

Appendix A: Variation in Environmental Law and Property Taxation

In order to assess whether state-level regulatory changes could bias our estimates of the effect of *Mount Laurel II*, we analyzed changes in state case law, statutory law, and administrative regulations. This analysis, detailed below, focuses on laws related to conservation of open space and agricultural land, wetlands protection programs, environmental impact assessment requirements, and property taxes.

Conservation of open space and agricultural land

Laws promoting the conservation of open space and agricultural land can prevent housing development by limiting the supply of developable land (Fischel, 2015; Schmidt & Paulsen, 2009). New Jersey, New York State, and Pennsylvania all had relatively expansive land conservation regimes during the study period. Each state conferred favorable tax treatment on agricultural land, provided funds for local governments to acquire open space and conservation easements, and shielded farms from nuisance litigation stemming from residential development (American Farmland Trust, 1993; Berry & Plaut, 1978; Chesapeake Bay Commission & Trust for Public Land, 2001; Keene, 1979; *New Jersey Practice, Local Government Law*, n.d., vol. 35A, 26:8, 26:9; Nolon & Solloway, 1997). In New Jersey and New York, farmland and open space conservation laws were adopted before the study period, and Pennsylvania began adopting such laws in 1974. In all three states, the relevant laws were strengthened throughout the study period. A detailed comparison by the Trust for Public Land (n.d.-a, n.d.-b, n.d.-c) indicates that all three states provided significant state investment in conservation, facilitated local financing for conservation acquisitions, offered incentives for local land conservation and tax credits for land conservation, and engaged in federal partnerships. In addition, both New Jersey and Pennsylvania provided public funding for certain private development projects involving land

conservation measures. Given the largely similar regulatory regimes in all three states, we assume that variation in land conservation programs does not account for variation in housing outcomes.

Wetlands regulation

Wetlands protection laws providing more stringent protections than required by federal law can deter housing development by restricting the supply of developable land (Sims & Schuetz, 2009). Laws governing freshwater wetlands protection varied considerably among the three states during the study period, with New Jersey imposing the most stringent protections (after 1987) and New York State imposing the least stringent protections. Development affecting freshwater wetlands is subject to regulation under section 404 of the federal Clean Water Act (CWA), but states may protect wetlands that are not within federal jurisdiction and, in some cases, may administer the CWA section 404 permitting program. In order to assess stringency, we analyzed (1) a 50-state survey, prepared by the Association of State Wetland Managers (2016), (2) the specific requirements of each state's wetlands protection laws, and (3) the extent of state responsibility for implementing section 404 of the federal Clean Water Act. (States must satisfy relatively stringent criteria in order to secure responsibility for section 404 permitting.) New York's Freshwater Wetlands Act (N.Y. Env'tl. Conserv. Law §24-0101 *et seq.* (McKinney 2017)) was adopted in 1975, but for roughly a decade afterward, the state Department of Environmental Protection worked under interim regulations during the mapping and classification of wetlands (Riexinger, 1985). Notably, the New York Freshwater Wetlands Act applied only to wetlands exceeding 12.4 acres and to wetlands of "unusual local importance." New Jersey's Freshwater Protection Act of 1987 (N.J. Stat. Ann. §13:9B-1 *et seq.* (West 2017)) applied to a broader range of wetlands and was sufficiently stringent to enable the state to

assume administration of the CWA section 404 permitting program (Gaddie & Regens, 2000). Beginning in 1978, Pennsylvania protected wetlands under the Dam Safety and Encroachments Act of 1978 (32 Pa. Stat. Ann. § 693.1 *et seq.* (West 2017)). Because the Pennsylvania program was principally associated with dam safety, its jurisdictional reach appears to have been somewhat more limited than that of the New Jersey program.

A survey by the Association of State Wetland Managers (2016), characterized four "core elements" of state wetlands protection programs: regulation (based on various measures of the extent and sophistication of state wetland delineation and permitting programs), wetland assessment and monitoring, implementation of water quality standards (WQS) developed specifically for wetlands, and voluntary wetland restoration programs (including incentive programs and conservation programs). Both New Jersey and Pennsylvania's program are in the mature phase (the most advanced stage) for three of the four elements (all but wetland WQS in the case of New Jersey and all but voluntary wetland restoration programs in the case of Pennsylvania), while New York's program has reached the mature phase for only one element (regulation) and is in the least advanced stage for the other three elements.

