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Creating the Data Set Used in This Report

Regression Analysis Restricted to New Construction. The Department of Housing Preservation and Development (HPD) provided IBO with data on 1,454 housing projects financed from fiscal years 2010 through 2015 that have at least one unit counted towards a mayoral housing plan. The data included both preservation and new construction projects. The preservation of affordable units refers to units where steps have been taken to allow existing affordable units to remain inhabitable and economically viable; preservation can range from debt refinancing to gut rehabilitation or some combination of both. The data did not distinguish between the range of preservation types, making it difficult to compare different types of preservation projects with each other and with new construction. For this reason, the regression analysis was limited to new construction projects.¹

HPD Provided Data at Building and Project Levels. HPD provided two sets of data for 2010 through 2015. The first data set included the number of units reserved at different levels of affordability—extremely low income, low income, moderate income, middle income—at the building level, which corresponds to borough, block, and lot identifiers used for property tax administration. The second data set is cost data at the project level (projects can consist of one or more buildings or tax lots). HPD records final construction cost budgets for all projects where at least one unit of affordable housing is counted towards the city’s affordable housing goals.² HPD collects a final construction budget for each project at the finance closing, the point in time at which any affordable units are then counted towards a housing plan goal. Because HPD does not collect information on total construction costs once a project is completed, final budgeted construction costs are used as a proxy for actual construction costs in this report.

Cost reporting reflects the cost for the number of affordable units HPD is counting towards a housing plan goal. For projects with market-rate housing, the total project cost is prorated down to the affordable development cost based on the number of affordable units, and the prorated amount is recorded by HPD to correspond with the affordable units HPD counts towards a housing plan goal. Because of this reporting format, construction costs were evaluated while controlling for the number of affordable units rather than total project units.

Building-Level Data Matched to RPAD Property Records. Building-level data was compiled for all six years in the study, and then projects labeled as preservation were removed. Community districts were identified for buildings by borough, block, and lot. Properties were matched to the Department of Finance’s property tax database (RPAD), but the usefulness of building-related data in RPAD was limited because a subset of projects, particularly ones financed in 2015, were not yet reflected on the property tax rolls. Either new lots were subdivided out of old block and lot parcels that do not yet appear in RPAD, or RPAD had not yet been updated to reflect the new construction project. (For example, RPAD might still report a two-story garage on a given block and lot, which is now planned



New York City
Independent Budget Office
Ronnie Lowenstein, Director

110 William St., 14th floor
New York, NY 10038
Tel. (212) 442-0632

Fax (212) 442-0350
iboenews@ibo.nyc.ny.us
www.ibo.nyc.ny.us



for demolition to make way for a 20-story residential building. In this example, therefore, the record for the garage is not useful for providing information on building characteristics or any property tax exemptions the new development is expected to receive.³) Tax lots that did not appear in RPAD were looked up through the NYCityMap GIS program and the Department of Building's Building Information Search system by street address and old lot number to identify the new blocks or lots that had been issued for these buildings.

Building-Level Data Matched to New Construction Building Permits. New construction building permits were identified for each building through the Department of Building's Building Information Search system by borough, block, and lot. Variables pulled from permit filings include: the number of stories in the building; total number of units in a building (which for a mixed-income development will be more than the number of affordable units reported by HPD); total planned residential, commercial, manufacturing, and community square feet; if the building included enclosed parking; if the building was owned by a nonprofit; and if the project was intended for mixed-use purposes. Because new construction permit data is self-reported by the filer, IBO verified these records where possible through NYCityMap and information provided by HPD.

Building-Level Data Aggregated to Project Level. Since cost data was provided at the project level, building-level data was aggregated up to the project level in order to merge the two data sets. The resulting 298 projects, identified by project name and HPD program, comprised 518 different buildings.⁴ The highest number of stories among multiple buildings in a project was recorded as the project building height. Total residential, commercial, manufacturing, and community square footage as well as the total number of units for buildings in a project were summed together. If at least one building included enclosed parking, then the project was indicated as including enclosed parking. All community districts that the project is located in were recorded (two projects spanned two community districts, while one scatter-site project spanned three community districts).

Cost Data Matched to Building Data and Construction Costs Indexed to 2015 Dollars. Project cost data was assembled together and the number of different financing sources for each project was identified. Project cost data was then matched to the rolled-up building level data by project name and HPD program. Three projects were excluded from the analysis: one project was unable to be matched up, a second project did not have any costs reported, and a third project was reported twice, but under different HPD programs. After matching the data sets together, the data set included 295 observations at the project level, all new construction. Construction cost variables were indexed to 2015 dollars using the Engineering News-Record 20-City Construction Cost Index averaged by city fiscal year.

Inclusionary Housing and Other Exclusions. This analysis is concerned with the impact of expanding prevailing wages on the cost of building affordable housing. Projects in the HPD data that were created under the Inclusionary Housing program were excluded from this analysis. Inclusionary Housing typically takes the form of "80/20" projects, where 20 percent of the units are set aside as affordable housing in return for zoning bonuses. Inclusionary housing projects are therefore intended primarily to be market-rate housing. Additionally, the final construction budget for Inclusionary Housing projects may not be scrutinized by HPD to the same extent as affordable housing projects that require HPD financing to fill funding gaps, as inclusionary housing projects are privately financed. A total of 77 Inclusionary Housing projects were left out of the regression analysis.

Also not included in the regression analysis was one project that did not have any information on enclosed parking indicated on the new construction building permits, and six projects where the hard cost per unit exceeded \$500,000. (In one case, hard costs exceeded \$2 million per unit.) IBO assumed that these high-cost units were reporting errors. The \$500,000 limit was chosen as it was the largest break in the distribution of cost per unit in the data set. Finally, four projects with no hard costs reported by HPD were dropped from the model that uses hard costs as the dependent variable, leaving a total of 207 projects with hard costs reported.

