner monopoly problem, the use of ED will effectively limit the ability of owners to reap a windfall at the public's expense. Though, even in this case, the savings to society as a whole must be weighed against the costs which ED can place on individual owners. Finally, where

owners qualify for relocation payments, a large portion of this inequity may be eliminated.

In chapter 5, hypotheses abstracted from the bargaining model were tested in the context of a large federal ED assembly. Results of this testing were not inconsistent with the predictions of the model and the findings of other research. For the cases examined, increases in final settlements above appraised values were seen to be positively related to property value. Owners of high valued properties generally received larger increases in litigated than in voluntary settlements. They also received larger increases through litigation than did the owners of low valued properties. Finally, a positive relationship was seen between the length of negotiations and the increase received. As expected, owners of high valued properties were the principal beneficiaries these increases.

In summary, ED has, particularly in recent years, enjoyed rather widespread and extensive use in this country. The liberal interpretation of the public use requirement now in vogue with the courts suggests that ED will continue to play an important role in assembly, and property acquisition in general, in the years ahead. While a large part of the justification for using ED has centered upon reducing the monopoly power of owners, perhaps complacency has resulted in too little study being directed towards market alternatives for circumventing this problem.

If the threat of monopoly power can be rendered illusory by future work in this area--even if only for certain types of cases--a re-evaluation of the appropriate uses for ED may be in order. Change

will not come quickly or easily to the world of the judiciary, where decision-making relies heavily upon precedent and long-standing tradition. Nor will it be popular with property acquisition divisions within the bureaucracy, where changes in existing procedures typically meet with strong resistance. But it is hoped that this and future work in the field of ED will foster an atmosphere where its shortcomings can be openly and intelligently discussed and improvements in its use initiated.

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APPENDIX

The following reduced-form model of price determination under ED is presented in Munch 2, page 480. A complete explanation of the model can be found on pages 480-485.

$$S^b = \bar{S}^b, \quad (1)$$

$$S^s = \bar{S}^s, \quad (2)$$

$$C^b = C^b(P_m), \quad (3)$$

$$C^s = E(k(P_C - P_0)), \quad (4)$$

$$P_C = P_m - h^b(C^b) + h^s(C^s) + v; v \sim (0, \sigma_v^2(P_m)), \quad (5)$$

$$E(P_C)^b = P_C + w; w \sim (0, \sigma_w^2(P_m)), \quad (6)$$

$$E(P_C)^s = P_C + z; z \sim (0, \sigma_z^2(P_m)), \quad (7)$$

$$P_0^{\max} = E(P_C)^b + (C^b - S^b), \quad (8)$$

$$P_a^{\min} = E(P_C)^s - (C^s - S^s), \quad (9)$$

$$P_0^{\max} - P_a^{\min} = E(P_C)^b - E(P_C)^s + C^b + C^s - S^b - S^s \geq 0, \quad (10)$$

$$P_v = 1/2(P_0^{\max} + P_a^{\min}) \quad (11)$$

$$= 1/2(E(P_C)^b + E(P_C)^s + (C^b - S^b) - (C^s - S^s))$$

$$= P_C + 1/2(\Delta C^b - \Delta C^s), \quad (11')$$

where S^b = buyer's out-of-court settlement costs,

S^s = seller's out-of-court settlement costs,

C^b = buyer's court costs,

C^s = seller's court costs,

P_C = price awarded in court,

$E(P_C)^b$ = Buyer's expectation of court award,

$E(P_C)^s$ = Seller's expectation of court award,

P_m = market value,

$p_0^{\max}$ = Buyer's maximum out-of-court offer,

$p_a^{\min}$ = Seller's minimum out-of-court ask price,

p_v = price determined voluntarily out-of-court,

and v, w, z = stochastic error terms.

The functions $h^b(\cdot)$ and $h^s(\cdot)$ relate expenditures on court inputs, for the buyer and seller respectively, to influence on the court verdict.