

## *Editors' Summary*

*Brookings-Wharton Papers on Urban Affairs* presents new research on urban economics to a broad audience of interested policy analysts and researchers. The papers and comments contained in this volume, the seventh in the series, were presented at a December 8–9, 2005, conference at the Brookings Institution. The papers treat a range of issues examined by contemporary urban economists, including the effects of population growth and changing income inequality on neighborhood segregation, the economic gains from creating express lanes and charging congestion prices on busy expressways, recent trends in the school achievement gap between white and black youngsters, the impact of neighborhood poverty on barriers to employment, the potential benefits of restructuring local property taxes, and the effects of land use restrictions and jurisdictional fragmentation on sprawl and the price of housing.

U.S. INCOME INEQUALITY rose sharply after 1979, increasing the gap between America's rich and poor. Tara Watson examines some effects of this development on the income segregation of urban and suburban neighborhoods in "Metropolitan Growth, Inequality, and Neighborhood Segregation by Income." Watson begins by observing that neighborhood segregation is particularly malleable when the local housing stock is first built. It is more costly to change the physical characteristics and distribution of amenities after housing has already been constructed. Neighborhoods built when the local income distribution is comparatively equal may reflect this reality. Many neighborhoods in a metropolitan area may have a similar average level of amenities, and the distribution of physical amenities may be similar across a large proportion of neighborhoods. However, an unequal income distribution will give metropolitan residents unequal access to housing amenities. High-income residents can afford dwellings with better amenities, including neighborhood attractions such as safe streets, good schools, and well-maintained parks.

Depending on the connection between residents' incomes and their tastes for housing amenities, it is easy to imagine that higher income inequality will be associated with greater income segregation across neighborhoods. Increased inequality can boost residential segregation in both direct and indirect ways. As incomes grow more unequal, rich and poor households will be less willing or able to spend the same amount of money to live in the same neighborhood. As less-affluent households become more concentrated in selected neighborhoods, there may be feedback effects on neighborhood amenities, further reducing the attractiveness of neighborhoods from which well-to-do households have moved. Watson notes that housing markets can easily accommodate changing preferences induced by changes in the income distribution when the metropolitan population is climbing rapidly. Increased inequality translates into newly built neighborhoods in which there is greater sorting by households' income ranks. On the other hand, in metropolitan areas experiencing population decline, the increased demand for residential segregation may not be large enough to overcome the high cost of retrofitting old homes or building new ones. A big shock in inequality may be needed in stagnant or declining areas to cause a shift in residential segregation patterns.

Watson finds a U-shaped relationship between the rise of residential segregation in metropolitan areas and population growth. The greatest changes in income segregation have occurred in distressed areas with stagnant or declining populations and in areas with rapidly growing populations. There typically has been less change in residential segregation in areas with moderate rates of population growth. Watson also finds support for some of her predictions on the relationship between changing income inequality and residential segregation patterns. As expected, higher income inequality is associated with higher levels of residential segregation by income. Also as predicted, rising inequality has a larger effect on segregation in rapidly growing areas compared with areas with stagnant or declining populations. Large increases in segregation are accommodated with higher-than-expected housing construction in distressed areas, but unexpectedly high rates of new construction are not needed in areas with big population gains. Finally, income segregation tends to be persistent within a metropolitan area, and the persistence is more pronounced in cities with an older housing stock.

FEW URBAN ROADS in the United States impose charges on the motorists who use them. Like many public goods that are provided without charge, urban roads tend to be overused, particularly during rush hour when a large number of drivers want access to a limited number of streets and highways. One

by-product of overuse is traffic congestion, which greatly reduces motorists' average speed. Even though drivers do not pay tolls for using most streets and highways, they do suffer inconvenience as a result of longer commutes at peak driving times. Economists have long argued that the traffic congestion and its attendant welfare costs can be slashed by charging drivers for the privilege of using roads, especially during peak commuting hours. This suggestion is widely unpopular among voters as well as policymakers, who are responsible for managing the urban highway network. As an alternative, planners have set aside special limited-access highway lanes for vehicles containing two or more passengers. In some cases, motorists who are willing to pay a toll are also permitted to use these high-speed lanes.

