

## **Appendix A**

Appendix Figures A1 – A22  
(Captions below figures)

Appendix Table A1: List of ZTRAX-based environmental hedonic analyses

Appendix Text A1: Deed definitions and proposed categorizations

## Appendix Table A1

*Appendix Table A1: List of ZTRAX-based environmental hedonic analyses published in a peer-reviewed journal by Aug 10, 2022*

Authors and year	Title	Attribute of interest	Location
Acolin et al. 2022	How do single-family homeowners value residential and commercial density? It depends	building density	five MSAs
Albouy et al. 2020	Unlocking amenities: Estimating public good complementarity	crime * parks	3 cities
Baldauf et al. 2020	Does Climate Change Affect Real Estate Prices? Only If You Believe In It	flood risk * belief in climate change	national
Bechard 2021	Gone with the Wind: Declines in Property Values as Harmful Algal Blooms Are Blown Towards the Shore	algal blooms coast	Florida Gulf
Bernstein et al. 2019	Disaster on the horizon: The price effect of sea level rise	sea level rise	national
Boslett & Hill 2019	Shale gas transmission and housing prices	shale gas pipeline	New York
Casola et al. 2022	Measuring the value of public hunting land using a hedonic approach	public hunting land	North Carolina
Chapple & Jeon 2021	Big Tech on the Block: Examining the Impact of Tech Campuses on Local Housing Markets in the San Francisco Bay Area	tech campuses	Silicon Valley
Chun et al. 2021	Are Foreclosure Spillover Effects Universal? Variation Over Space and Time	foreclosures	3 Ohio metros
Clarke & Freedman 2019	The rise and effects of homeowners' associations	homeowner assoc.	national
D'Lima & Schultz 2021	Residential Real Estate Investments and Investor Characteristics	investors	national
D'Lima & Schultz 2022	Buy-to-Rent Investors and the Market for Single Family Homes	buy-to-rent investors	national

D’Lima & Thibodeau 2022	Health crisis and housing market effects - evidence from the U.S. opioid epidemic	opioid dispensaries	Ohio
Dong & Lang 2022	Do views of offshore wind energy detract? A hedonic price analysis of the Block Island wind farm in Rhode Island	offshore wind energy	Rhode Island
Gindelsky et al. 2022	Valuing Housing Services in the Era of Big Data: A User Cost Approach Leveraging Zillow Microdata	housing services	national
Kuhlmann 2021	Upzoning and Single-Family Housing Prices: A (Very Early Analysis of the Minneapolis 2040 Plan	zoning changes	Minneapolis
Leonard et al. 2021	The impact of land use regulation across the conditional distribution of home prices: an application of quantile regression for group-level treatments	zoning changes	national
Lin et al. 2022	The price effects of greening vacant lots: How neighborhood attributes matter	greening vacant lots	Philadelphia
Miller & Pinter 2022	Flood risk and residential real-estate prices: Evidence from three US counties	floodplains * flood events	three counties
Moore et al. 2020	Hedonic Price Estimates of Lake Water Quality: Valued Attribute, Instrumental Variables, and Ecological-Economic Benefits	lake water clarity	113 lakes
Murfin & Spiegel 2020	Is the Risk of Sea Level Rise Capitalized in Residential Real Estate?	sea level rise	national
Richardson et al. 2022	Valuation of Wetland Restoration: Evidence from the Housing Market in Arkansas	wetland easements	Arkansas
Rivera & Loveridge 2022	Coal-to-Gas Fuel Switching and its Effects on Housing Prices	coal-to-gas switch	national
Wentland et al. 2020	Accounting for land in the United States: Integrating physical land cover, land use, and monetary valuation.	diverse	national

Zhang & Leonard 2021	External validity of hedonic price estimates: Heterogeneity in the price discount associated with having Black and Hispanic neighbors	Black and Hispanic neighborhoods	national
Zhang et al. 2022	Property values and cyanobacterial algal blooms: Evidence from satellite monitoring of Inland Lakes	algal blooms lake	national
Zheng 2022	The Valuation of Local School Quality under School Choice	school choice	multi-state

