

Has Suburbanization Diminished the Importance of Access to Center City?

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In a Business Review article nine years ago, we examined the role that access to Center City Philadelphia (Philadelphia's central business district, or CBD) played in people's choices about where to live and how to commute.¹ That analysis, which was based on 1980 census data, con-

cluded that access to Center City both by car and by public transportation helped shape people's choices in three important ways. First, households with people working in Center City tended to choose residential communities with good public transportation or highway access to Center City.² Second, houses in communities with

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¹"Is Accessibility to Center City Still Valuable?" Federal Reserve Bank of Philadelphia, Business Review, July/August 1991.

²We refer to the process of people choosing residential communities based on accessibility to their workplace as "sorting." Sorting results in people with the same work destination concentrating in communities with easy access to that destination.

commuter rail service to Center City tended to command a premium in the real estate market, although similar premiums were not evident in communities with good highway access to the city. Third, households of similar incomes and family size living in communities with good commuter rail service to Center City tended to own fewer cars, on average, than those living in communities without commuter rail service.

Since 1980, the Philadelphia metropolitan area has undergone a great deal of change. As has been the case in many U.S. metropolitan areas, both population and employment have greatly decentralized in Philadelphia. In light of the dramatic changes in the geographic distribution of people and jobs, we will reevaluate whether access to Center City still has a significant impact on residential location and car ownership in Greater Philadelphia or whether decentralization and the formation of new suburban edge cities have diminished or even eliminated this impact. Reexamination of these relationships reveals that access to Center City continues to play an important role in the housing and transportation choices of many Philadelphia-area residents. While decentralization has not significantly diminished the impact of access to Center City, access to maturing suburban centers such as King of Prussia is affecting suburban residential land values independently of access to Center City.

SUBURBANIZATION, EDGE CITIES, AND CENTER CITY

In the past 20 years, there have been dramatic changes in the Philadelphia metropolitan area. From 1980 through 1999, the region has seen continued, rapid suburbanization, with its attendant low-density development on the urban fringe; the maturation of suburban employment and retail centers into edge cities such as King of Prussia; and a continuing decline in population and employment in the city of Philadelphia. Throughout this period of rapid suburban growth and city decline, however, employment

and population levels in Center City have remained relatively stable.

Suburbanization. Suburban Philadelphia has gained population and jobs over the past 20 years while the city of Philadelphia has experienced significant declines in both population and employment. Suburban population increased most rapidly in the least dense communities. Population in the counties with the lowest density in 1980 — Chester and Bucks in Pennsylvania and Burlington and Gloucester in New Jersey — grew an average of 23.9 percent from 1980 to 1998, reaching an average population density of 568 people per square mile in 1998.³ In Pennsylvania, Montgomery County, which, in 1980, was more than twice as dense as the average of the four least dense counties, grew 11.9 percent from 1980-1998, reaching a density of 1490 people in 1998. Camden County, with 2122 people per square mile in 1980, had even slower population growth of 7.1 percent. The population of Delaware County — the suburbs' densest county with 3013 people per square mile in 1980 — declined 2.2 percent. The city of Philadelphia, which had 12,496 people per square mile in 1980 — dramatically more dense than its suburban counterparts — saw its population decline 14.9 percent.⁴

The same pattern of suburbanization emerges when one looks at job growth. From 1980 to 1997, the most rapid job growth occurred in the four least dense counties, paralleling the pattern of population growth. Jobs in Bucks, Chester, Burlington, and Gloucester counties increased more than 50 percent. Jobs in Montgomery County increased slightly less than 50 percent, and jobs in the densest suburban counties,

³In this discussion we are focusing on the eight counties that defined the metropolitan area before Salem County was added in 1993.

⁴The boundaries of the city of Philadelphia are also the boundaries of Philadelphia County.

Camden and Delaware, increased less than 30 percent. The city of Philadelphia lost 8.5 percent of its jobs during this period.

Edge Cities. Although the most rapid growth occurred in the least dense parts of the metropolitan area, several suburban employment and retail centers emerged into fully developed edge cities, one of which is King of Prussia in Montgomery County.⁵ Edge cities differ from their older CBD counterparts in three important and related ways. First, edge cities are auto-oriented. Public transit has an insignificant market share for travel to edge cities, which are accessible to a large geographic market by highway. Second, the auto-orientation is associated with development patterns in edge cities that are much less dense than older cities like Philadelphia, which are more dependent on public transportation. Upper Merion, the township where King of Prussia is located, does not have exceptionally high population or employment densities.⁶ Third, edge cities are dominated by private rather than public space, a situation consistent with the primacy of the private mode of transportation. Commercial and retail centers in suburban areas are often malls, office parks, or shopping centers that are privately controlled. Edge city shoppers and workers typically depart from their

homes in private automobiles and arrive at their destination without ever venturing into a public space except within the confines of their cars. This contrasts with the experience of workers in older central city areas who may use public transportation, and almost certainly use public sidewalks, to arrive at their destination.

