

approximately an 8% reduction in home values. The corresponding impact on time on market is not statistically significant at any conventional level, providing initial evidence that the externality is primarily capitalized into home prices, rather than liquidity. Indeed, columns 2 and 3 show that homes sold for approximately 6% or 5% less if they were located within 0.15 miles or 0.175 miles of a rehab center, respectively. While qualitatively similar, these coefficient estimates also provide some evidence that the externality may be diminishing in distance, as additional, further properties are included in the latter estimates. The regressions tabulated in columns 5 and 6 tell approximately the same story as column 4, in that there is little evidence that rehab centers have a statistically significant impact on a home's liquidity.

The real estate literature has not adopted a single way to control for spatial heterogeneity. In Exhibit 3 we examine a few common alternatives to controlling for location. The initial estimates in Exhibit 2 use ZIP Codes to control for spatial heterogeneity. In Exhibit 3, we use census tract fixed effects (columns 1 and 4), block group fixed effect (columns 2 and 5), and block fixed effects (columns 3 and 6). Census tracts, according to the U.S. Census, are "small, relatively permanent statistical subdivisions of a county ... designed to be homogenous with respect to population characteristics, economic status, and living conditions."<sup>14</sup> Census block groups are subsets of census tracts; and, blocks are further subsets of block groups. One can think of these as different measures of "neighborhoods," broadly to more narrowly defined. The results from the price regressions in Exhibit 3 are consistent with Exhibit 2, falling within a fraction of a percentage point of one another, with an effect of approximately 7.2% to 7.9%. Columns 4–6 in Exhibit 3 also show that substance abuse treatment centers are not associated with a statistically significant impact on nearby property liquidity. Overall, it is clear that the estimates of the effect of a substance abuse treatment center on nearby real estate is not particularly sensitive to the choice of location controls, providing evidence that the external effect of substance abuse treatment centers is robust.

### *Simultaneous Equation Results*

When price and time on market are modeled within a simultaneous 3SLS system of equations, the estimated effect of a nearby substance abuse treatment center on home price and liquidity are similar to the OLS results, finding that nearby substance abuse treatment centers are associated with an approximately 8% drop in home values (within 1/8 mile). Column 1 in Exhibit 4 displays this result. Like the initial OLS results, the 3SLS estimations also show that substance abuse treatment centers have little impact on nearby property liquidity, as the externality appears to be capitalized into price exclusively. Exhibit 4 provides additional evidence that the external impact of substance abuse treatment centers is robust to multiple modeling approaches that are common in empirical real estate studies.

Exhibit 4 also provides evidence that not all substance abuse treatment centers may be perceived by nearby residents as presenting equal risk. It is possible that methadone clinics have a greater NIMBY sentiment from the broader community. We test this proposition empirically by exclusively examining the effect of

Exhibit 3 | Effect of a Nearby Rehab Center on a Home's Price and Liquidity with Different Location Controls

	Dependent Variable: $\ln(\text{Sale Price})$			Dependent Variable: $\ln(\text{Days on Market})$		
	(1)	(2)	(3)	(4)	(5)	(6)
Rehab Center $\leq 1/8$ Mile	-0.0720** (-2.01)	-0.0787** (-2.16)	-0.0744** (-2.25)	-0.0695 (-0.41)	-0.0919 (-0.55)	-0.0520 (-0.32)
$\ln(\text{Age of Home})$	-0.0683*** (-36.51)	-0.0668*** (-39.52)	-0.0650*** (-48.49)	0.0066 (0.87)	-0.0111 (-1.50)	-0.0110** (-2.39)
Acres	0.0200*** (17.12)	0.0209*** (20.28)	0.0201*** (24.52)	0.0372*** (9.82)	0.0589*** (12.25)	0.0552*** (23.18)
Sq. Ft.	0.0002*** (14.20)	0.0002*** (13.45)	0.0002*** (14.30)	0.0000** (1.96)	0.0001*** (4.91)	0.0001*** (7.83)
Bedrooms	0.0004 (0.08)	0.0038 (0.71)	0.0046 (1.12)	0.0356*** (3.56)	0.0148 (1.34)	0.0202*** (2.81)
Bathrooms	0.0404*** (7.09)	0.0394*** (7.06)	0.0383*** (7.96)	-0.0495*** (-5.08)	-0.0441*** (-4.00)	-0.0463*** (-5.91)
Foreclosure	-0.1546*** (-24.91)	-0.1482*** (-27.52)	-0.1401*** (-32.23)	-0.4062*** (-19.06)	-0.4258*** (-18.46)	-0.4239*** (-21.16)
Number of Levels	-0.0032 (-1.08)	-0.0012 (-0.46)	0.0022 (0.96)	0.0202*** (2.65)	-0.0078 (-0.78)	0.0010 (0.16)
Pool	0.0355*** (4.99)	0.0333*** (5.69)	0.0289*** (8.30)	0.0126 (0.43)	0.0159 (0.48)	0.0219 (1.07)
Basement	0.0231*** (3.52)	0.0193*** (3.89)	0.0152*** (4.88)	0.0400*** (2.77)	0.1021*** (6.03)	0.0865*** (8.86)
Short Sale	-0.0822*** (-14.38)	-0.0818*** (-14.82)	-0.0817*** (-14.83)	0.3531*** (18.52)	0.3422*** (17.81)	0.3410*** (18.39)
Tenant	-0.0729*** (-14.28)	-0.0721*** (-16.27)	-0.0702*** (-18.31)	0.2570*** (13.10)	0.2966*** (14.02)	0.2882*** (15.87)