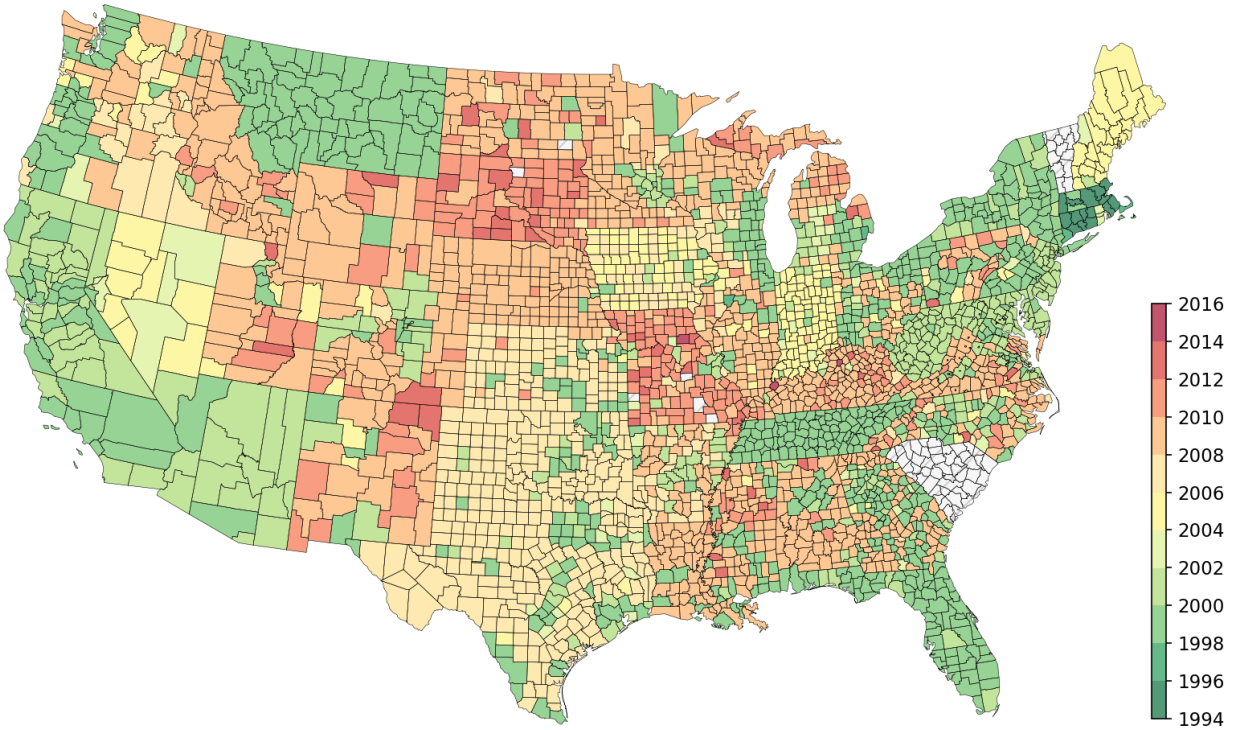
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## Appendix Figures