In "Differentiated Road Pricing, Express Lanes, and Carpools: Exploiting Heterogeneous Preferences in Policy Design," Kenneth A. Small, Clifford Winston, and Jia Yan examine the potential welfare gains that can be achieved using sensible pricing of highway access. In order to assess the political acceptability of different kinds of pricing schemes, the analysts also determine the distribution of welfare gains and losses across different classes of motorists. The authors collected information from drivers who use a ten-mile stretch of California State Route 91 to form estimates of motorists' willingness to pay for faster and more reliable travel times to their rush-hour destinations. This busy Orange County highway has four free lanes and two express lanes in each direction. Drivers who use the express lanes need to establish a financial account and carry a special electronic instrument in order to pay the toll, which varies hourly over the day. At the time of the authors' survey, vehicles containing three or more passengers were able to use the express lanes at a substantial discount.

The authors collected information on motorists' actual driving choices (their revealed preference decisions) as well as their stated preferences under a variety of hypothetical pricing arrangements. Using this information in a sophisticated statistical analysis, the authors examined three interrelated decisions: the decision by motorists to obtain the electronic fare collection instrument, the decision to use the express lane for a particular trip, and the decision to carry two or more additional passengers in order to qualify for a trip discount. The authors assume that motorists' choices are affected by their socioeconomic status as well as the characteristics of the planned travel, including the trip's total distance, the toll, and expected travel time as well as the reliability of the expected travel time across the alternative travel options. After estimating the average preference parameters and the distribution of preferences in the sampled population, the authors use statistical

simulation to compare motorists' choices and well-being under alternative highway pricing regimes.

Among the policy options that the authors examine are the standard high-occupancy vehicle (HOV) policy, which limits express lane use to vehicles containing three or more passengers, and a high-occupancy toll (HOT) policy, which permits toll-paying vehicles containing two or fewer riders to use the HOV lanes. The authors also evaluate the impacts of a policy that assesses the same express-lane toll on all vehicles, regardless of the number of passengers they carry. Finally, they consider policies where tolls are charged both for the use of the express lane and other lanes, but with a higher toll in the express lanes. They consider a variant of this last policy in which high-occupancy vehicles can travel at no charge in either set of lanes. In all cases, the authors use the results of their statistical analysis to select the tolls that maximize the social welfare of the sampled drivers.

Not surprisingly, the policy that imposes rush-hour tolls on drivers in both express lanes and other lanes is the regime that yields the highest social welfare. Traveling times improve markedly, both in the express lanes and in the more congested lanes, and the reliability of travel times improves. However, this policy also causes many individual drivers, especially those from lower-income groups, to suffer losses in consumer welfare. The congestion effects of busy highways are less costly to these drivers than the tolls they would have to pay if highway prices were set so as to maximize social welfare. If the two-toll policy were modified to allow free use of both sets of lanes by high-occupancy vehicles, the welfare gains would also be quite sizable. Again, however, many motorists would consider themselves worse off, because the improvements in travel time and reliability would not be large enough to offset the higher weekly cost of paying highway tolls. The authors' results show why HOV and HOT policies are more politically acceptable than the more efficient two-toll pricing policy. Even though the two-toll policy produces considerably bigger reductions in traffic congestion and commuting time, it causes many travelers to suffer high and very unequal losses in consumer welfare. Furthermore, the largest losses are suffered by drivers in the lowest income groups, because they assign the lowest valuation to their own time and to improvements in travel-time reliability.

The authors investigate a compromise two-toll policy that has tolls below the socially optimal level in order to overcome some of the problems of the other policies. Specifically, it provides more benefits overall than the HOV or HOT lane policies, but compared to the optimal two-toll policy it greatly reduces the percentage of drivers who suffer large welfare losses as a result

of the policy change. The reason for this is that it takes greater advantage of consumers' varying preferences. It provides a choice between two quite different combinations of price and amount of congestion, while still lowering congestion for everyone compared to the situation with no express lanes.

ONE OF THE toughest challenges facing American schools is the achievement gap between black and white children. Recent tabulations by economists Ronald G. Fryer and Steven D. Levitt cast light on the size and persistence of this gap among students in the early years of schooling. When youngsters enter kindergarten, the average language arts score of black children is already 0.40 standard deviations below the average score obtained by white kindergartners. The test-score gap is even larger (0.60 standard deviations) in tests of mathematical reasoning. Even more distressing is Fryer and Levitt's finding that the test-score gap increases steadily in each of the first four years of primary school, rising by approximately 0.10 standard deviations a year. Virtually none of the initial gap or its year-on-year increases can be explained by traditional measures of school resources. That is, the achievement differences between black and white schoolchildren remain essentially the same even when the researchers take account of the differences in school resources available to black and white youngsters.