Given these differences, one might ask whether proximity to an edge city would generate the same type of patterns for land values that we documented for Center City Philadelphia using 1980 census data.⁷

Center City Philadelphia. Despite the city's overall decline in both population and jobs, Center City experienced increases in both, at least from 1980 to 1990. Population appears to have increased in the 1990s as well, but employment in the CBD slipped, especially in the first half of the decade. The relatively good health of Philadelphia's CBD runs counter to two important trends: (1) the trend toward lower residential and employment density, since Philadelphia's CBD is by far the densest agglomeration of population and employment in the region, and (2) the trend toward increased auto ownership and an improved highway system, since Philadelphia's CBD depends heavily on public transportation.

The population and employment densities of Center City Philadelphia are dramatically higher than anywhere else in the region. The traditional boundaries of Center City include only 2.5 square miles of land, yet in 1990, 45,647 people lived in Center City and 241,169 worked in those 2.5

⁵Joel Garreau, author of *Edge Cities: Life on the New Frontier* (New York: Random House, 1991), lists three edge cities in the Philadelphia metropolitan area: King of Prussia and Willow Grove in Pennsylvania and Cherry Hill in New Jersey. Garreau offers a five-part definition of edge cities: an edge city (1) has five million square feet or more of office space; (2) has 600,000 square feet or more of retail space; (3) has more jobs than bedrooms; (4) is perceived by the population as one place; and (5) was nothing like [a] 'city' as recently as 30 years ago.

⁶In 1990, 25,722 people lived in Upper Merion Township's 17.33 square miles, a population density of 1484. Employment density in 1990 was 2321 jobs per square mile, which is lower than employment densities of older suburban towns, such as Norristown, Pennsylvania, that predate the dominance of the automobile.

⁷A number of papers have examined the relationship between land values and access to employment centers other than the CBD. See, for example, the papers by P. Waddell, B.J.L. Berry, and I. Hoch, "Residential Property Values in a Multinodal Urban Area: New Evidence on the Implicit Price of Location," *Journal of Real Estate Finance and Economics*, 7 (1993), pp. 117-41; and J.F. McDonald and D.P. McMillen, "Employment Subcenters and Land Values in a Polycentric Urban Area—The Case of Chicago," *Environment and Planning A*, 22 (1990), pp. 1561-74.

square miles.⁸ Center City's population density in 1990 was 18,259 per square mile; no suburban township approaches that level of density. Center City's population is more than 10 times higher than that of Upper Merion, where King of Prussia is located.⁹ Similarly, employment density in Center City is extremely high — 96,468 jobs per square mile in 1990. Center City's employment density is more than 40 times greater than that of Upper Merion Township.

Even though Center City has not suffered as severe a decline in jobs as the rest of the city, it now represents a considerably smaller share of the metropolitan economy than it did 20 years ago. As a share of metropolitan employment, Center City employment fell from 10.9 percent in 1980 to 9.9 in 1990; Center City's share has continued to decline in the 1990s. Although employment in the CBD increased slightly in the 1980s, private employment fell in the early 1990s during and after the national recession. However, Center City employment rebounded somewhat in the second half of the decade, according to estimates from the Center City District.

While Center City has become a smaller part of the metropolitan economy, it has become a more important source of jobs for city residents.

In 1990, 157,577 CBD workers, or 65 percent of the total, were city residents, an increase of more than 11,000 from the previous decade. On the other hand, in 1990, 83,592 CBD workers, or 35 percent of the total, were suburban residents. The number of suburban residents working in the city fell by almost 6000 from 1980 to 1990. Thus, not only has Center City's relative share of metropolitan employment declined, its share of employment of suburban residents has fallen even more.

The changing development patterns in Philadelphia, which are similar to those in many U.S. metropolitan areas, raise a number of questions about the continuing validity of earlier work on the importance of access to the CBD. In particular, has the declining share of Center City employment eliminated residential sorting across suburban communities based on access to the CBD? Has the decentralization of economic activity reduced the impact of CBD-oriented public transportation on people's investment in automobiles? Does the availability of commuter rail service still enhance house values? And finally, what effect has the maturation of edge cities like King of Prussia had on the value of access to employment centers as reflected in house prices?

