Time for Revisionism on Rent Control?

Author(s): Richard Arnott

Source: *The Journal of Economic Perspectives*, Winter, 1995, Vol. 9, No. 1 (Winter, 1995), pp. 99-120

Published by: American Economic Association

Stable URL: https://www.jstor.org/stable/2138358

Time for Revisionism on Rent Control?

Richard Arnott

Economists have been virtually unanimous in their opposition to rent control. In a survey of economists' opinions, Alston, Kearl, and Vaughan (1992) asked a stratified random sample of 1990 American Economic Association members whether they "generally agree," "agree with provisions," or "generally disagree" with 40 statements related to economic theory and policy. The greatest degree of consensus on any question—93.5 percent—was agreement or qualified agreement with the statement: "A ceiling on rents reduces the quantity and quality of housing available." This is hardly a discriminating question concerning economists' attitudes towards rent control, but is nonetheless suggestive. There has been widespread agreement that rent controls discourage new construction, cause abandonment, retard maintenance, reduce mobility, generate mismatch between housing units and tenants, exacerbate discrimination in rental housing, create black markets, encourage the conversion of rental to owner-occupied housing, and generally short-circuit the market mechanism for housing.

In recent years, however, there has been a wave (or at least a swell) of revisionism among housing economists on the subject of rent control. While few actually advocate controls, most are considerably more muted and qualified in their opposition. Perhaps a majority, at least among the younger generation, would agree with the statement that a well-designed rent control program can be beneficial.

Is this revisionism well founded? Is it time for the profession to reconsider its opposition to rent control? There is a vast literature on rent control; a casual literature search turned up over a thousand articles, books, or studies on the

■ *Richard Arnott is Professor of Economics, Boston College, Chestnut Hill, Massachusetts.*

subject in English alone.[1] Rather than attempt any kind of systematic review of this work, I will offer my own broad-brush and idiosyncratic view of the recent North American experience with rent control, as well as insights from recent theoretical and empirical research on the subject.

The History of Rent Control

Rent controls were imposed in the United States shortly after the country's entry into World War II. Putting the country on a war footing required massive relocation of labor, with consequent pressure on many local housing markets. Controls were imposed to ensure affordable housing and to prevent profiteering. The appropriateness of imposing controls in wartime seems to be virtually undisputed.[2] The form of controls was a freeze on nominal rents.

The rent freeze continued after the end of the war in the belief that the return of soldiers would otherwise cause a rapid and disruptive rise in rents, at least in certain markets. However, there was a housing boom in the late 1940s and early 1950s, which lowered market-clearing rents and permitted almost painless decontrol. The only jurisdiction to retain wartime controls was New York City, and these were applied only to pre-1947 housing.

European countries imposed wartime rent freezes, too. In fact, controls in several countries had lingered on from the First World War. The postwar experience of the European countries was less fortunate. Housing reconstruction took much longer because of their war-ravaged economies and extensive destruction of their housing stocks. As a result, many European jurisdictions retained a rent freeze on at least prewar housing long after World War II. While the nominal rent freezes were typically not absolute—intermittent adjustments were made—controlled rents fell significantly in real terms, to only a fraction of the rents in the uncontrolled housing that was constructed after the war.

It is the experience of these jurisdictions, together with that of New York City, which forms the basis for the common opposition to rent control among economists.[3] The type of controls imposed in this period has come to be termed "hard" or "first-generation" rent control.

[1]Clatanoff (1985) provides a bibliography for the pre-1985 literature; Downs (1988), an evaluative and selective review of the U.S. literature. Fraser Institute (1975) provides a good selection of readings from the earlier, more discursive literature, including the well-known 1929 paper by Friedrich Hayek and the 1946 paper by Milton Friedman and George Stigler.
[2]Wartime controls improve equity: why should a landlord benefit because a munitions factory is located close by? And why should a relocated worker have to pay a high rent? Also, imposing controls during wartime entails little efficiency loss, since there is little privately initiated housing construction. There were also rent controls during World War I, which were lifted shortly after the war. See Lett (1976) for a more detailed discussion of the U.S. history of rent control.
[3]Most major cities in less developed countries also have first-generation style rent control ordinances. They differ considerably from one another in the degree of their enforcement as well as in their provisions. In conjunction with a World Bank project, Malpezzi (1993) has done a number of solid, quantitative studies of sample programs in several countries.

Since the early 1950s, the pattern of rent regulation has been significantly different in Europe than in North America. In much of Europe, the legacy of first-generation controls is still keenly felt. In some jurisdictions, controls gave rise to housing problems that prompted increasingly intrusive government intervention. In others, the uncontrolled rental housing sector grew healthily, while the older, controlled housing in the downtown areas deteriorated, but remained keenly sought after due to the wide disparity in (quality-adjusted) rents between the controlled and uncontrolled sectors. Over the last 15 years, largely as a result of the perceived failure of socialism and renewed faith in the market, European governments have been eliminating or relaxing controls.[4]

In North America, only the experience of New York City has been similar to that of the European countries.[5] In all other jurisdictions, rent controls were absent from the early 1950s to the early 1970s. In the '70s, however, rent control ordinances were passed in Boston, Washington, D.C., Los Angeles, and San Francisco, as well as in a host of towns in California, Connecticut, Massachusetts, New Jersey, and New York state.[6] Also, all the Canadian provinces introduced some form of rent control in the mid-'70s, in conjunction with that nation's federal wage and price control program.[7] While each jurisdiction has had its own political history with respect to rent control, broadly speaking the reimposition of controls in the 1970s came about as a result of both the radicalism of the period and the unnerving inflation in the wake of the oil crisis.[8]

Very few U.S. cities that did not introduce rent controls during this period have introduced them since, and most U.S. cities that did introduce controls have retained them, though in many cases with substantial modification. Only four of the ten Canadian provinces have retained controls. Estimates of the proportion of the U.S. rental housing stock currently subject to rent control range from 10–15 percent.

The controls imposed during the 1970s differed significantly from the first-generation rent control programs. They have been termed variously "soft"

[4]Coleman (1988) provides a discussion of the British experience with rent controls; Werczberger (1988), the Israeli experience; and B. Turner (1988), the Swedish experience.

[5]There is a very large body of literature dealing with rent control in New York City. Keating (1987) provides a discussion of the convoluted history of rent control in New York City from 1969–85 and Arnott and Johnston, Appendix C, from 1943–78. Well-known empirical studies include Lowry (1970), DeSalvo (1971), Olsen (1972), Roistacher (1972), Sternlieb (1976), Marcuse (1979), Linneman (1987), Stegman (1988), and Gyourko and Linneman (1989).

[6]Surprisingly, there are no well-known studies of rent control in Boston, other Massachusetts cities, or San Francisco. There are, however, well-known studies for the other jurisdictions: for Washington, D.C., M. Turner (1988); for Los Angeles, Rydell et al. (1981); for other California cities, Keating (1983); and for New Jersey towns, Lett (1976) and Gilderbloom (1983).