### Historical ZTRAX: first year with tax valuation data

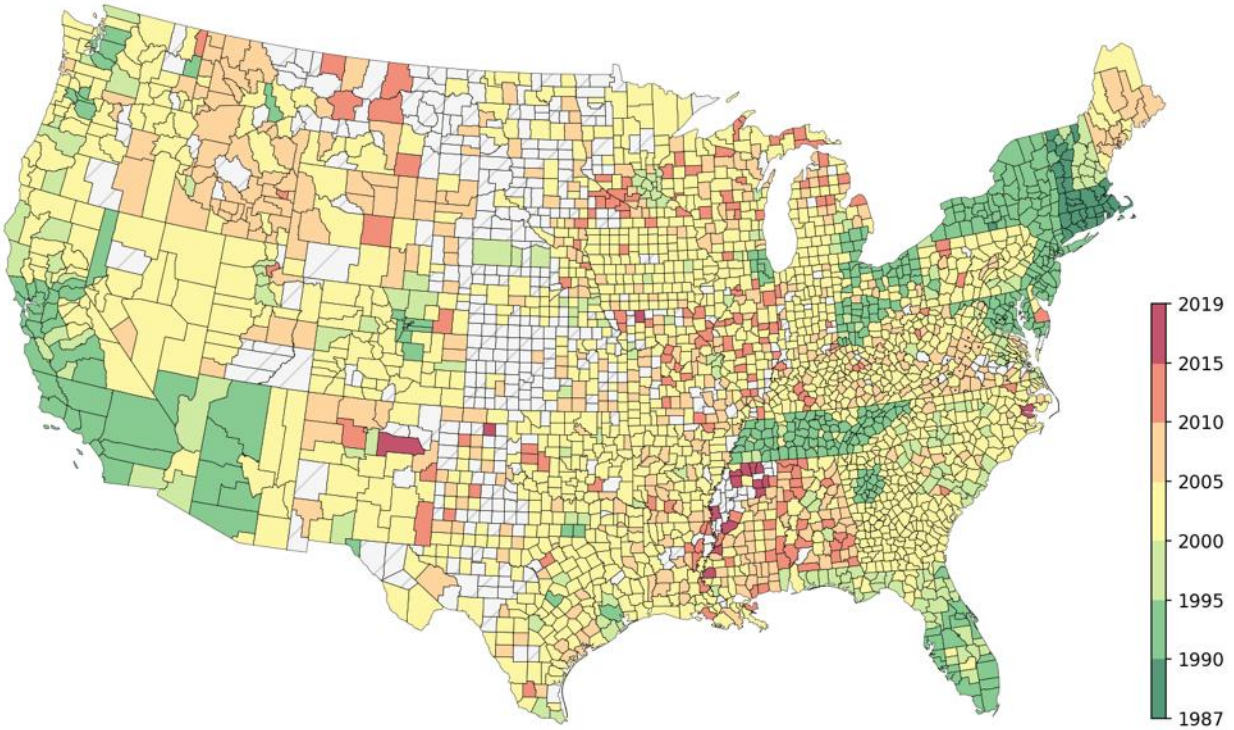


Appendix Figure A1: Earliest assessment year available in ZTRAX' historical assessment data. Grey color indicates no data on historical assessment year.