1980 TO 1990: TRANSPORTATION TO CENTER CITY IS STILL IMPORTANT

What impact has decentralization had on households' choices of which community to live in, how many cars to purchase, and how much to pay for a house? To answer these questions, we'll examine changes in patterns from 1980 to 1990 using census data at the tract level. In particular, we'll assess what effect the suburban census tract's access to the CBD has on the percent of people in the tract who work in the CBD, car ownership per household, and the value of housing. Later, we'll look at changes from 1990 to 1998 for Montgomery County, a suburban county for which more recent and more detailed housing data are available.

⁸The boundaries of Center City Philadelphia used here are from South Street to Vine Street and from the Schuylkill River to the Delaware River. Others use broader definitions of Center City; the Center City District, an assessment-funded, privately managed business development organization for Center City, for example, extends the boundaries and claims a population of 75,000 and employment of over 300,000 (1998 data). The employment data are based on Census Journey to Work files, from which one can obtain the number of people in each metropolitan-area census tract who work in Center City.

⁹The population density of the entire city of Philadelphia remains very high as well—11,734 people per square mile in 1990, although this figure declined to 10,631 in 1998.

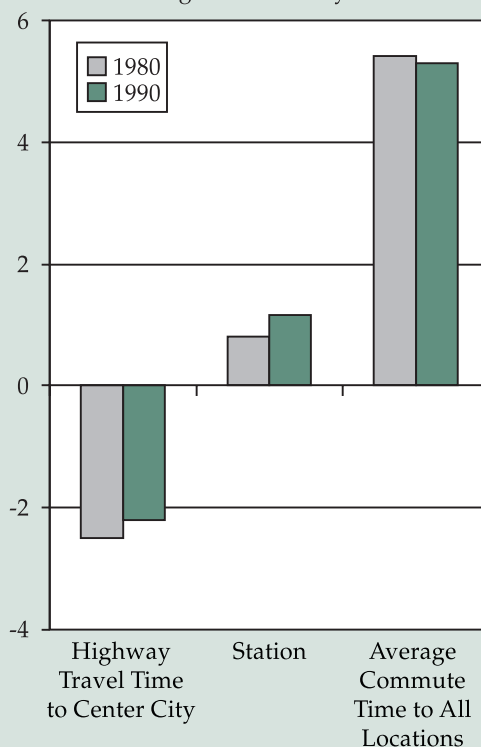
Access to Center City and Location of Residence. The first question raised was whether suburban communities with good transportation access to Center City had disproportionately larger shares of residents who worked in Center City. To analyze this issue, we estimated a statistical model to learn how the percent of people in a census tract who worked in Center City depended on the average commute time by car to Center City, the proximity of the tract to commuter rail service, and the average commute time of people who live in the tract to other work locations.¹⁰

To put the issue of Center City workers' choice of community in perspective, keep some basic facts in mind. In 1990, on average, only 4.84 percent of the labor force in a suburban census tract worked in Center City. This figure was one-fifth lower than the 1980 figure of 6.15 percent. This percentage varies widely across census tracts: some suburban tracts have nearly 20 percent of their residents working in the CBD, yet 74 tracts, or more than 8 percent, have no residents who work in the CBD.

Figure 1 summarizes the effect of access on the percent of people working in Center City Philadelphia. Estimates are presented for both 1980 and 1990. First, let's examine the role of highway commute time to Center City. In 1980, a community that was a 30-minute commute to Center City would have fewer workers (2.4 percentage points fewer) traveling to Center City than would a community 20 minutes away. Our new work shows that further decentralization between 1980 and 1990 appears to have had little impact on the relationship between highway access and residential sorting. Although the 1990 estimate was slightly lower than the 1980 estimate, there was no statistically significant dif-

FIGURE 1
Effect of Access To Center City on the Percent of Residents In a Census Tract Who Work in Center City

Change in the Percent of People in Tract Working in Center City



Highway Travel Time to Center City shows the effect of a 10-minute increase in auto travel time.

Station shows the effect of having commuter rail service in or close to the census tract.

Average Commute Time to All Locations shows the effect of a 10-minute increase in auto travel time to all work locations of people in the census tract.

¹⁰See my article "Transportation, Sorting and House Values," *Journal of the American Real Estate and Urban Economics Association*, 19 (1991), pp. 117-37, for a detailed description of the statistical model.

ference between the two estimates of the impact of commuting time on sorting.