Environmental Impact Assessment

State environmental impact assessment (EIA) laws may affect residential development, by providing opportunities for litigation that can delay or scuttle development (Schill, 2005). Such laws require the preparation of an EIA for any action or project that could have a significant impact on the environment. The applicability of an EIA law hinges largely on the definition of "action" or "project," and New York State had the most stringent EIA law of the three states analyzed.

New Jersey law requires environmental review for government projects and for projects receiving certain forms of governmental assistance (see, e.g., N.J. Exec. Order No. 53, Oct. 15, 1973; N.J. Admin. Code § 7:22-10.1 *et seq.* (West 2017)). Moreover, private projects in areas such as those covered by the Hackensack Meadowlands Reclamation and Development Act or the Pinelands Protection Act may be subject to EIA requirements exceeding the basic requirements of state subdivision law (see, e.g., N.J. Admin. Code §7:50-5.1 *et seq.*; *Id.*, §19:4-10.1 *et seq.*). New Jersey also authorizes local governments to impose EIA requirements beyond those mandated by state law (see, e.g., “Township of Livingston, NJ Environmental Impact Statement: § 130-3 Environmental impact statement required for projects,,” n.d.). The New York State Environmental Quality Review Act (SEQRA), adopted in 1975, extends the definition of "action" to a broad array of private projects requiring discretionary permits, including zoning amendments and variances (N.Y. Env'tl. Conserv. Law §8-0105 (McKinney 2017)). In addition, SEQRA includes a relatively broad definition of "environment," so that an EIA may be required for actions affecting "existing patterns of population concentration, distribution, or growth, and existing community or neighborhood character" (N.Y. Env'tl. Conserv. Law §8-0105 (McKinney 2017)). Pennsylvania had no generally applicable EIA requirements during our study period, apart from the reporting regimes associated with pollution control statutes (Rohan, 2017, v. 5, s. 28.02).

Property Taxation

Because the extent of development may vary depending on the level of taxes on real property, we compared statewide property tax revenue as a percentage of personal income from 1977 (the first year for which data are available) through 2010. As Figure 3 illustrates, property tax burdens in New Jersey and New York changed in parallel from 1977 to 1987, but fell in New

York (relative to New Jersey) after 1987. Thus, we would expect the omission of property taxation from our model to negatively bias our estimates of the effect of New Jersey's SAHAS. Property tax burdens in Pennsylvania during our study period were more stable – and consistently lower – than in New Jersey.

Appendix B: Construction of the Sample

Our primary data sources, the decennial census and the American Community Survey, aggregate data at various geographies (e.g., Places and County Subdivisions) that are not necessarily coterminous with the legal boundaries relevant to our study. All New Jersey and Pennsylvania municipalities in our study area were coterminous with at least one census geography in all years of our study, as were 59 of 66 New York municipalities. Data for all New Jersey and Pennsylvania municipalities were derived from County Subdivision-level census data. New York municipalities in our study area consist of cities, villages, and towns. Cities and villages in New York State regulate land use throughout their territory, and they are typically classified as Places for the purposes of census geography. New York State towns, typically classified as County Subdivisions for the purposes of census geography, regulate land use only in the portions of their territory that do not overlap villages and cities. Because the cities and villages were not necessarily coterminous with towns, we computed the housing counts in the town areas that do not overlap any village or city.

In New York State, eligibility to vote in a town election depends on residency within the town. Thus, residents of a New York State village can vote in both their village elections and elections for the overlapping town. Because the political model of land use regulation that we have in mind is based on a median voter model, our regression models include town-level

demographics. Thus, our demographic variables for New York State towns include residents of villages within those towns.

For the seven New York State jurisdictions in our study area that were not coterminous with any census geography, we were able to derive data corresponding to the relevant boundaries by combining data from multiple census geographies. For most of the relevant observations, we were able to aggregate tract-level data to the municipal boundaries. Four jurisdictions in the 1970 Census (Pomona village, New Square village, Haverstraw town, and Ramapo town) required additional efforts. For all four of these jurisdictions, we have total housing unit counts from the 1970 Master Enumeration District List (MEDL). For New Square village, we assume that the ratio of single-family detached units to single-family attached units was the same in 1970 and 1980. Pomona village straddles two towns, presenting problems of unit allocation (described below) that led us to assume that all units in Pomona village in 1970 were single-family detached units. (As of 1980, single-family detached units accounted for 94% of total housing in Pomona village.) For Haverstraw town and Ramapo town, we were only able to recover the appropriate aggregation of data after imputing data for Pomona village and New Square village. Because New Square village is located within Ramapo town, we subtract its housing counts from Ramapo town. Pomona village straddled Haverstraw town and Ramapo town. The 1970 MEDL indicates separate total housing unit counts for each of two areas of Pomona village, divided by the Haverstraw-Ramapo boundary. As noted above, we assume all structures in Pomona village in 1970 were single-family detached units and subtract from the Haverstraw town and Ramapo town totals accordingly. Our regression results are robust to model specifications dropping Pomona village and New Square village, as well as specifications dropping Pomona village, New Square village, and Haverstraw town.