[7]A good summary of the history of rent control in the Canadian provinces is given in Muller (1989). There is a wealth of studies of rent control in Ontario. Most of these were done in conjunction with the Thom Commission (Ontario, 1987). Others include Arnott and Johnston (1981), Fallis and Smith (1985), and Smith (1988). For the other provinces, the only well-known study is Marks (1984b) for British Columbia.

[8]In California, there was a third reason. Tenants were angry that landlords did not (apparently at least) pass on the post-Proposition 13 property tax savings in the form of reduced rents.

rent control, "second-generation" rent control, rent review, and rent regulation. They entail a complex set of regulations governing not only allowable rent increases, but also conversion, maintenance, and landlord-tenant relations.

Second-generation rent controls commonly permit automatic percentage rent increases related to the rate of inflation. They also often contain provisions for other rent increases: cost pass-through provisions which permit landlords to apply for rent increases above the automatic rent increase, if justified by cost increases; hardship provisions, which allow discretionary increases to assure that landlords do not have cash-flow problems; and rate-of-return provisions, which permit discretionary rent increases to ensure landlords a "fair" or "reasonable" rate of return. Second-generation controls commonly exempt rental housing constructed after the application of controls, although new housing may be brought under the controls at a later time.

In some jurisdictions, second-generation rent control has permitted full vacancy decontrol, whereby the unit becomes completely decontrolled when it is vacated. Other jurisdictions' programs permit inter-tenancy decontrol, whereby controls apply during successive tenancies but no restrictions are placed on inter-tenancy rent increases. Others contain alternative decontrol mechanisms; probably the most common has been rent level decontrol, whereby a unit is decontrolled when its controlled rent rises above a certain level. Yet others have no decontrol provisions.

Such rent regulation often contains provisions which accord tenants improved security of tenure—rent increase appeal procedures, eviction procedures more favorable to the tenant, and so on—and it often includes restrictions to prevent cutbacks in maintenance, and on the conversion of controlled rental housing to owner-occupied housing.

Clearly, second-generation rent controls are very different from a rent freeze. There is considerable flexibility in the design of a second-generation rent control package, in fact so much that it may be inappropriate to generalize broadly about the effects of second-generation controls. Rent review packages can be categorized according to their "hardness," or resemblance to first-generation controls (Keating, 1983); for example, Santa Monica has a harder set of regulations than Los Angeles. Most of the European control programs currently in effect also fit the above description of second-generation rent controls.

In this paper I shall not dispute that first-generation controls were harmful (they almost certainly were).[9] Rather, I shall take the position that, since second-generation controls are so different, they should be evaluated largely independently of the experience with first-generation controls.

---

[9]There are few solid empirical studies of first-generation rent controls, at least that are cited in the English-language literature. This is not surprising since so few English-speaking jurisdictions had first-generation controls over the period that "serious" empirical work was possible. The cumulative evidence that first-generation controls had the claimed strong negative effects is, however, quite compelling.

Textbook Analysis of a Rent Freeze

Just as there have been two generations of controls, so have there been two generations of economic theory applying to rent controls. The first generation, examined in this section, employs standard supply-demand analysis to examine the effects of a rent freeze. The second, to be discussed in the next section, employs modern economic theory of imperfect markets to examine second-generation controls.

The textbook analysis of a rent freeze will be familiar to any reader of this journal. Fixing rent below the market-clearing level has three types of effects. First, tenants who manage to find rent-controlled housing benefit. These are disproportionately long-term residents of the jurisdiction, who benefit at the expense of new residents, most of whom must live in uncontrolled housing or the worst controlled housing. Second, producers forced to charge lower rents see the value of their property fall and react in various ways, like reducing maintenance expenses, trying to convert their buildings from controlled rental housing to owner-occupied housing, and thinking twice before constructing any additional rental housing. Third, the below-market rental prices lead to excess demand for housing, which causes various phenomena: a mismatch of housing units to households (for example, the proverbial elderly widow living in the same large, rent-controlled apartment long after her family has left home, at the same time that there is an acute housing shortage); reduced housing mobility causing reduced labor mobility; an increase in discrimination, since disfavored groups are rationed out; and various gray- or black-market phenomena such as "key money," which is the payment of a "nonrefundable deposit" upon moving in.

A modern critique of the textbook analysis, based on detailed modeling of second-generation controls and imperfections in the housing market, is deferred to the next section. But even taken on its own terms, the textbook analysis is imprecise and potentially misleading. One problem is that the textbook analysis assumes that the rationed rental housing goes to those households who value it most, which understates the potential losses from a rent freeze. A more fundamental problem, pointed out initially by Frankena (1975),[10] derives from the distinction between housing units and units of housing service.

In the traditional analysis of the rental housing market, heterogeneous housing is aggregated to form an abstract commodity "housing services." In the common textbook treatment, rent control is portrayed as imposing a ceiling on the price of housing *services*, p. But in fact the ceiling is imposed on the rent from a housing *unit*, R, which equals the price of housing services times the quantity of housing services the unit provides, q. Thus, a ceiling-housing-unit rent $\overline{R}$ implies the constraint $pq \leq \overline{R}$, which is a rectangular hyperbola in q-p

---

[10]Raymon (1983) provides a similar analysis, in algebraic form, for a more general model in which a price ceiling is placed on a commodity whose quality is variable.

space. The distinction between a ceiling on p and a ceiling on R has important economic consequences. With the ceiling on R, a landlord may respond to rent control by cutting back on the quantity of housing services provided by his unit, via undermaintenance.

   This possibility is illustrated in Figures 1a and 1b. To simplify, all housing units are taken to be identical. Figure 1a, on the left, is a standard supply-demand diagram, at the level of the industry, but with quantity measured per housing unit. Figure 1b, on the right, is the corresponding diagram at the level of the individual housing unit. In both figures, q is the quantity of housing services and p the corresponding price, and the rent control constraint $pq \leq \bar{R}$ requires that the rent-controlled equilibrium lie on or below the curve $\bar{R} = pq$.

   The short-run equilibrium without controls, E_0 in Figure 1a, is entirely conventional, lying at the point of intersection of the industry supply curve (given by short-run marginal cost) and the market demand curve. Now consider the determination of the short-run equilibrium with rent control. The supply curve for an individual housing unit now has two portions, as shown by the dotted line in Figure 1b. For low prices of housing services, for which the rent constraint does not bind, the supply curve continues to coincide with the short-run marginal cost curve. But for prices such that SRMC lies above the rent constraint, the supply curve coincides with the rent constraint, since landlords cut back on the quantity of housing services until the rent constraint just binds.[11]

   The market supply curve, shown in Figure 1a, is obtained as usual from the horizontal summation of the individual housing unit supply curves, and is likewise shown by the dotted line. With the controls in place, market equilibrium occurs at E_1, the intersection of the market supply and market demand curves. Note that at E_1, the price of housing services is higher than prior to the imposition of controls. In the short run at least, this analysis holds that controls make renters worse off. However, this conclusion is based on the assumption that landlords can cut back quantity by any amount in the short run. It may be, however, that even if landlords spend nothing on maintenance, quantity cannot fall all the way to E_1 in the short run. In this case, equilibrium is at some point between[12] Z and E_1 on $\bar{R} = pq$. There is zero maintenance and excess demand, and the price of housing services may either rise or fall.