In their paper in this volume, Richard J. Murnane, John B. Willett, Kristen L. Bub, and Kathleen McCartney replicate and extend Fryer and Levitt's earlier analysis. Their article, "Understanding Trends in the Black-White Achievement Gaps during the First Years of School," is based on a much richer source of information about the family backgrounds of schoolchildren and the classroom environments in which they are educated. When the authors use the same data file analyzed in the earlier study, they duplicate Fryer and Levitt's findings. However, when they replicate Fryer and Levitt's analytical methods using a different and richer data set, their findings differ in three important ways from the earlier results. First, Murnane and his coauthors show that family background variables, which apparently explain much of the black-white achievement gap in kindergarten in the Fryer and Levitt data set, are less successful in explaining the gap in the alternative, richer data file. As Murnane and his colleagues point out, this finding is consistent with most past research on the influence of family background variables. Even after analysts account for the influence of family income and parental education on kindergartners' achievement, most previous studies find there is an important unexplained difference between the achievement scores of black and white school children. Murnane and his coauthors speculate that Fryer and Levitt obtain a different

result because they examine results from achievement tests focusing on a very narrow set of skills. When broader measures of achievement are used, the black-white test score gap cannot be explained using simple measures of family background.

Second, Murnane and his coauthors fail to find any evidence in their alternative data file of a substantial rise in the black-white achievement gap in the first few years of primary school. In fact, the gap actually declines on tests of mathematical reasoning. Although the achievement gap in language arts grows, the increase is much smaller than found in the data set analyzed by Fryer and Levitt. Murnane and his colleagues find little evidence that the resources available to black and white schoolchildren differ noticeably. In one respect, however, there is a difference in the classroom environment. Compared with white schoolchildren, black youngsters are more likely to be taught by a teacher with very little classroom experience, a difference that is apparent in both data sets. It has disquieting implications for student achievement, since most studies find that teachers with little classroom experience are significantly less effective in boosting student achievement than teachers with more experience. This finding suggests one way to improve black youngsters' achievement is to increase the percentage of students who are taught by experienced teachers.

The authors find no evidence for the idea that smaller class size will boost the absolute or relative performance of black schoolchildren. Nor do they find any evidence showing that a master's degree improves the effectiveness of classroom teachers. Based on their analysis of the richer data set, they do find evidence that teachers can improve youngsters' math scores by devoting more time to math instruction, but the authors acknowledge this lesson will be hard for school administrators to put into practice. Legislators and school managers can adopt policies that change average class size or increase the percentage of classroom teachers who have master's degrees, but it is much harder for them to influence teachers' time allocation in the classroom.

HIGH UNEMPLOYMENT AND low rates of labor force participation are common in lower-income urban neighborhoods. A number of theories have been advanced to explain the exceptionally low employment rates of residents in high-poverty neighborhoods. One theory, usually dubbed the *spatial mismatch hypothesis*, explains low employment as a by-product of the physical isolation of high-poverty neighborhoods. According to this theory, residents of low-income neighborhoods are geographically isolated from areas in a metropolitan region where job opportunities are plentiful. Since many residents

in these neighborhoods do not own a car, they must rely on public transportation to get to work. If job openings are not easily accessible along public transportation routes, neighborhood residents may find it hard to locate or hold on to a job. Another theory explains low employment rates as a consequence of the social norms that prevail in many low-income communities. People who live in high-poverty neighborhoods may be isolated from norms elsewhere in the metropolitan area—norms that place very high valuation on the importance of holding a steady job. If their social contacts are limited to people in the immediate neighborhood who are also jobless, residents of high-poverty neighborhoods may be deprived of information or job referrals that can be helpful in finding employment.

If these theories were correct, the policy tested in the Moving to Opportunity (MTO) experiments should have lifted the employment rate of the people who were enrolled in the tested program. The MTO experiments, which began in 1994, were conducted in high-poverty neighborhoods of five large American cities. Families enrolled in the treatment group were offered the opportunity to move out of publicly assisted housing in these neighborhoods and into subsidized housing in neighborhoods with moderate or low poverty rates. Families accepting this offer were provided with intensive counseling to help them find housing in better neighborhoods, and families that were successful in finding qualified housing were given subsidies so they could afford to live in better neighborhoods. To remain eligible for the subsidies, relocated families had to continue residing outside of high-poverty neighborhoods for at least one year. To determine this policy's impact, the experimenters also enrolled a randomly and identically selected sample of families from the same neighborhoods into a control group, which was not offered the special vouchers. By following the moving patterns of people enrolled in the MTO voucher program and the control group, analysts found that the program had a major impact on the neighborhood destinations of people enrolled in the treatment group. People provided with MTO vouchers moved to neighborhoods with noticeably lower poverty rates. Surprisingly, however, the MTO treatment had essentially no impact on the average employment rate of people who were offered the special housing vouchers.