Just as communities with good auto access to Center City had greater shares of people working in the CBD, communities with commuter rail service also tended to have greater fractions of their labor force working in Center City. In 1990, commuter rail service added 1 percentage point to the fraction of people in the census tract working in the CBD (second pair of columns in Figure 1). While this may seem like a small amount, it represents an increase of more than one-fifth over the average fraction of people working in the CBD. The impact of the commuter rail system on sorting appears to have increased from 1980 to 1990. This is surprising, given the increase in nonwork destinations that are accessible primarily by car. As more and more nonwork trips are made to scattered destinations, we would expect that the work commute, especially by public transportation, would become less important.¹¹

Finally, consider the impact of the overall average commute time regardless of where people work. Because we explicitly measured the impact of commute time to Center City, this variable is essentially a measure of how convenient a location is for commuting to destinations other than Center City. As we would expect, a community that has poor access to other destinations has a greater percentage of people working in Center City, all other things equal. The impact of a 10-minute increase in commuting time is a little greater than 5 percentage points, and it has changed little from 1980 to 1990 (third pair of columns in Figure 1). While this may seem like a

relatively large impact, the average commute time to all destinations seldom varies by 10 minutes in the data.¹² The average commute time in most tracts is very close to the average of 23 minutes for all tracts.

Access to Center City and Car Ownership. Average car ownership per household in a suburban census tract was 1690 cars per 1000 households in 1990, slightly above the 1980 level of 1650.¹³ A number of factors affect car ownership; household income and household size are two important ones. In addition, there are two reasons why we would expect access to Center City to affect car ownership. First, communities farther from Center City are most often less dense, making the opportunity for sharing rides or walking less attractive, so households in these communities may have a greater need for multiple cars. Second, for communities with commuter rail service, this service may be a viable substitute for an additional car for some families. We estimated statistical models to evaluate the effect of access on car ownership, after taking into account differences in household income and family size.

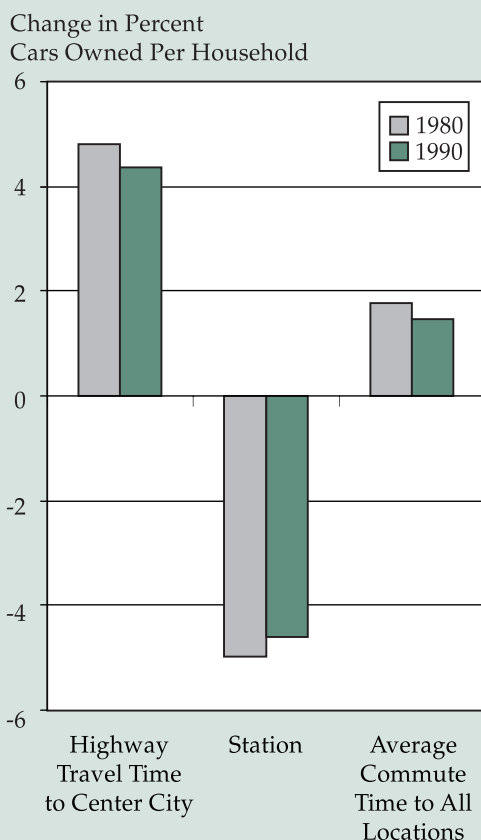
The effects of our measures of access on car ownership for 1980 and 1990 are summarized in Figure 2. Households of similar income and family size, but with shorter travel times to Center City, tend to own slightly fewer cars than households in more distant communities. On average, households in suburban communities located 30 minutes by car from Center City would own roughly 4.4 percent more cars than would average households 20 minutes from Center City (first pair of columns in Figure 2). This increase would mean about 75 more cars per thousand

¹¹One reason for the increase in the measured impact of commuter rail service on sorting is that between 1980 and 1990 several distant low-ridership stations were eliminated. Assuming that the impact of these underused stations on sorting is lower than average, their elimination would enhance the measured impact of the remaining stations on sorting.

¹²The standard deviation of this variable in 1990 was only 3.7 minutes.

¹³These figures are the unweighted averages of the mean number of cars per household in the census tracts in the Philadelphia suburbs.

FIGURE 2
Effect of Access on
Car Ownership Per
Household



Highway Travel Time to Center City shows the effect of a 10-minute increase in auto travel time.

Station shows the effect of having commuter rail service in or close to the census tract.