## Modern Analysis of Second-Generation Rent Controls

   No fully articulated modern model of rent controls exists. Rather there are a number of different partial models of housing markets—usefully summarized

---

[11]If quantity is cut back less than this, costs are higher and revenue is unchanged. If quantity is cut back more than this, the rent constraint no longer binds. Marginal revenue then equals price and exceeds SRMC, so that profit can be increased by increasing quantity.
[12]The equilibrium short-run quantity is given by the point of intersection of the SRMC curve and the q-axis.

Figure 1
The Frankena critique of the textbook analysis of a rent freeze

Panel A

Panel B
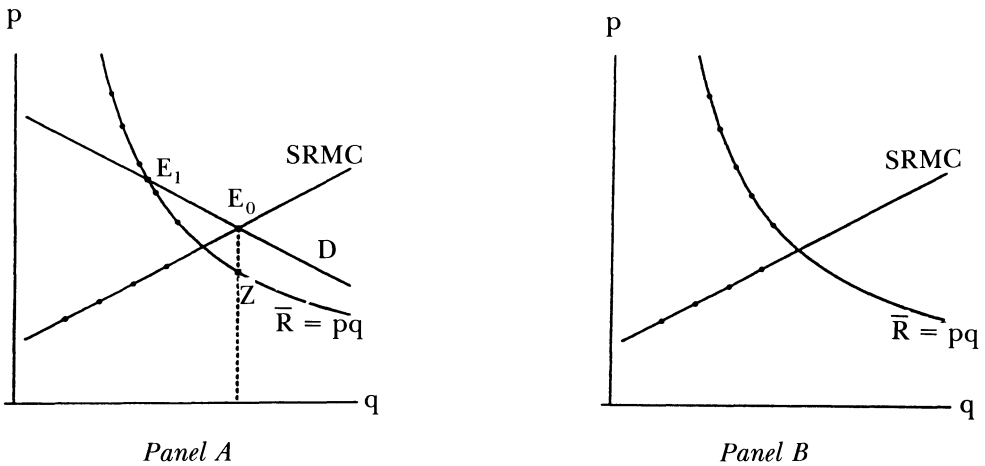
by Smith, Rosen, and Fallis (1988)—which can be employed to focus on different rent-control phenomena. These can be broadly categorized into perfectly competitive and imperfectly competitive models.

Perfectly Competitive Models

Stock adjustment and quality differentiation are of central importance in the housing market. However, traditional housing market analysis treats these market characteristics unsatisfactorily. For example, stock adjustments in the housing market are commonly dealt with by jumping back and forth between the market for housing stock and the market for housing services—a crude treatment of dynamics. As well, the traditional analysis typically treats quality only implicitly—higher quality housing generates more units of housing service —and fails to distinguish how a change in the quantity of housing services comes about, whether through construction, abandonment, rehabilitation, conversion, or maintenance.

In a pair of seminal papers, Sweeney (1974a, b) presented the first modern model of the rental housing market to treat both dynamics and quality differentiation explicitly. The model focuses on the economic decisions of a landlord who has a durable housing unit of a given quality. Knowing the rent function, which relates rent to quality, and the maintenance technology, which relates the rate at which the housing unit deteriorates in quality to the level of maintenance, the landlord chooses the path of maintenance expenditures to maximize the discounted present value of net revenue from the unit. The other components of the model are construction, abandonment, demand, expectations, and market-clearing. Typically, housing is constructed at the top end of

the quality spectrum and then filters downward in quality, at a rate depending on maintenance, until it is eventually abandoned.

Extensions of the Sweeney model are reviewed in Arnott (1987). For example, the model can be augmented to include land, in which case there may be demolition of the existing building on the site, followed by construction of a new, high-quality building, rather than abandonment (Arnott, Davidson, and Pines, 1983).

Once a Sweeney-style model is specified, with explicit functional forms and parameters characterizing demand, the housing technology, and expectations, the quantitative effects of a rent control program on maintenance, construction, and abandonment can be calculated. Such models are detailed enough to compare different second-generation rent control programs, since cost pass-through, hardship, and rate-of-return provisions can be explicitly modeled,[13] as can alternative decontrol options. The optimal control analysis is complicated by the need to consider excess demand, but is not unmanageable (Arnott, 1979).

Even without the full apparatus of the Sweeney model, some valuable insights can be gained from simpler models that include dynamics, quality differentiation, and specific provisions of rent control programs. For example, Olsen (1988) has pointed out that second-generation rent control packages can be designed to stimulate maintenance. Recall that rent level decontrol allows a housing unit to be decontrolled when its controlled rent rises above a certain level. Since the controlled rent can be increased through upgrading via cost pass-through, it may be profit-maximizing for a landlord to upgrade a unit so as to decontrol it.[14] As well, maintenance can be stimulated by a generous cost pass-through provision, which permits the rent on a unit to be increased by, say, $1.50 for every $1.00 increase in cost.

Imperfectly Competitive Models

If the economy were perfectly competitive, any binding form of rent control would reduce social surplus and models à la Sweeney could be employed to analyze their baleful effects. But the conditions for perfect competition are extremely strong. The housing market does seem somewhat competitive in the sense that it exhibits negligible economies of scale and has insignificant barriers to entry and exit. However, the housing market also seems imperfectly competitive in a number of ways: externalities created by neighbor and neighborhood effects are at least moderately important; housing is highly heterogeneous which, combined with idiosyncratic tastes, renders the market thin; search costs are substantial (as evidenced by real estate agents' fees);

---

[13]The formulae for determining discretionary rent increases may give landlords an incentive to change the timing and composition of their maintenance expenditures.

[14]Olsen (1988) also pointed out that standard analyses ignore *tenant* maintenance. To the extent that controls transfer property rights from landlord to tenants, they may encourage increased tenant maintenance.

futures/insurance markets are virtually nonexistent; and imperfections in capital markets impact the housing market in important ways.

Only in the past decade have housing economic theorists turned their attention to models of the housing market which capture these features. Two classes of models are particularly relevant to the study of rent control: monopolistically competitive models and contract models. Both have been adapted from labor economics.

The monopolistically competitive models of the rental housing market are similar to the search-based matching models of Diamond (1984) and Pissarides (1990). In such models, a household searches among vacant units for a housing unit that suits its tastes. If a household really likes a unit, for its own idiosyncratic reasons, it will take the unit even if the rent is higher than that of units of broadly comparable quality. Since landlords know that their differentiated product gives them market power, they exploit that power by pricing above marginal cost. Free entry and exit drive profits to zero and excess capacity manifests itself as vacant housing units. Igarashi and Arnott (forthcoming 1994) show that in a particular model of this type, moderate rent controls are beneficial, although stringent rent controls are harmful. The broad intuition is that rent control restricts the ability of landlords to exploit their market power. In this class of models, market imperfection derives from the heterogeneity of housing combined with asymmetric information and search costs.[15] Points in favor of the empirical validity of search-based monopolistically competitive models of the rental housing market are that they can explain the simultaneous occurrence of vacancies and homelessness, and are consistent with the substantial evidence that vacancy rate adjustment in the rental housing market is important.