In addition to excluding jurisdictions designated as central cities in the 1970 Census, our sample omits Tavistock borough (1970 population: 12; 2010 population: 5), Pine Valley borough (1970 population: 23; 2010 population: 12), and Teterboro borough (1970 population: 19; 2010 population: 67), all in New Jersey. We also drop one observation for each of two New York jurisdictions: Grand-View-on-Hudson village in New York, which missed housing counts and almost all demographic data in the 1970 Census, and Kaser village, which was incorporated in 1990 but was not included in the 1990 Census. (We include Grand-View-on-Hudson village for 1980, 1990, 2000, and 2010; we include Kaser village for 2000 and 2010.) Four jurisdictions in the southern study area (two in Pennsylvania and two in New Jersey) had no apartment units at any time during the study period and are therefore excluded from the relevant model.

Works Cited

- American Farmland Trust. (1993). *Agricultural and farmland protection for New York*. Retrieved from http://www.farmlandinfo.org/sites/default/files/AGRICULTURE_AND_FARMLAND_PROTECTION_FOR_NEW_YORK_AUGUST_19931_1.pdf
- Association of State Wetland Managers. (2016). *Status and trends report on state wetland programs in the United States*. Windham, ME. Retrieved from https://www.aswm.org/pdf_lib/state_summaries/status_and_trends_report_on_state_wetland_programs_in_the_united_states_102015.pdf
- Berry, D., & Plaut, T. (1978). Retaining agricultural activities under urban pressures: A review of land use conflicts and policies. *Policy Sciences*, 9(2), 153–178.
doi:10.1007/BF00143740

- Chesapeake Bay Commission, & Trust for Public Land. (2001). *Keeping our commitment: Preserving land in the Chesapeake Watershed*. Retrieved from <http://www.chesbay.us/archives.html>
- Fischel, W. A. (2015). *Zoning rules!: The economics of land use regulation*. Cambridge, MA: Lincoln Institute of Land Policy.
- Gaddie, R. K., & Regens, J. L. (2000). *Regulating wetlands protection: Environmental federalism and the States*. Albany, NY: State University of New York Press.
- Keene, J. C. (1979). A review of governmental policies and techniques for keeping farmers farming. *Natural Resources Journal*, 19(1), 119–144.
- Lamar, M., Mallach, A., & Payne, J. M. (1989). *Mount Laurel at work: Affordable housing in New Jersey, 1983-1988*. *Rutgers Law Review*, 41(4), 1197–1278.
- New Jersey Practice, Local Government Law*. (n.d.).
- Nolon, S. F., & Solloway, C. (1997). Preserving our heritage: Tools to cultivate agricultural preservation in New York State. *Pace Law Review*, 17(2), 591–652.
- Riexinger, P. (1985). Local implementation of New York's Freshwater Wetlands Protection Act. In J. Kusler & R. Hamann (Eds.), *Wetland protection: Strengthening the role of the states* (pp. 227–240). Gainesville, FL: Center for Governmental Responsibility, University of Florida College of Law.
- Schill, M. H. (2005). Regulations and housing development: What we know. *Cityscape*, 8(1), 5–19.
- Schmidt, S., & Paulsen, K. (2009). Is Open-Space Preservation a Form of Exclusionary Zoning? The Evolution of Municipal Open-Space Policies in New Jersey. *Urban Affairs Review*, 45(1), 92–118. doi:10.1177/1078087408331122

Sims, K. R. ., & Schuetz, J. (2009). Local regulation and land-use change: The effects of wetlands bylaws in Massachusetts. *Regional Science and Urban Economics*, 39(4), 409–421.

State & Local Government Finance Data Query System. (n.d.). The Urban Institute-Brookings Institution Tax Policy Center. Data from U.S. Census Bureau, Annual survey of state and local government finances, Government finances, volume 4, and Census of governments (years). Retrieved from <http://www.taxpolicycenter.org/slf-dqs/pages.cfm>.