Average Commute Time to All Locations shows the effect of a 10-minute increase in auto travel time to all work locations of people in the census tract.

households in a community. The impact as measured in 1990 is slightly smaller than that measured in 1980.¹⁴

Households in communities with commuter rail service own 4.6 percent fewer cars than households in communities without commuter rail service, a little less than 80 fewer cars per 1000 households (second pair of columns in Figure 2). Again, the 1990 impact is slightly smaller than that in 1980, although the difference is not statistically significant. Finally, people who live in tracts that involve longer average commutes to locations other than Center City tend to own more cars (third pair of columns in Figure 2). The bottom line is that communities with good access to Center City and to other destinations rely less on cars.

Access and House Values. Basic urban economic theory suggests that prices for similar houses in similar neighborhoods should rise as access to an economic center improves.¹⁵ Thus, houses in neighborhoods close to Center City should have higher prices than similar houses in more distant communities. Likewise, houses in communities with commuter rail service should have higher prices than similar houses in communities without commuter rail service. To examine the effects of access on house values, we constructed statistical models that take into account the effect that some basic differences in houses and neighborhoods have on house prices

¹⁴The difference between the 1980 and 1990 estimates is not statistically significant.

¹⁵That house prices do not fall with distance from Center City is not altogether inconsistent with the basic urban model. For example, if crime rates are higher in the center, and if the negative impact of crime in the center spills over to adjacent communities but also diminishes with distance from the CBD, the negative impact of these spillovers may mask the value of access. Thus, access for work and leisure could be highly valued, but unless the influence of higher crime rates in the city is controlled for, the value of access will be understated in the statistical analysis.

and that give us estimates of the impact of access.

We examine the relationship between access and house values separately for Pennsylvania and New Jersey suburbs because there are significant differences between the two states.¹⁶ As basic urban theory suggests, 1990 prices for otherwise similar houses fall with distance from Center City in the Pennsylvania suburbs (first pair of columns in Figure 3a), but contrary to theoretical predictions, 1990 prices for similar houses in the New Jersey suburbs rise with distance (first pair of columns in Figure 3b). House values in Pennsylvania in 1990 fell a statistically significant 2.0 percent with a 10-minute increase in travel time to Center City. In contrast, in 1990, house prices in the New Jersey suburbs increased a statistically significant 8.6 percent with a 10-minute increase in commuting time to Center City.

Part of the strong positive effect of travel time from New Jersey to Center City may be explained by the fact that Philadelphia's nearest suburban neighbor in New Jersey is Camden, a severely distressed urban area that is still treated as part of suburban Camden County. The weak housing values in Camden tend to skew the relationship between house prices and travel time. While this is part of the story, attempts to statistically isolate the city of Camden from the analysis still yield a positive, though smaller relationship between travel time to Center City and suburban New Jersey house values.

Access to Center City by commuter rail service carries a positive value in the housing market. The premium for houses in communities with commuter rail service, as a percentage of house value, did not diminish from 1980 to 1990, despite Center City's declining share of regional

employment. There are significant differences in the premium between Pennsylvania and New Jersey. In Pennsylvania, where the geographic coverage of commuter rail service is greater but the service is less frequent than in New Jersey, the premium for commuter rail service was only about 6 percent in 1990 (second pair of columns in Figure 3a). On the other hand, in New Jersey, where train service is limited geographically but offers very frequent service for the communities it serves, commuter rail service generates high premiums, about 16 percent of house value in 1990 (second pair of columns in Figure 3b).¹⁷

Finally, the measure of access to all communities has virtually no impact on suburban house values, either in Pennsylvania or in New Jersey. The slight positive effect of a 10-minute increase in average commute time for Pennsylvania suburbs shown in the third pair of columns in Figure 3a is not statistically significant, nor are the negative effects shown for New Jersey in the third pair of columns of Figure 3b, even though the 1990 impact in New Jersey is larger than the 1980 impact. The lack of significant impact of average access is consistent with the idea that most suburban communities have reasonably good access to employment centers other than Center City.

1990 TO 1998: CENTER CITY, KING OF PRUSSIA, AND ACCESS PREMIUMS

Despite rapid suburbanization from 1980 to 1990, access to Center City continued to influence households' choices about where to live

¹⁶In 1980 there was no statistically significant relationship between distance from Center City and prices of similar suburban homes. In 1990 there was.

¹⁷The greater frequency of service in New Jersey is supported by subsidies that are about double those per mile of service in Pennsylvania. Note, however, that the subsidies per rider are much lower for the New Jersey service than for the Pennsylvania service because of its higher ridership per mile of rail service. See my article "Public Transit: Realizing Its Potential," Federal Reserve Bank of Philadelphia, Business Review, September/October 1991, for a discussion of this issue.