The market imperfection which derives the contract models[16] is asymmetric information (Börsch-Supan, 1986; Hubert, 1990a, b). In one such model, there are two groups of tenants, good and bad. A landlord discovers the identity of a tenant only after she has rented an apartment for one period. The economic environment is such that, in the absence of controls, a bad tenant moves every period, even though moving is costly, because she can get a substantially lower rent from a new landlord who does not know her identity. Each landlord realizes that by "economically evicting" his bad tenants, other landlords will be stuck with them. But since he does not pay the associated cost, he ignores it. Thus, there is a bad-tenant turnover externality—a beggar-thy-neighbor policy with respect to bad tenants. Imposing intra-tenancy rent control and prohibiting eviction eliminates the incentive for bad tenants to

---

[15]Other models in the same vein are Weibull (1983) and Fu (1993). Nguyen and Whalley (1986) provide a more general model of equilibrium under price controls and endogenous transaction costs.

[16]There is another branch of the housing contract literature which considers the operation of the rental housing market when rents are regulated and key money is allowed (Weber and Weismeth, 1987; Skelley, 1992).

move, and hence the externality, and can make not only bad tenants but also good tenants better off.[17]

The above arguments indicate that a *well-designed* rent control program can improve on the unrestricted equilibrium of an imperfect market.[18] However, they do not establish that an optimal rent control program is either the best available policy or at least a component of the best policy package. No paper has established either result. On broad theoretical grounds, however, it is likely that some form of rent control would be included in an optimal housing policy package. It is a general rule that the best policy to deal with a distortion is that policy which addresses the distortion most directly. Rent control is then desirable when the distortion is the unavailability of insurance against a sharp, unanticipated rise in rent.[19] Another general rule is that, if a distortion cannot be addressed directly, the more policy instruments the better.[20]

The above argument for the potential desirability of second-generation rent controls was based on efficiency considerations. In contrast, the traditional advocates of controls emphasize distributional concerns. Specifically, they argue that controls redistribute from rich to poor and ensure cheap housing. I find little merit in either argument. Whatever redistribution controls achieve is poorly targeted. As well, when there is a broad-based income tax, redistribution by modifying commodity prices is in general unwise. For related reasons, cheap housing, as distinct from a reduction in inequality or poverty, is a dubious goal of social policy.

---

[17]While not mentioned often in the economics literature on rent control, the issue of security of tenure is of considerable importance in the policy debate. Partly because of the costs of moving, but more importantly because of the value of having a secure and familiar home, many renters attach great importance to protection against eviction. Eviction may occur not only due to antisocial behavior or nonpayment of rent, but also because the landlord wishes to renovate or to convert the rental housing to an alternative use. A free market economist would argue that if a renter values security of tenure so much, she has the option of negotiating a long-term lease which guarantees security of tenure. But, perhaps due to the adverse selection problem identified in the model just discussed, such long-term leases are not typically available. One effect of rent control is to convert short-term leases into quasi-long-term leases. The control of rent restricts economic eviction. And the changes in landlord-tenant law that almost always accompany the imposition of rent control make (noneconomic) eviction more difficult.

[18]The housing market contains numerous "policy distortions"—zoning regulations, building codes, the property tax, and so on. One can argue that rent control may offset such distortions. Such arguments must, however, be employed with care. Since many of these policy distortions were designed to deal with other market imperfections, it needs to be established that rent control reduces the overall efficiency loss, taking these other market imperfections into account.

[19]The rent control that was imposed in Alaska during its oil boom has been defended on this basis.

[20]This rule ignores implementation costs. The direct costs of administering second-generation controls appear to be of secondary importance. (In Ontario, for example, they are about $5 a year per capita. In New York City, they are no doubt considerably higher, but its rent control bureaucracy became large under first-generation controls.) Also, since detailed accounts should be maintained for tax purposes, the incremental costs of keeping the books in a form suitable for application for discretionary rent increases would appear to be minor.

The Political Economy of Rent Control

As a matter of practical politics, there is more room to doubt the worth of rent control. Even if the optimal rent control package would be beneficial, the actual rent control package thrown up by the political process may be harmful.

In most countries, the choices of whether to adopt rent control and what provisions to employ are made at the federal or state level. In the United States, the choice of rent control policy is a local option—though state law may restrict the choice set.

Which jurisdictions choose rent control and why? Among the jurisdictions that choose rent control, what determines the specific provisions chosen? And according to various welfare-theoretic criteria, does public choice with respect to rent control lead to the adoption of policies that improve welfare?

Although political economy models of rent control are in their infancy, there are two solid contributions to the literature. Both address the question of which jurisdictions adopt rent control. Fallis (1988) is less specific but broader in scope. He starts with the observation that since tenants outnumber landlords in most jurisdictions, it is remarkable that rent control is not more widespread. One possible explanation is that landlords are rich and hence able to finance campaigns opposing controls. Another is that the extent of political action may be related to the intensity of harm or benefit caused by a policy. Opposition to rent control may be stronger than support for it if it hurts each of the few landlords a lot and helps each of the many tenants only a little. But these considerations alone cannot account for why rent control has been so much more prevalent in Europe than in North America. To explain this, Fallis appeals to differences in social philosophy and notions of fairness. North Americans are more concerned with *ex ante* equality, equality of opportunity, while Europeans more with *ex post* equality, equality of result. Accordingly, Europeans are more likely to favor rent control to prevent unexpected demand-induced increases in rents, which entail fortuitous and therefore undeserved redistribution. As well, Europeans attach more importance to everyone being adequately housed and—perhaps misguidedly—have viewed rent controls as a means to this end.

Epple (forthcoming 1994), in contrast, develops a model of a rental housing market with two groups of residents, permanent and temporary. The number of permanent residents (who differ in income) is fixed while the number of temporary residents is uncertain. A rent control policy specifies a rent ceiling on controlled housing, which is occupied only by permanent residents. The lower the ceiling, the lower is the supply of housing. The rent ceiling is chosen by majority voting among permanent residents. At the time of voting, a permanent resident is uncertain about the number of temporary residents and also about whether he will be displaced from his controlled housing. Thus, in voting on a lower rent ceiling, a permanent resident trades

off the lower expected rent on controlled housing against the risk of having to pay a higher rent on uncontrolled housing. From the model, Epple derives a number of hypotheses and tests them using data on the adoption of rent control ordinances by communities in New Jersey. The results are noted in the next section.

An important element missing from both these papers is owner-occupied housing. Owner-occupiers are a significant voting bloc in almost all communities, and the majority in many. Do they view it in their self-interest to support or oppose second-generation controls? This depends foremost on the effects that owner-occupiers perceive controls to have on their property values. Assume that this perception is based on the standard analysis of first-generation controls. There are then three sets of effects: on the supply side, the fall in rental housing construction and maintenance shifts the supply curve for owner-occupied housing down; on the demand side, the increase in rental search costs stimulates the demand for owner-occupied housing while the lower rent on controlled housing dampens it;[21] and the fall in the market value of rental housing erodes the property tax base. In light of this complexity, owner-occupiers may view the effect of controls on their financial self-interest as ambiguous and may therefore cast their votes on the basis of considerations of fairness or community composition.