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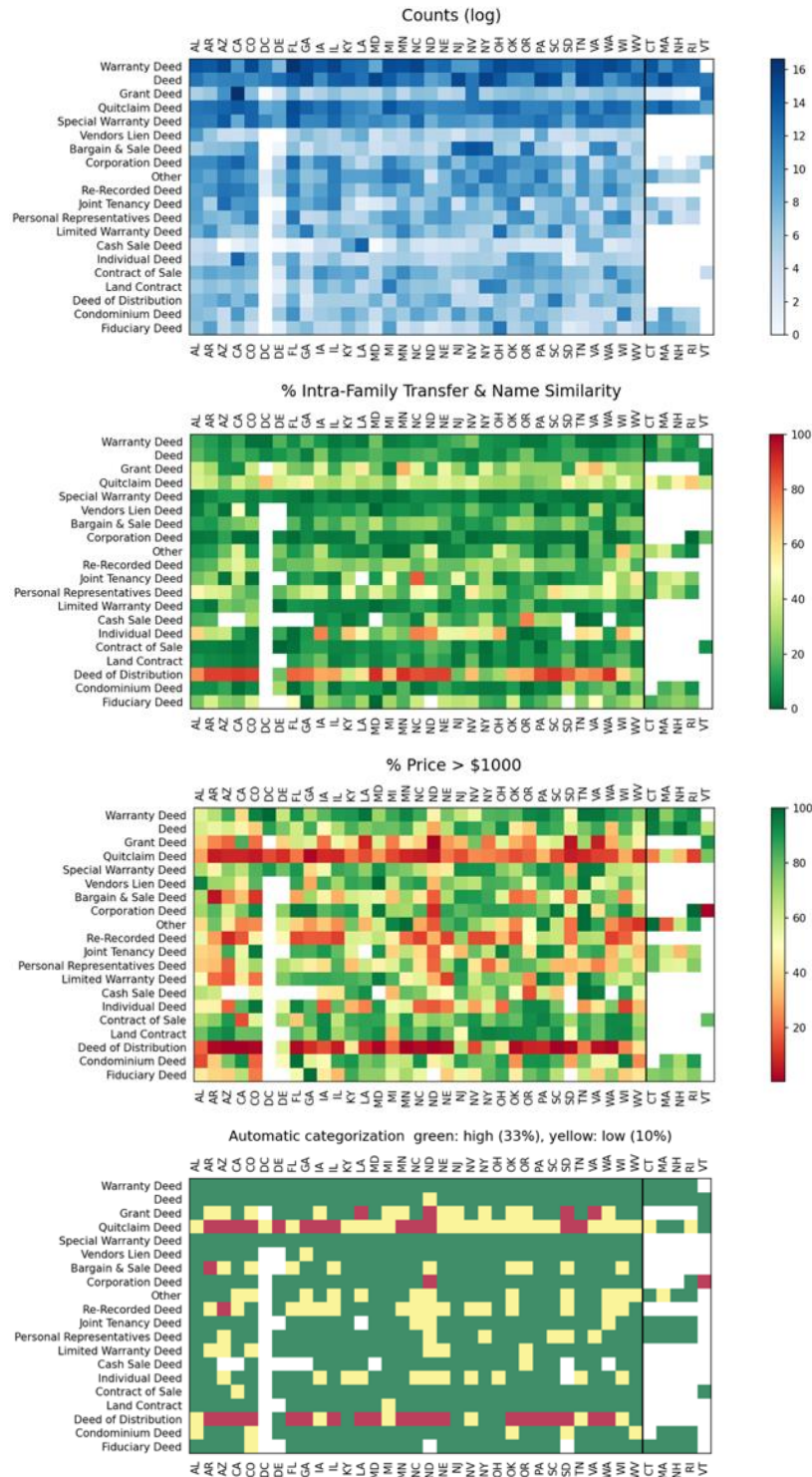
### How far back?

2.5% quantile of sales year for arms-length sales



Appendix Figure A2: Temporal depth of ZTRAX transaction records. Map shows 2.5% percentile of sale dates for arms-length sales in each county. Counties often contain a long and thin tail of early transactions, many of which might be based on erroneous date records. The 2.5% percentile therefore provides a more robust visual indicator for the beginning of the time period an analyst might reasonably choose as a cutoff for their analysis.