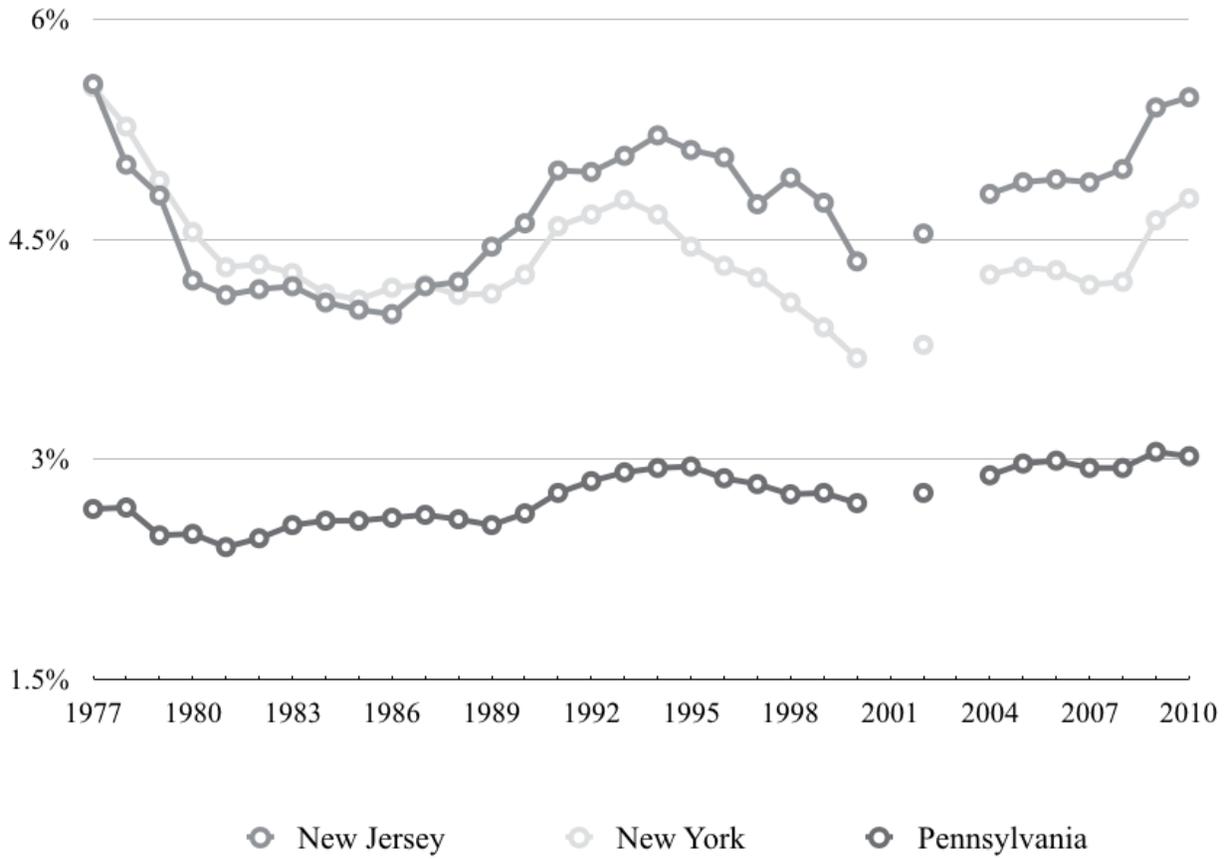
Township of Livingston, NJ Environmental Impact Statement: § 130-3 Environmental impact statement required for projects. (n.d.). Retrieved November 22, 2017, from <https://ecode360.com/10299675>

Trust for Public Land. (n.d.-a). Conservation Almanac, New Jersey, State programs and policies. Retrieved November 28, 2017, from <http://www.conservationalmnanc.org/secure/almanac/midatlantic/nj/programs.html>

Trust for Public Land. (n.d.-b). Conservation almanac, New York, State programs and policies. Retrieved November 29, 2016, from <http://www.conservationalmnanc.org/secure/almanac/midatlantic/ny/programs.html>

Trust for Public Land. (n.d.-c). Conservation almanac, Pennsylvania, State programs and policies. Retrieved November 28, 2017, from <http://www.conservationalmnanc.org/secure/almanac/midatlantic/pa/programs.html>

Figure 1: Statewide Property Tax Revenue as a Percentage of Personal Income, 1977-2010



Data source: State & Local Government Finance Data Query System (n.d.).