FIGURE 3a
Effect of Access on
House Values in the
Pennsylvania Suburbs

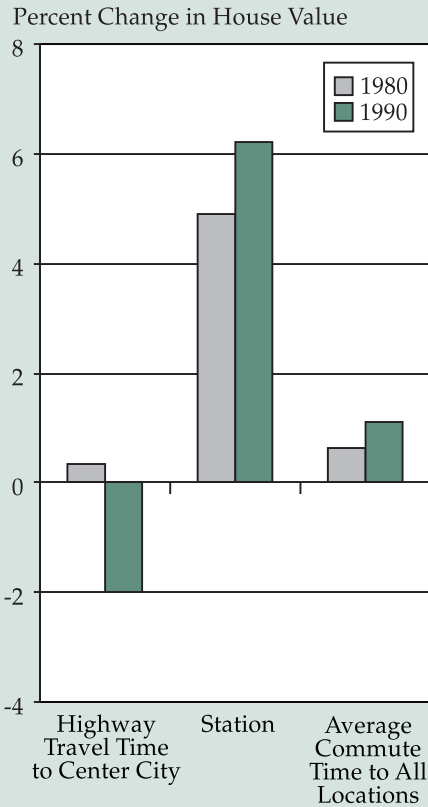
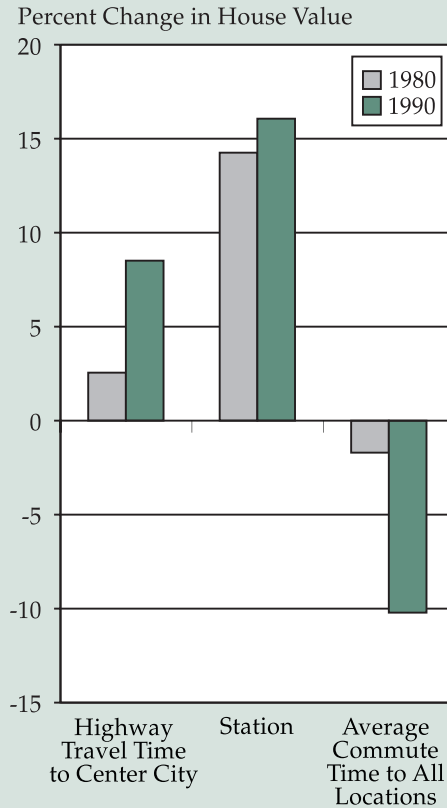


FIGURE 3b
Effect of Access on
House Values in the
New Jersey Suburbs



Highway Travel Time to Center City shows the effect of a 10-minute increase in auto travel time.

Station shows the effect of having commuter rail service in or close to the census tract.

Average Commute Time to All Locations shows the effect of a 10-minute increase in auto travel time to all work locations of people in the census tract.

and how to commute. However, change has continued throughout the 1990s. In response to continuing decentralization, has the value of access to Center City eroded in the 1990s? Has access to other economic centers, such as King of

Prussia, resulted in a significant impact on residential land markets?

Using an extensive data set of housing transactions in Montgomery County, we can examine the role of access not only to the CBD but also to

edge cities from 1990 through 1998.¹⁸ The data are geocoded so that we can compute highway distances not only to Center City but also to the region's largest edge city, King of Prussia. The data also have much finer detail on housing traits, so that we can obtain more precise estimates of the effects of access on value. We can measure the value of access to King of Prussia by car, just as we measured the value of auto access to Center City. In addition, we can trace the changes in the effects of access on house values since 1990 to get a more up-to-date understanding of the roles of the CBD and edge cities in the metropolitan area. Just as we did for the census tract data, we constructed statistical models that take into account the differences across households and neighborhoods so that we can isolate the effects of access on house prices.¹⁹

¹⁸The data on Montgomery County housing sales provide a useful check on the census tract findings for 1980 and 1990. There are substantial similarities in the role of access for Montgomery County compared with the findings based on census tract data for the Pennsylvania suburban area. For example, the premium for commuter rail service in 1990 was a modest 2.9 percent of house value, considerably lower than the 6.2 percent found for all Pennsylvania suburbs based on census tract data, but close to an estimate of 3.2 percent that we obtain using census data for Montgomery County only. For 1980, the premium was 3.2 percent based on individual house-value data for Montgomery County, 4.9 percent for all Pennsylvania suburbs using census tract data, and 2.5 percent for Montgomery County using census tract data. Prices for otherwise similar houses decline with distance from the CBD, a result consistent with the findings based on census tract data for the Pennsylvania suburbs as a whole. But the findings are not directly comparable because the census-based findings are based on travel time, not distance.