In this volume's essay "Neighborhood Effects on Barriers to Employment: Results from a Randomized Housing Mobility Experiment in Baltimore," Kristin Turney, Susan Clampet-Lundquist, Kathryn Edin, Jeffrey R. Kling, and Greg J. Duncan analyze the MTO findings in an attempt to account for MTO's surprisingly weak impact on employment rates. Although they summarize previously published findings on moving patterns and employment impacts

in the MTO experiments, their main source of information is a set of intensive and open-ended interviews conducted with sixty-seven treatment- and control-group householders enrolled in the Baltimore MTO experiment. More than 4,600 families were enrolled in the experimental and control groups in the five MTO cities, so the people who received qualitative interviews represent only about 1.5 percent of the total MTO sample. The in-depth interviews permitted the authors to develop and investigate hypotheses about the MTO experimental response that are difficult to assess using standard survey data.

The authors note that working-age people in both the treatment and control groups had essentially identical skills and labor market preparation. Since their skills were limited, respondents would have had trouble finding good jobs regardless of where they lived. People in the experimental group who moved to better neighborhoods may have had an advantage finding employment as a result of living near neighbors who both worked and had greater knowledge about possible job leads. Turney and her colleagues conclude, however, that this advantage may have been offset by the fact that the new neighbors knew little about job market prospects in those industries most likely to hire unskilled workers. Moreover, in Baltimore many of the employers interested in hiring unskilled and semiskilled workers, including those in retail and health services, were probably no farther away from high-poverty neighborhoods than they were from the new neighborhoods to which MTO participants moved. Ironically, the new neighborhoods were not as well served by public transportation as the high-poverty neighborhoods from which the MTO participants moved. The authors do find one tantalizing indicator that the move to better neighborhoods eventually may help participants' job prospects. Unemployed respondents in the MTO treatment group tended to express a stronger commitment to remaining in the labor force than their counterparts in the control group. In contrast, many jobless respondents in the control group reported being out of work for a long time, and an important minority of them seemed permanently detached from the labor force. By moving to better neighborhoods, participants in the MTO treatment may have been exposed to norms toward work that differ significantly from the norms prevailing in urban neighborhoods with concentrated poverty.

THE DISTORTIONS IN the timing and density of land development associated with the current property tax system are well known. While land is inelastically supplied, capital is elastically supplied. Therefore the portion of a property tax that falls on land generates no distortion, while the portion of the property

tax that falls on capital discourages capital investment, creating deadweight loss. Even though this distortion is widely understood, no jurisdiction in the United States has decided to implement a pure land tax that would not have any distortionary effects, although some have moved in that direction by implementing a two-rate tax system.

In “Effects of Property Taxation on Development Timing and Density: Policy Perspective,” Richard Arnott illustrates these distortionary effects with a model of the decisions of a landowner with and without taxation. He shows that even at relatively low rates, property taxes can cause substantial deadweight loss. Arnott then analyzes two property tax systems that do not have the distortionary impacts on time and density decisions associated with the current property tax system. He also discusses the political difficulties of moving toward a more efficient property tax system and considers how these challenges might be overcome.

For developed land, a two-rate property tax system has one tax rate on the assessed value of the structure and a second, higher tax rate, on the land. This tax system becomes a simple land tax if the tax rate on the structure is reduced to zero. An ideal two-rate tax system could allow a gradual transition from the current distortionary property tax system to a neutral, nondistortionary tax system. The author recognizes that a sudden dramatic shift in the current property tax system is not politically feasible in view of the fierce opposition of property owners who would be made worse off as a result of the new system. As a way of moving toward a less distortionary tax, Arnott considers the implementation of a more gradual transition scheme. Political opposition to a two-part tax system is not the only concern. Many tax administrators may worry about the practicality or accuracy of available methods to decompose a developed property’s total value into separate values for the site and structure. Assessment offices currently use well-established and reasonably accurate procedures to calculate a developed property’s market value, but new valuation procedures would be needed under a two-rate taxation system.

Arnott describes in detail the difficulties of assessing separately the structure and site value of developed properties. Inaccurate evaluations can undermine the potential benefits of a transition to a two-rate tax system and might increase the distortions produced by a property tax. The key to improvement, as mentioned in the paper, is the ability to assess the raw site value of developed land as “what the land would be worth if there were no structure on the site, even though in fact there is.” If instead the value of developed land is found as the residual site value—that is, the value of the entire property minus the value of the structure on the site—then a move to a two-rate tax system can increase distortion.