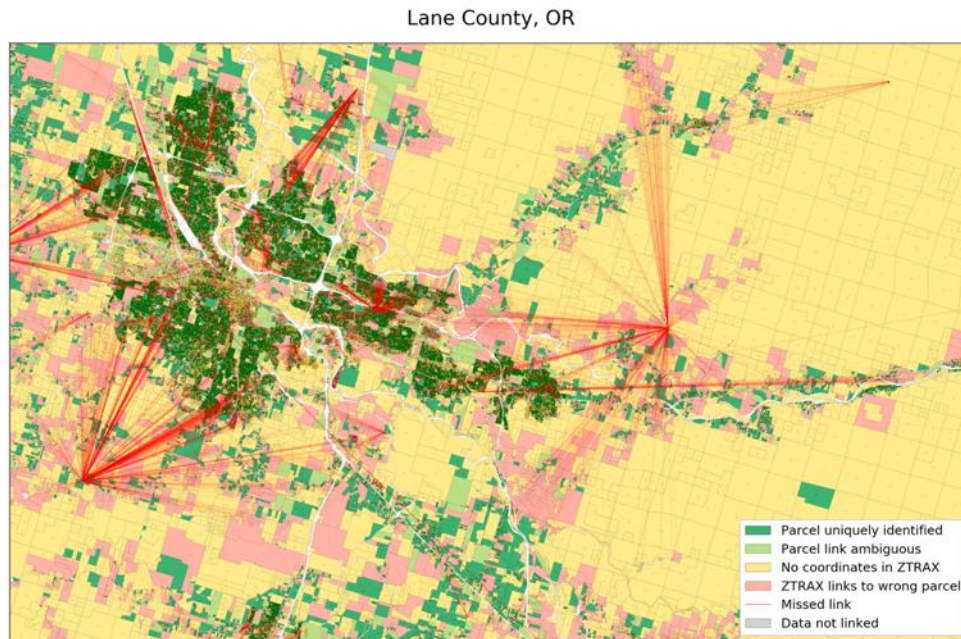
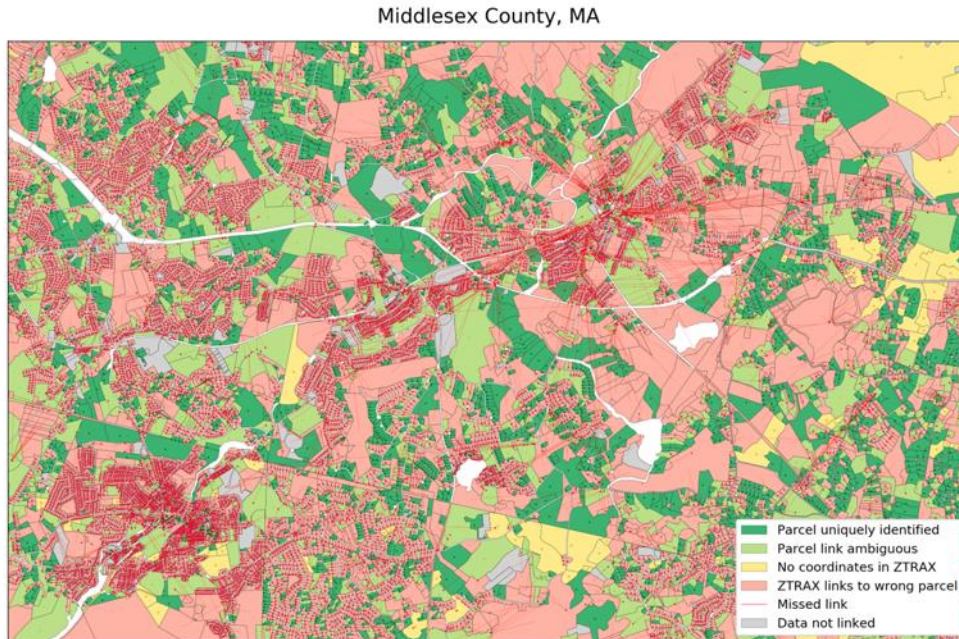
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Appendix Figure A3: Illustration of our statistical approach to define confidence levels for combinations of document types and states, by example of the 20 most frequent deed types retained after the hierarchical exclusion of known document types (intra-family transfers, foreclosures). From top to bottom: frequency of document type; percentage of transactions identified as intra-family transfers (using both the intra-family transfer flag and similarity between buyer and seller names); percentage of transactions with prices larger than \$1000; final categorization. States shown have price data in >20% of transaction records. New England states are shown separately to emphasize similarities in document type usage.