¹⁹There are three important differences between the analysis based on the census data and the Montgomery County housing transactions data. The Montgomery County housing transactions data measure access to both Center City and to King of Prussia; our highway access measure is based on distance, not on travel time as was the case with the census data; and the effects of

Center City Access Premiums in 1998: Montgomery County. The most recent data on house sales suggest that, for Montgomery County at least, the house-value premium associated with access to Center City has diminished somewhat. The increase in value associated with neighborhoods with commuter rail service diminished from 2.9 percent of house value in 1990 to 1.4 percent in 1998, a number not statistically different from zero. While we do not have hard evidence on why the premium fell, there are three potential explanations: (1) Center City became less attractive; (2) the attractiveness of driving to Center City increased relative to taking the train; and (3) other destinations not served by the commuter rail system became more attractive, raising house values in communities near them.

Surveys by the Center City District reveal that the overall environment of Center City has improved in recent years, suggesting that the declining premium for access to Center City is not due to deteriorating conditions. Mergers and corporate downsizing, however, have adversely affected Center City employment for most of the decade. Declining attractiveness of the train is likely to be only a small factor in the declining premium, given that ridership has been increasing in recent years and Center City parking prices remain high. Several major highway investments in the 1990s, however, improved auto

access, whether to Center City or to King of Prussia, are not forced to be uniform across space. Specifically, the effect of distance to either King of Prussia or Center City is not forced to be linear with the log of house value. This means that one mile added to a 10-mile commute to Center City may be valued differently from an additional mile added to a 40-mile commute. Effectively, this allows for the possibility that as one gets farther from an economic center, the center's influence on housing markets diminishes. Finally, the data for Montgomery County allow for a richer set of statistical controls for housing traits. See my paper "The Suburban Housing Market: Effects of City and Suburban Employment Growth," *Real Estate Economics*, 27 (1999), pp. 621-48, for a description of these housing traits.

access to the city and may have adversely affected the premium for train service. It seems likely that the most important factor in the declining premium is that extensive decentralization has increased the attractiveness of houses in locations that are not particularly accessible to Center City. As the value of these residential locations increases, the premium paid for access to Center City declines, even if Center City remains an attractive destination.

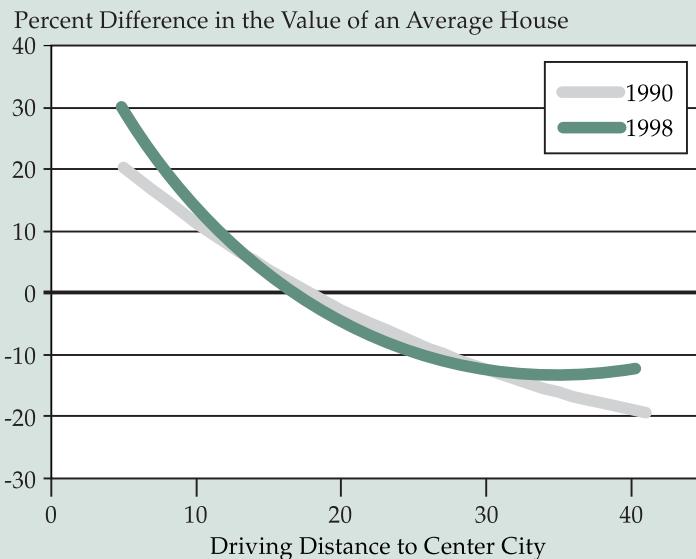
The increasing desirability of locations without good access to Center City can also be seen in the changing premiums for good highway access to Center City (Figure 4). This figure shows the changes in housing prices based on access by auto to Center City, specifically the percentage difference in value of an average house depending on its distance from Center City for both 1990 and 1998. In both years, prices fell sharply with distance from Center City, at least initially. The premium for highway access to Center City in Montgomery County is much larger than the measured premium for the suburbs as a whole. In 1998 houses in communities about five miles from the city cost nearly 20 percent more than similar houses just 15 miles from Center City. While in both 1990 and 1998 value declines as one moves away from the city, the 1998 path begins to diverge from the 1990 path at a point about 30 miles from Center City. In 1998, prices actually increase slightly after 35 miles. Although Center City's influence was undiminished within a range of 30 miles, the fact that prices do not

decline much beyond 30 miles indicates that the range of influence of Center City diminished somewhat between 1990 and 1998.

King of Prussia Access Premiums: Montgomery County. Just as we measured the effect of highway distance from Center City on house values, we also measured the effect of highway distance to King of Prussia on house values. In general, the magnitude of the impact of access to King of Prussia is much smaller than that for Center City. This is not surprising, given that King of Prussia is much more spread out than Center City and has considerably fewer jobs. Still, estimates of the impact of access to King of Prussia are very interesting, especially for their differences between 1990 and 1998.