Another issue related to the political economy of rent controls is "if you give them an inch, they take a mile." It may be that some forms of second-generation rent control are not particularly harmful or may even be beneficial, but if their adoption leads to increasingly intrusive government intervention in the housing market, the first step should be avoided. There are no models of the political dynamics of rent control. What little empirical evidence there is, is mixed as well. In Canada, for example, where all ten provinces introduced rent controls in the mid-'70s, six of the ten provinces have decontrolled—but Ontario has made its controls increasingly strict.

A final issue is political constraints on government action. Even if rent control would not be chosen by a benevolent social planner to achieve efficiency or equity goals, in a climate of budgetary stringency it might be politically popular because it entails no increase in taxes and no budgetary expense (apart from administration).

Empirical Analysis of Rent Control

The thrust of my argument to this point is as follows. It is possible to design a set of rent regulations that results in an improvement in efficiency over

---

[21]Gould and Henry (1967) argue that the effect of rationing in one market on the price of unrationed goods in other markets is ambiguous, and their result probably applies here.

the unrestricted market equilibrium. But the political process may be such that actual rent control policies are harmful, either immediately or eventually. Thus, the desirability of second-generation rent controls cannot be decided on an *a priori* basis. Rather, second-generation rent control programs should be evaluated on the empirical evidence and, since such programs may differ markedly one from another, on a case-by-case basis.

This leads to the following questions: What have been the effects of alternative second-generation rent control programs? In view of the evidence, what provisions of a rent control package are helpful and what harmful? What therefore can be said about the ingredients of an optimal rent control package? What light does the evidence cast on the political determinants of the particular rent control package chosen by a jurisdiction? And what does policy experience indicate about the political dynamics of rent control and decontrol?

Any study of rent control in North America must confront the New York City experience. Not only has New York City had by far the longest history of controls, but also there are probably more studies of the effects of controls in New York City than in all other North American jurisdictions combined. What are the findings of these studies, and what light do they cast on the effects of second-generation rent controls in other cities? There is widespread agreement that New York City's rent controls have caused tenant mobility in the controlled sector to fall, have driven a wedge between rents in the controlled and uncontrolled sectors, and have had capricious redistributional effects apart from favoring long-term residents at the expense of in-migrants. There is no consensus, however, on the effects of New York City's controls on maintenance or rental housing construction (Olsen, 1990). My inclination is to discount heavily the New York City experience, though not to dismiss it as completely irrelevant. New York City's experience has been *qualitatively* different from that of any other North American city. The current state of the N.Y.C. housing market reflects not only its current second-generation controls but also its legacy of hard controls and its idiosyncratic history of convoluted policy changes. New York City's experience has also been *quantitatively* different. Many have warned that the adoption of second-generation controls in other cities will lead to a repeat of the New York experience, though on a smaller scale. But generalizing from the New York City experience may be more like inferring the effects of a gentle breeze from the ravages of a hurricane. Thus, my inclination is to put greater weight on other jurisdictions' experience with second-generation controls.

There has been a roomful of empirical studies addressing the questions posed at the beginning of this section. Taken together, the results of the studies have been disappointingly uninformative. The discussion that follows explains why.

Consider first a time-series empirical analysis of the effects of a second-generation rent control program within a single jurisdiction, on quality-

adjusted rent, quality-adjusted rental housing value, the volume of construction, maintenance, and tenant mobility. Theory suggests that a typical second-generation rent control program will have only a modest effect on rents in its early years, simply because the effects of controls on rents tend to be cumulative. Consequently, it should have little immediate impact on tenant mobility. It should, however, cause an immediate reduction in the market value of rental housing since it imposes a binding constraint on landlords' profit-maximizing programs. And, absent specific provisions which encourage maintenance, maintenance expenditures should fall. The effect on construction should depend on whether newly constructed housing is subject to controls or may subsequently be subject to them.

One way to test this theory would be to estimate the pre-control behavior of the market, forecast it forward in the absence of controls, and ascribe to controls the difference between the actual performance with rent controls and the forecasted performance without controls. The overwhelming problem with such a procedure is the difficulty in controlling for other factors: the state of the local and macroeconomy, the stage of the local real estate cycle, government housing and tax policy, and current and future anticipated changes in all the associated variables. The impact of these other factors is likely to be significantly greater than any effect due to controls. Trying to discern the effects of rent control in such a situation is akin to trying to hear a whispered conversation across a street of roaring traffic. Extracting the rent control signal is formidably difficult, particularly since theory provides little guidance concerning the appropriate specification of the estimating equations.

There are other problems. One is that housing data are inadequate in many respects; for example, there is no systematic collection of data on maintenance by landlords. Another is that the presence and form of controls is probably endogenous, not exogenous, which gives rise to familiar problems of inference. For example, suppose that community A has a politically powerful group of developers who successfully oppose not only rent controls but also development restrictions, while community B, with a coalition of urban professionals and residents of ethnic neighborhoods, imposes both controls and development restrictions. To ascribe the lower volume of construction in community B to rent controls would be an obvious logical fallacy.

The situation is not entirely hopeless, however. In certain rental housing markets, a rent-controlled sector coexists with an uncontrolled rental sector, perhaps because housing constructed after the imposition of controls is exempt, or because the housing market has been partially decontrolled (for example, units are decontrolled as they become vacant). Then the controlled and uncontrolled sectors can be compared. This procedure does control for at least some other factors. However, the results must be interpreted with considerable care. Many studies view the uncontrolled sector as the same as an uncontrolled market, and measure the effects of rent control as the difference between the

controlled and uncontrolled sectors.[22] I shall argue that this procedure is faulty since it ignores linkage between the two sectors.

Consider first quality-adjusted rents. All studies in this vein find that quality-adjusted rents are higher in the uncontrolled than in the controlled sector.[23] In those jurisdictions in which new construction has been exempt from controls—Los Angeles (Fallis and Smith, 1984), Toronto until the mid-'80s (Fallis and Smith, 1985), and Vancouver until decontrol (Marks, 1984b)—the difference in rents may be due simply to the difference in age between the controlled and uncontrolled housing stock, capturing not only physical but also style obsolescence. To circumvent this difficulty, it is necessary to compare controlled and uncontrolled rents in buildings of the same age. This is possible where there has been vacancy decontrol, as in New York City (Olsen, 1972; Linneman, 1987; Gyourko and Linneman, 1989). But then a new difficulty arises. The lower rents in the controlled rather than the uncontrolled sector may be due to a tenant composition effect—the controlled sector may have better tenants. Controlled units are occupied by residents who were in their units when vacancy decontrol was introduced, and uncontrolled units by residents who moved in after the introduction of vacancy decontrol. Thus, the residents of controlled units are intrinsically longer-term than those of uncontrolled units. The presence of significant average "tenure discounts" (lower rents for longer-term residents) in uncontrolled housing markets is well documented (for example, Börsch-Supan, 1986). A common explanation is that longer-term residents are better tenants. They are older on average and more stable. They are also more likely to behave well, having formed personal ties with other building residents.