The author analyzes possible Pareto-improving property tax reforms. He describes a variety of simple reforms that can be made to property taxation depending on where the current system is located on the Laffer curve. If the taxation system is on the wrong side of the Laffer curve, a reduction in property taxes will make landowners better off while simultaneously increasing government tax revenue. This represents a Pareto-improving tax reform. Arnott describes a possible Pareto-improving tax reform for undeveloped property if a simple property tax is currently located at the top of the Laffer curve. Converting this simple property tax into a two-rate tax system can simultaneously reduce the average property tax rate and increase tax revenues. Consider a two-rate tax schedule with the following two tax rates: The tax imposed on the raw site value of the property is the same as the tax rate under the old, one-rate tax, but the rate on the residual structure is slightly lower. The new tax schedule makes land and property owners better off, because it slightly reduces the rate paid on structures. At the same time, the tax cut encourages extra investment, increasing government tax revenues at the lower tax rates.

Arnott's aim is to influence future discussions of property tax reform. His analysis suggests that even with a modest tax rate the deadweight loss caused by a standard property tax system can be high. He identifies two neutral property tax systems that would eliminate or greatly reduce the deadweight loss and discusses in detail the difficulties in implementing such changes both politically and in terms of performing the necessary assessments. Arnott acknowledges that his simple model does not account for difficulties found in the real world such as land controls, and he does not claim his results would be unaffected by the complications. However, the model does provide a framework for thinking about the distortionary effects of property taxation and its impact on the timing and density of urban property development.

**SUBURBAN SPRAWL**—that is, the decentralization of residential, commercial, and industrial activities from central cities to their suburbs and beyond—has spawned a large and rapidly growing academic literature. This is a literature that generally takes a negative view of the phenomenon, although there is a part of the literature, often by economists, which analyzes the underlying reasons for the decentralization. This analysis usually distinguishes between natural causes of sprawl (such as population growth, income increases, and technological change) and market failures and policy biases. One market failure is the underpricing of automobile use, a problem treated in this volume's paper by Small, Winston, and Yan (described above). An example of a policy bias that encourages sprawl is the tax preference for home ownership, including

both the deduction for mortgage interest and the highly favorable treatment of capital gains on a primary residence.

Edwin S. Mills offers a commentary on this literature in “Sprawl and Jurisdictional Fragmentation.” As is obvious from his title, Mills’s main concern here is the relationship between jurisdictional fragmentation and urban sprawl. Mills views sprawl as a function of density-restricting zoning, which in turn increases commuting distances. As he states in the paper, “If the average commuting distance increases more than would be needed to achieve the same density without controls, controls impair welfare.” This is a definition (or conception) of sprawl that relies, as Mills recognizes, on a view of urban areas that is no longer entirely valid. It assumes jobs are located centrally rather than dispersed. However, the author also emphasizes that no coherent model of decentralized population and employment exists, though one is sorely needed.

Mills proposes an analysis of sprawl and fragmentation based on an industrial organization framework. He points out the analogy between local governments in a metropolitan area and competing firms in an industry. In a traditional analysis of industrial organization, firms within an industry are defined by the high cross-elasticity of demand for their products. Within a metropolitan area, the cross-elasticity of demand for location across jurisdictions should be relatively high. Rules governing entry—that is, the establishment of a new jurisdiction—and the relations of jurisdictions to one another will be important determinants of urban form.

An important part of Mills’s argument about the relationship between sprawl and fragmentation is related to the objective function of municipalities, the jurisdictions that control zoning rules. Mills argues, on the basis of observation in the Chicago metropolitan area as well as observed outcomes elsewhere, that municipalities seek to promote (maintain) high land values. He argues vigorously that to achieve this goal “they segregate the lower- and middle-class residents, especially minorities.” Mills concludes that “the purpose of stringent residential density controls in Chicago and similar metropolitan areas is mainly to segregate moderate income (and especially minority) residents from dwellings in upper-middle-class neighborhoods. The result is excessive housing costs, commuting costs, and sprawl.”

Mills’s proposed remedy for this policy failure is “a free market land allocation system.” As in the case of competitive firms, free entry of new jurisdictions would increase competition and “any jurisdiction that introduced controls resulting in house prices above competitive equilibrium would lose population to competing jurisdictions.”