In 1990, house prices fell with distance from King of Prussia proportionally. Prices one mile from the King of Prussia mall were almost 7 per-

FIGURE 4
Effect of Distance from Center City
On House Values in
Montgomery County



cent higher than the prices of comparable houses 15 miles away and nearly 12 percent higher than houses 25 miles away (Figure 5). Our measurements for 1998, however, changed considerably. In 1998, there is no premium for living very close to King of Prussia, and in fact, house prices rise modestly up to almost 10 miles from King of Prussia.²⁰ Beyond 10 miles, prices decline rapidly until prices of houses 30 miles from King of Prussia are more than 24 percent lower than prices of similar houses that are only 10 miles from King of Prussia. One interpretation of this pattern is that the rapid commercial growth of King of Prussia has had some negative consequences, such as congestion near the center, that reduce house values, so that prices rise initially with distance.²¹ By the same token, the growth of King of Prussia has enhanced its value as a destination; hence, house prices drop off rapidly as commuting distance extends beyond 10 miles.

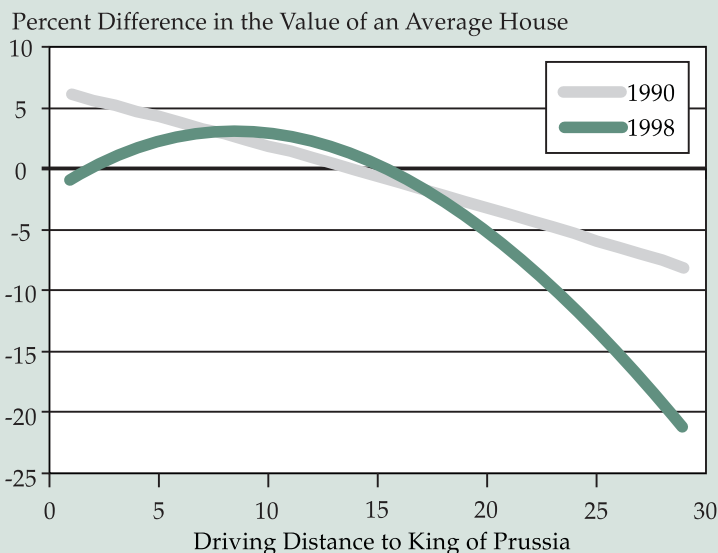
²⁰Given the precision of the estimation, the differences between the 1990 and 1998 estimates are not significantly different from each other statistically in terms of the average levels of the premium. However, we can statistically reject the fact that the 1998 impact is linear with distance while that finding cannot be rejected for the 1990 data.

²¹Another potential reason for this pattern is that King of Prussia is a dispersed employment location but our distance measurements are taken from a single point. Prices may not actually drop off for several miles from our point of measurement because these properties remain essentially in or very close to the employment and shopping areas in King of Prussia.

CONCLUSION

Examination of the 1990 census data and data on housing sales for Montgomery County through 1998 indicates that despite the declining relative share of the employment market, Center City Philadelphia continues to have important effects on suburban land and transportation markets. Highway and transit access still plays a significant role in Center City workers' choice of suburban residences and a modest, though statistically significant role in decisions about car ownership. It also has a considerable impact on the value of residential housing. There is evidence that the geographic extent of this influence declined somewhat in the 1990s as suburban communities continued to grow rapidly. Premiums in house values for public transit access to the CBD remained large through 1990, but recent data for Montgomery County indicate

FIGURE 5
Effect of Distance from King of Prussia on House Values in Montgomery County



that, at least for one county, this premium diminished considerably in the 1990s.

Highway access to King of Prussia generates significant house-value premiums, although this impact is not as large as that associated with access to Center City. From 1990 to 1998, changes in premiums for access to King of Prussia suggest that the declines in value are associated with distances beyond 10 miles from King of Prussia. These declines became more pronounced in the 1990s, indicating that the value of access to King of Prussia has increased over time.

Is continued decentralization likely to change

the pattern of housing values and transportation choices in the suburbs? As many of the suburban employment centers close to Philadelphia approach maturity, it would not be surprising if additional suburban growth on the urban fringe or in new, more distant suburban centers would have little impact on the residential patterns or transportation choices of residents of suburban communities close to the city. Growth on the metropolitan fringe may simply be too distant to be affected by access to Center City or, if decentralization continues unabated, even by access to mature edge cities.