Consider mobility next. There is weak evidence that average mobility is somewhat lower in controlled housing. However, a number of possible explanations exist, apart from the familiar one that rent control encourages staying in a unit longer. There is again a tenant composition effect. The mobility rate is lower, the longer the period of tenancy, and tenants in controlled housing have on average been in their units significantly longer. Two other effects arise when controls remain in force between tenancies. One is a landlord selection effect; landlords in the controlled sector have an incentive to choose low-mobility tenants because low mobility is correlated with stability and responsibility. Also, there is a tenant selection effect; low-mobility tenants have a stronger incentive to search for controlled housing, since their search costs are amortized over a longer period.

---

[22]Marks (1984a) presents a model which addresses the effects of partial-coverage rent control on both the controlled and uncontrolled sectors.

[23]Many European countries have had considerably more experience with rent controls than Canada or the United States. If there are solid empirical studies for European jurisdictions, they have not yet found their way into the English-language literature.

Finally, consider construction and maintenance. Comparison of the controlled and uncontrolled sectors is typically uninformative about effects on construction, because all newly constructed rental housing is either controlled or uncontrolled. Also, the empirical literature has been unable to uncover significantly higher levels of maintenance in the uncontrolled sector. This might be because the data are so noisy or because newer buildings, which are disproportionately uncontrolled, typically require less maintenance. Even if it were found, after controlling for building age, that maintenance is higher in the uncontrolled sector, this could be due to tenant composition.

Thus, even when the claimed effects of controls are observed, the causal chain may be difficult to infer. Ascertaining the welfare impacts of controls is even trickier. Due to landlords' monopoly power, uncontrolled rents may be inefficiently high; lower rents in the controlled sector may therefore improve efficiency. Mobility in an unregulated market may be excessive since neither the landlord (in the event of eviction) nor the tenant (in the event of moving) pays the full social cost of a separation; lower mobility in the controlled sector may therefore be welfare-improving.

Cross-sectional studies are subject to similar pitfalls. If the communities under study are part of the same regional housing market—for example, a comparison of communities in New Jersey (Gilderbloom, 1983), of Los Angeles and Santa Monica, or of Cambridge, Brookline, and Boston compared with other cities in the Boston metropolitan area—the same problems are encountered as in comparing controlled and uncontrolled sectors within a particular city, though to a lesser degree. If the communities under study are in different housing markets, one encounters the same signal extraction problems as in time-series studies. Furthermore, account needs to be taken of the substantial differences in rent control programs across jurisdictions with controls.

The rather depressing conclusion is that little has been learned to date about the positive effects of second-generation rent controls in North America. It is unlikely that much more will be learned from time-series studies until understanding of the dynamics of housing markets improves sufficiently that other factors which dominate controls can be controlled for. It is also unlikely that much more will be learned from studies which compare controlled and uncontrolled sectors within a housing market until we have better-articulated models of how housing markets with partial-coverage rent controls function. Perhaps this judgment reflects the excessively critical attitude of a theorist towards applied work, but Olsen (1990), whose evaluation of empirical work on housing markets is highly respected, comes to similar conclusions. For similar reasons, persuasive evaluation of the welfare and efficiency effects of second-generation controls will have to await developments in housing economic theory and econometric work which draws on these developments.

Though in its infancy, empirical research on the political economy of controls shows real promise. Which jurisdictions choose controls? What provisions do they initially choose? How are the provisions altered over time? And

when and how do jurisdictions decontrol? This line of investigation may be particularly fruitful in the United States where jurisdictional fragmentation, combined with considerable local political autonomy, give rise to a natural laboratory for the study of public choice. Epple (forthcoming 1994), whose theoretical approach was reviewed earlier, provides an interesting analysis along these lines. The paper investigates New Jersey communities' choice of whether to adopt rent controls. The New Jersey sample is particularly attractive since those jurisdictions that adopted controls did so over only a three-year period (1973–6) and designed them from a common model ordinance. Epple's model suggests that the probability of a community adopting rent control should be higher, the higher the rate of population growth (since rent controls protect permanent residents from demand-induced rent increases), the more durable are structures (since permanent residents are then less likely to be displaced and hence to suffer the higher rents in the uncontrolled market), and the lower the cost of being displaced from the community (measured by the proportion of residents who work outside the community). These predictions are confirmed by the econometric analysis. In his estimating equations, Epple included a number of independent variables unrelated to his theoretical model. One finding is that the greater the proportion of renters, the higher is the probability that controls are adopted, as intuition would suggest.

An obvious next step is to estimate simultaneously equations for the adoption of controls and for the behavior of the housing market, so as to account for the endogeneity of controls.

Reflections and Conclusions

This section offers some reflections and conclusions about issues related to rent control.

How Can the Effects of Second-Generation Controls be Forecast?

Direct econometric estimation of the effects of second-generation controls is fraught with difficulty. Consequently, little confidence should be placed in forecasts based on such regressions. Simulation may offer a more promising approach to forecasting the effects of second-generation rent controls since it permits the integration of empirical knowledge and *a priori* reasoning. Construct an imperfectly competitive model of the housing market which permits a rich description of alternative rent control programs. Parameterize the model drawing on the very large empirical literature on the operation of the housing market. Then, simulate the effects of alternative control programs under alternative future economic scenarios. Such a simulation model has not been developed for a North American housing market. Anas and Cho (1988), however, present a simulation model of the highly regulated Swedish housing market along these lines.

Does Rent Control Cause Homelessness?

The rent control debate has been relatively quiescent in the past few years. With low inflation rates and the completed passage of the baby boomers through the rental housing market, nominal rents in most cities have been stable or rising only slowly. The most contentious debate vis-à-vis rent control has been the contribution of rent control to homelessness. Tucker (1987) has argued, on both theoretical and empirical grounds, that rent control has been a major factor in the rise of homelessness. The contention is plausible. If rent control causes excess demand, then undesirable tenants are the least likely to get housing, and there is surely a high correlation between those traits associated with undesirability as a tenant and those that make for susceptibility to homelessness. Also, rent control can reduce the stock of low-quality housing, by inducing upgrading (for rent level decontrol), rehab (to convert to owner-occupancy), and abandonment.

But other factors seem to have had effects on homelessness that are a quantum level more important. O'Flaherty (1993) offers an excellent and very well-informed analysis. In brief, over the last decade, the number susceptible to homelessness has increased markedly, due to an increase in poverty; a decrease in the real wage of the unskilled; an increase in unemployment, especially among the low skilled; deinstitutionalization of the mentally ill; a rise in substance abuse; a considerable increase in the flow of persons released from prison (who have trouble re-entering the labor market); continuing disintegration of the family; and wider holes in the social safety net. At the same time, whether rent controls are present or not, there has been a sharp reduction in the stock of low-quality housing and a concomitant rise in its rent, particularly in central cities where the vast majority of the homeless "reside." The reasons are not altogether clear, but in many central cities a sizable fraction of the low-quality housing stock has been gentrified, and single room occupancy (SROs) hotels, the traditional home of the very poor in central cities, have been closed down or converted to other uses because of their failure to meet new building code standards. At any rate, the filtering mechanism has not been working.