Other Variables That Were Considered But Ultimately Not Included in Regression Models. Several variables were considered for inclusion in the model, but were found to not be informative and therefore were dropped in order to gain additional degrees of freedom. These variables include indicator variables for whether the project is located on a corner lot, projects with large average unit sizes, scattered-site housing, and supportive housing. The main difference seen

in supportive housing was that average unit size was smaller, and so this feature was better captured by including the average square foot per unit. Geography indicator variables at the smaller community district level were also considered, but the sparsity of observations across the city's 59 community districts made it necessary to work at a higher level of geography. The new construction building permit data included information on whether the project was owned by a nonprofit organization. IBO chose not to include this variable in the model, however, because the owner and the developer are often different entities, and many affordable housing projects are done as a partnership between nonprofit and for-profit businesses, blurring much of this distinction.

Variable Descriptions

Construction Total Costs (logarithm): Total costs for the project as reported by HPD, not including land acquisition costs.

Construction Hard Costs (logarithm): Hard costs for this analysis reflect the sum of budgeted hard costs and hard-cost contingencies as reported by HPD. Since it is unknown whether contingency funds are tapped, we assume that these funds are used. Hard costs represent materials and labor, and are exclusive of land acquisition costs, soft costs, soft-cost contingencies, developer fees, and project reserves.

Requires Prevailing Wage: An indicator variable equaling one if a project requires prevailing wages to be paid under the Davis-Bacon and Related Acts.

Percent Affordable: Percent of total project units that are reserved as affordable. The sum of low income, moderate income, middle income, and superintendent units reported by HPD was divided by the total number of units in the building reported by HPD and in the new construction building permits. The fraction is presented in percentage terms for ease of interpretation. This variable distinguishes between projects that are 100 percent affordable versus mixed-income projects.

Affordable Units (logarithm): Since reported costs are in terms of the affordable units recorded by HPD, controlling for the number of affordable units is necessary. This variable was logged because the shape of the data indicated that there were some returns to scale for adding additional units to a project.

Average Unit Size (Square Feet in 100s): This variable was created by taking the total residential square footage reported in the zoning floor area component of the new construction building permits and dividing it by the total number of units planned for the building. The underlying assumption is that for mixed-income projects, affordable units are, on average, the same size as the market rate apartments, which is a general design requirement for mixed-income projects. The variable was put in hundreds of square feet for ease of interpretation.

Senior Housing: An indicator variable equaling one if a building is designated specifically for senior housing. This variable was added into the revised regression model, as it was found to be statistically significant with the corrected data.

Enclosed Parking: An indicator variable equaling one if a building in a project reported enclosed parking on the new construction building permit filed with the Department of Buildings.

Low-Rise, Mid-Rise, and High-Rise Project: Low-rise projects contain buildings five or less stories tall. Mid-rise projects were classified as buildings from 6 to 15 stories. High-rise projects are 16 stories or taller. Building height was found to be highly correlated with the total square footage of the project calculated as the sum of residential, commercial, manufacturing, and community space reported in the new construction building permits, as well as the total number of units in the project.

Number of Financing Sources: A count of the number of financing sources used to fund the project. The financing sources used for the projects were detailed in the project cost data from HPD.

Core Area: An indicator variable equaling one for projects located in Manhattan Community Districts 1 through 8 (the southern tip of Manhattan up to 110th Street on the west side and 96th street on the east side) and Brooklyn Community Districts 1, 2, and 6 (Greenpoint/Williamsburg, Fort Greene/Brooklyn Heights, and Park Slope/Carroll Gardens,

respectively).

Northern Manhattan, Outer Brooklyn, Bronx, Queens, and Staten Island: Indicator variables for the geographies not coded as a core development area. The remaining community districts in Manhattan were coded as northern Manhattan and the remaining community districts in Brooklyn were coded as outer Brooklyn. The indicator variables Bronx, Queens, and Staten Island are at the borough level.

Year 2010-Year 2015: Indicator variables for the fiscal year in which the project was financed and affordable units were counted towards a mayoral housing plan goal.

Prepared by Sarah Stefanski

Endnotes

¹Although recorded by HPD as new construction, affordable units served under HPD's HomeFirst Down Payment Assistance Program were not considered new construction for the purposes of this analysis. HomeFirst program participants receive a grant towards down payment assistance and closing costs to purchase a 1-4 family home, condominium, or cooperative in the city. HPD classifies HomeFirst units as new construction in its reporting since this program is not maintaining existing affordable housing (preservation), but instead adds to the number of affordable units in the city. These units, however, are generally existing houses, not new buildings being constructed. HPD recorded 212 HomeFirst projects between 2010 and 2015.

²Projects financed between 2010 and December 2013 were counted towards Former Mayor Bloomberg's New Housing Marketplace Plan development goals while projects financed between January 2014 and 2015 were counted towards Mayor de Blasio's Housing New York development goals.

³The impact of receiving a property tax benefit on residential housing construction was considered, although did not factor into the final regression analysis. Property tax benefits, including 421-a, 420-c, Article XI, and Urban Development Action Area Projects were flagged in the Department of Finance RPAD data, but no tax benefits were recorded for projects financed in 2015, and a much smaller share of projects financed in 2014 were flagged for a property tax exemption than seen for earlier years. This indicated that likely many recently financed projects may have property tax exemptions that are not reflected in the RPAD records. Most of these projects would qualify for as-of-right property tax exemptions such as 421-a.

⁴One project was listed in the cost data but not the building-level data. Building characteristics were pulled from the new construction building permit and NYCityMap and added to the building-level data set provided by HPD.

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