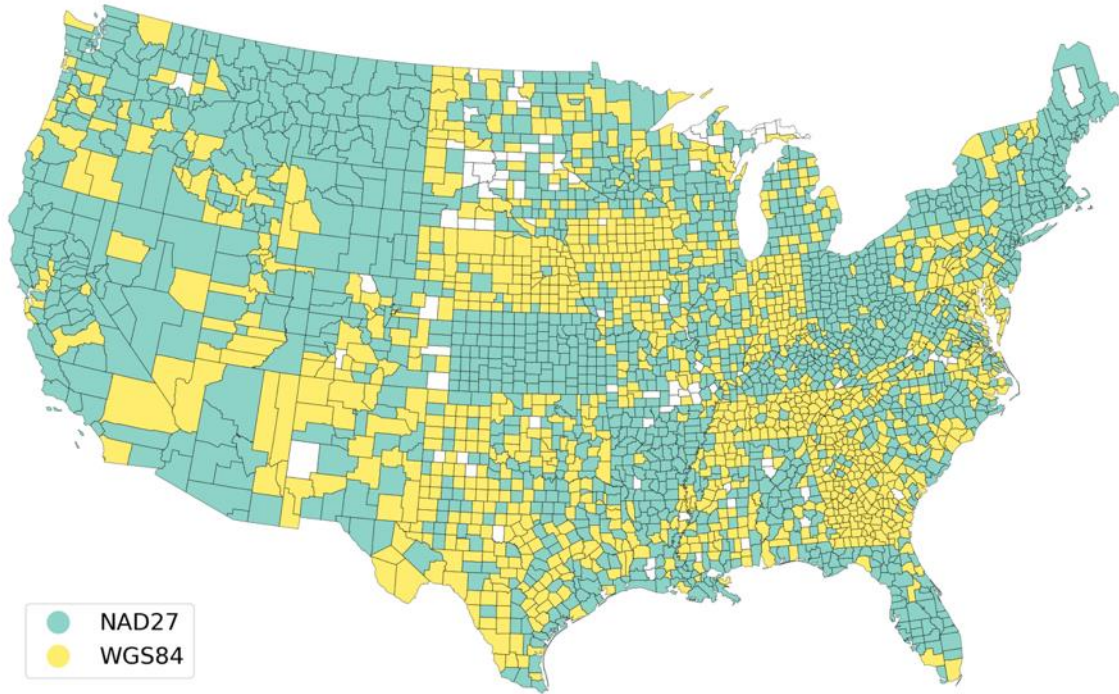
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Appendix Figure A4: Illustration of potential geo-location errors of ZTRAX data by example of the town of Concord in Middlesex County, Massachusetts (top) and the city of Eugene in Lane County, Oregon (bottom). Errors shown would occur if the analyst made the (naïve) assumptions that ZTRAX coordinates are correct, based on the WGS84 datum and that they can be used to identify parcels polygons in digital maps. In Middlesex County, which uses the NAD27 datum, this approach would link up the vast majority of urban parcels incorrectly (dark red points) due to a translation error of approximately 40 meters. Most large, rural parcels would have been either incorrectly (red) or ambiguously linked (light green: multiple coordinates on one parcel, only one of which is correct). In Lane County, which predominantly uses the WGS84 datum, the analyst would correctly and uniquely identify a majority of urban parcels (dark green points). However, most non-urban parcels appear to be incorrect and derived from ZIP code area centroids (red lines show distance between correct centroid and ZTRAX coordinates and converge around a small number of points).

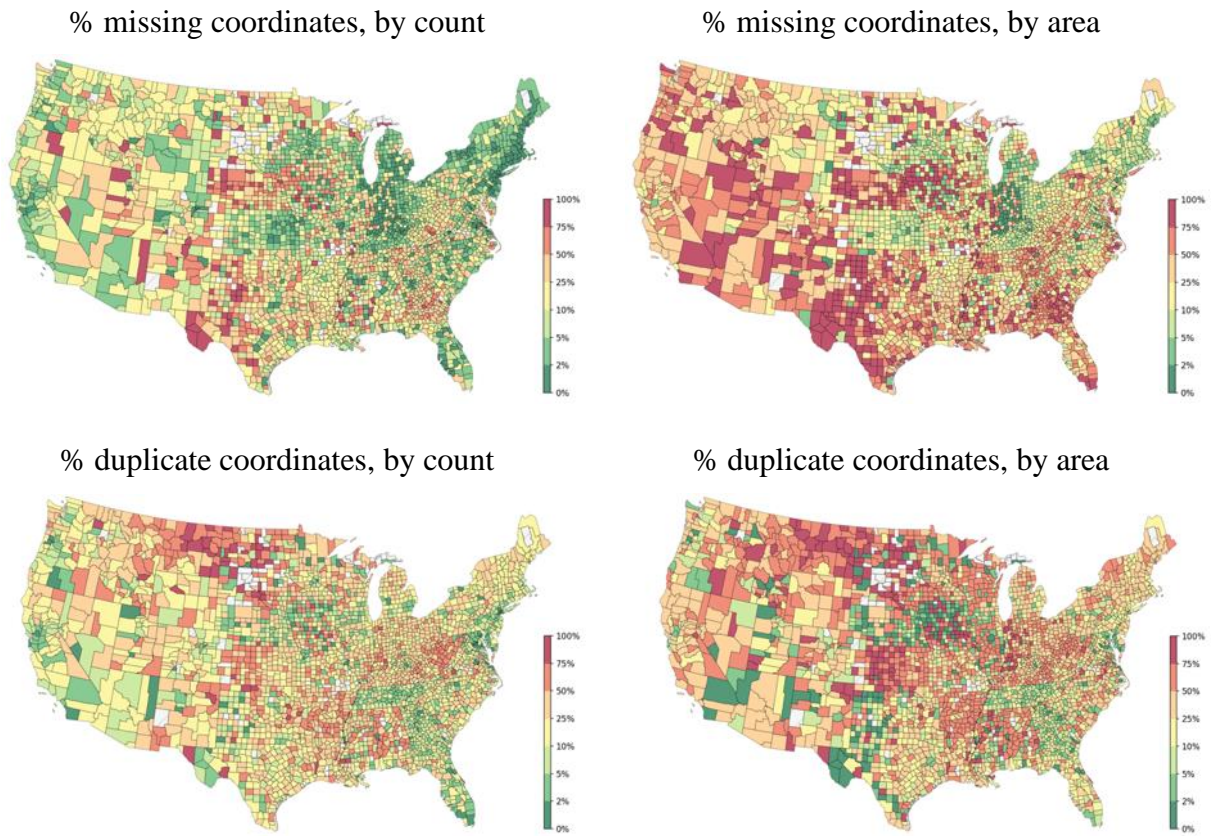
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### Predominant geodetic datum of ZAsmt coordinates (estimate)