Quigley (1990) makes a persuasive case that Tucker's (1987) empirical results are unreliable since the addition of the poverty rate, average rent, and vacancy rate as independent variables to Tucker's regression renders the coefficient on the rent control dummy insignificant. But since no empirical studies adequately account for the many possible linkages between rent control and homelessness, whether rent control contributes to homelessness remains an open issue.

Is Too Much Work Done on Rent Control?

Rent control almost certainly has had a major impact on the housing markets of many European cities. However, with the exception of New York City, with its legacy of hard controls, and perhaps Toronto, the effects of

second-generation rent controls in North America have been almost impercep-
tible. In comparison with other factors affecting the housing market—like tax
policy related to housing, local real estate cycles, changes in the local and
national economy, and major government housing programs—second-
generation rent controls in North America have been of secondary importance.
Why then do most economists in North America have such strong negative
views on rent controls? Why are the policy debates so fierce? And why is so
much written on controls in North America, far out of proportion to their
quantitative importance?[24]

Let me suggest two main reasons. The first is ideological. The debate over
rent control has been a battleground between those who believe in the free
market and those who do not. The echoes of the debate carry over to other
policy arenas where its resolution has far more quantitative import. The second
is methodological. The debate over rent controls has been a focal point for
discussion and analysis of how housing markets work. It is hardly a coincidence
that all the earliest models of imperfectly competitive housing markets
were developed by housing economists who were either studying or had
studied rent control programs (Börsch-Supan, 1986; Arnott, 1989; Hubert,
1990a, b; Wheaton, 1990).

But whatever the reasons, this focus on rent control has diverted attention
from more important housing policy issues, most notably the sharp increase in
the quality-adjusted rent for low-income housing, of which homelessness is but
one, albeit highly visible, manifestation. To my knowledge, not a single paper
has been published in a leading journal during the last decade dealing with
low-income housing problems, nor are any of the leading housing econometri-
cians or policy analysts studying them.

Rent Control and the Minimum Wage

The revisionism on rent control that I have described in this paper is
strikingly similar to the revisionism that has occurred concerning the effects of
the minimum wage (Card and Krueger, forthcoming 1994) that, contrary to
predictions based on competitive models or the labor market, recent increases
in state minimum wages have not had a discernible impact on employment.
The similarity of the theoretical revisions is not too surprising, even though the
rent control and minimum wage literatures have evolved independently, since
both are based on the contract and search literatures. But that both bodies of
empirical work have come to similar qualitative conclusions is remarkable.

Is Revisionism on Rent Control in Order?

Economists' traditional opposition to rent control is based on a combina-
tion of ingrained hostility to price controls and the experience with

---

[24]My educated guess is that somewhere between one-quarter and one-half of the papers on
empirical housing policy analysis that have been published in the top journals in the last decade
have dealt with rent control.

first-generation controls—the type that was imposed in New York City and across much of Europe in the years following World War II. In this paper, my primary theme was that modern, second-generation rent controls are so different that they should be judged largely independently of the experience with first-generation controls. My secondary theme was that the theoretical analysis of second-generation rent controls should take into account that the housing market is imperfectly competitive. When this is done, whether such controls are harmful or helpful depends on the particular package of regulations adopted, which is the outcome of a political process. Thus, second-generation controls should be judged on the empirical evidence and, since the programs are so varied, on a case-by-case basis. My reading of the empirical evidence is that many of the claimed effects of second-generation controls are imperceptible. And those effects that are perceptible have ambiguous efficiency and welfare implications.

Economists appreciate the virtues of free markets more than the average citizen. The knee-jerk reaction of almost every well-trained economist to price controls therefore provides balance in policy debate. Nevertheless, the case against second-generation rent controls is so weak that economists should at least soften their opposition to them. A degree of revisionism is certainly in order.

References

Alston, Richard M., J. R. Kearl, and Michael B. Vaughan, "Is There a Consensus Among Economists in the 1990's?" *American Economic Review*, May 1992, *82*, 203–9.

Anas, Alex, and Joong Rae Cho, "A Dynamic, Policy-Oriented Model of the Regulated Housing Market: The Swedish Prototype," *Regional Science and Urban Economics*, May 1988, *18*, 201–31.

Arnott, Richard, "Rent Controls and Housing Maintenance," mimeo, Queen's University, October 1979.

Arnott, Richard, "Economic Theory and Housing." In Mills, Edwin S., ed., *Handbook of Regional and Urban Economics*, volume 2. Amsterdam: North-Holland, 1987, 959–88.

Arnott, Richard, "Housing Vacancies, Thin Markets, and Idiosyncratic Tastes," *Journal of*

Real Estate Finance and Economics, February 1989, *2*, 5–30.

Arnott, Richard, and Nigel Johnston, *Rent Control and Options for Decontrol in Ontario.* Toronto: Ontario Economic Council, 1981.

Arnott, Richard, Russell Davidson, and David Pines, "Housing Quality, Maintenance, and Rehabilitation," *Review of Economic Studies*, July 1983, *50*, 467–94.

Börsch-Supan, Axel, "On the West German Tenants' Protection Legislation," *Journal of Institutional and Theoretical Economics*, June 1986, *142*, 380–404.

Card, David, and Alan B. Krueger, "Minimum Wages and Employment: A Case Study on the Fast Food Industry in New Jersey and Pennsylvania," *American Economic Review*, forthcoming, 1994.

Coleman, David, "Rent Control: The British Experience and Policy Response," *Journal of Real Estate Finance and Economics,* November 1988, *1,* 233–55.

DeSalvo, Joseph S., "Reforming Rent Control in New York City: Analysis of Housing Expenditures and Market Rentals," *Regional Science Association Papers and Proceedings,* December 1971, *27,* 195–227.

Diamond, Peter, *A Search-Theoretic Approach to the Microfoundations of Macroeconomics. The Wicksell Lectures.* Cambridge: M.I.T. Press, 1984.

Downs, Anthony, *Residential Rent Controls: An Evaluation.* Washington, D.C.: Urban Land Institute, 1988.

Epple, Dennis, "Rent Control with Reputation: Theory and Evidence," *Regional Science and Urban Economics,* forthcoming 1994.

Fallis, George, and Lawrence B. Smith, "Uncontrolled Prices in a Controlled Market: The Case of Rent Controls," *American Economic Review,* March 1984, *74,* 193–200.

Fallis, George, and Lawrence B. Smith, "Price Effects of Rent Control on Controlled and Uncontrolled Rental Housing in Toronto: A Hedonic Index Approach," *Canadian Journal of Economics,* August 1985, *18,* 652–59.

Fallis, George, "Rent Control: The Citizen, the Market, and the State," *Journal of Real Estate Finance and Economics,* November 1988, *1,* 309–20.

Frankena, Mark, "Alternative Models of Rent Control," *Urban Studies,* October 1975, *12,* 303–08.

Fraser Institute, *Rent Control: A Popular Paradox.* Vancouver: The Fraser Institute, 1975.

Fu, Yuming, *Three Essays in Real Estate Economics,* Ph.D. dissertation, University of British Columbia, 1993.

Gilderbloom, John I., "The Impact of Moderate Rent Control in New Jersey: An Empirical Study of 26 Rent Controlled Cities," *Journal of Urban Analysis,* February 1983, *7,* 135–54.

Gould, J. R., and S. G. B. Henry, "The Effects of Price Control on a Related Market," *Economica,* February 1967, *34,* 42–49.

Gyourko, Joseph, and Peter Linneman, "Equity and Efficiency Aspects of Rent Control: An Empirical Study of New York City," *Journal of Urban Economics,* July 1989, *26,* 54–74.

Hubert, Franz, "Long-Term Rental Contracts," Freie Universitat Berlin Working Paper, August 1990a.

Hubert, Franz, "Tenure Security for Tenants," Freie Universitat Berlin Working Paper, October 1990b.

Igarashi, Masahiro, and Richard Arnott, "Rent Control, Mismatch Costs, and Search Efficiency," *Regional Science and Urban Economics,* forthcoming 1994.

Keating, W. Dennis, "Rent Control in California: Responding to the Housing Crisis," Institute of Governmental Studies, University of California, Berkeley, California Policy Seminar, 1983.

Keating, W. Dennis, "Landlord Self-Regulation: New York City's Rent Stabilization System 1969–85," *Journal of Urban and Contemporary Law,* Winter 1987, *31,* 77–134.

Lett, Monica R., *Rent Control: Concepts, Realities, and Mechanisms.* New Brunswick: Center for Urban Policy Research, 1976.

Linneman, Peter, "The Effect of Rent Control on the Distribution of Income among New York City Renters," *Journal of Urban Economics,* July 1987, *22,* 14–34.

Loikkanen, Heikki A., "On Availability Discrimination Under Rent Control," *Scandinavian Journal of Economics,* 1985, *87,* 500–20.

Lowry, Ira S., ed., *Rental Housing in New York City,* vol. 1, *Confronting the Crisis.* Research Memo No. RM-6190-NYC. New York: The Rand Institute, 1970.

Malpezzi, Stephen, "Can New York and Los Angeles Learn from Kumasi and Bangalore? Costs and Benefits of Rent Controls in Developing Countries," *Housing Policy Rebate,* Winter 1993, *4,* 589–626.

Marcuse, Peter, *Rental Housing in the City of New York: Supply and Condition 1975–1978.* New York: City of New York Department of Housing Preservation and Development, 1979.

Marks, Denton, "The Effects of Partial-Coverage Rent Control on the Price and Quantity of Rental Housing," *Journal of Urban Economics,* January 1984a, *16,* 360–69.

Marks, Denton, "The Effect of Rent Control on the Price of Rental Housing: An Hedonic Approach," *Land Economics,* February 1984b, *60,* 81–94.

Muller, R. Andrew, "The Experience with Rent Regulation in Canada," Program for Quantitative Studies in Economics and Population, McMaster University, Research Report 244, March 1989.

Nguyen, Trien T., and John Whalley, "Equilibrium under Price Controls with Endogenous Transactions Costs," *Journal of Economic Theory,* August 1986, *39,* 290–300.

O'Flaherty, Brendan, "Grates, Bus Terminals, and Shelters around the World: The Economics of Homelessness in Six Cities," mimeo, Columbia University, 1993.

Olsen, Edgar O., "An Econometric Analysis of Rent Control," *Journal of Political Economy*, November/December 1972, *80*, 1081–100.

Olsen, Edgar O. "What Do Economists Know About the Effect of Rent Control on Housing Maintenance?," *Journal of Real Estate Finance and Economics*, November 1988, *1*, 295–307.

Olsen, Edgar O., "What Is Known About the Effects of Rent Controls?" Consulting Report for U.S. Department of Housing and Urban Development, Contract Number NA 90-7272, September 1990.

Ontario Ministry of the Attorney General, Commission of Inquiry into Residential Tenancies, *Report of the Commission of Inquiry into Residential Tenancies*, Volume II. Toronto: Queen's Printer for Ontario, 1987.

Pissarides, Christopher, A., *Equilibrium Unemployment Theory*. Oxford: Basil Blackwell, 1990.

Quigley, John M., "Does Rent Control Cause Homelessness? Taking the Claim Seriously," *Journal of Policy Analysis and Management*, Winter 1990, *9*, 89–93.

Raymon, Neil, "Price Ceilings in Competitive Markets with Variable Quality," *Journal of Public Economics*, November 1983, *22*, 257–64.

Roistacher, Elizabeth A., "The Distribution of Tenant Benefits under Rent Control," Ph.D. dissertation, University of Pennsylvania, 1972.

Rydell, Peter, et al., "The Impact of Rent Control on the Los Angeles Housing Market," N-1747-LA. Santa Monica: The Rand Corporation, August 1981.

Skelley, Christine, "Rent Control and Complete Contract Equilibria," mimeo, November 1992.

Smith, Lawrence B., Kenneth T. Rosen, and George Fallis, "Recent Developments in Economic Models of Housing Markets," *Journal of Economic Literature*, March 1988, *26*, 29–64.

Smith, Lawrence B., "An Economic Assessment of Rent Controls: The Ontario Experi-ence," *Journal of Real Estate Finance and Economics*, November 1988, *1*, 217–31.

Stegman, Michael, *Housing and Vacancy Report: New York City, 1987*. New York: City of New York Department of Housing Preservation and Development, 1988.

Sternlieb, George, *Urban Housing Dilemma: The Dynamics of New York City's Rent Controlled Housing*. New Brunswick: Center for Urban Policy Research, 1976.

Sweeney, James, L., "Quality, Commodity Hierarchies and Housing Markets," *Econometrica*, January 1974a, *42*, 147–67.

Sweeney, James L., "A Commodity Hierarchy Model of the Rental Housing Market," *Journal of Urban Economics*, July 1974b, *1*, 288–323.

Turner, Bengt, "Economic and Political Aspects of Negotiated Rents in the Swedish Housing Market," *Journal of Real Estate Finance and Economics*, November 1988, *1*, 257–76.

Turner, Margery, "Rent Control and the Availability of Affordable Housing in the District of Columbia: A Delicate Balance." Report prepared for the District of Columbia's Department of Consumer and Regulatory Affairs. Washington, D.C.: The Urban Institute, October 1988.

Tucker, William, "Where Do the Homeless Come From?," *The National Review*, September 1987, *25*, 32–43.

Weber, Shlomo, and Hans Weismeth, "Contract Equilibrium in a Regulated Rental Housing Market," *Journal of Urban Economics*, January 1987, *21*, 59–68.

Werczberger, Elia, "The Experience with Rent Control in Israel: From Rental Housing to Condominiums," *Journal of Real Estate Finance and Economics*, November 1988, *1*, 277–93.

Weibull, Jörgen W., "A Dynamic Model of Trade Frictions and Disequilibrium in the Housing Market," *Scandinavian Journal of Economics*, 1983, *85*, 373–92.

Wheaton, William, "Vacancy, Search, and Prices in a Housing Market Matching Model," *Journal of Political Economy*, December 1990, *98*, 1270–92.