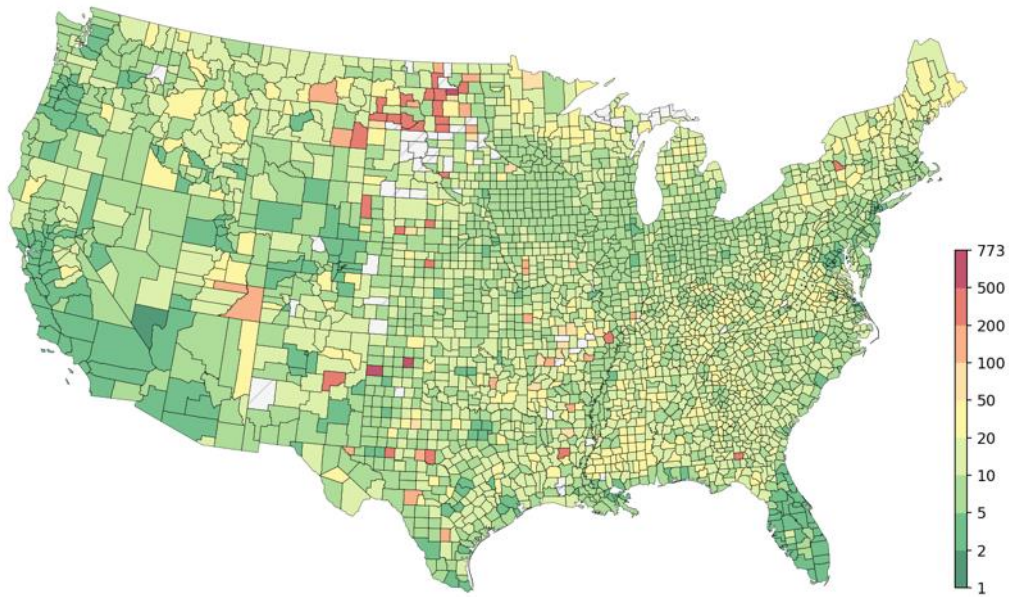
Appendix Figure A5: Estimated predominant geographic datum of ZTRAX coordinates. These estimates were obtained by projecting coordinates available in the assessment data into a geographic projection using both the NAD27 (EPSG:4267) and WGS84 (EPSG:4326) datum and selecting the datum that produces the smallest median distance between assessment data coordinates and parcel boundary centroids. Distance computation in the NAD83 Conus Albers projection (EPSG:5070).

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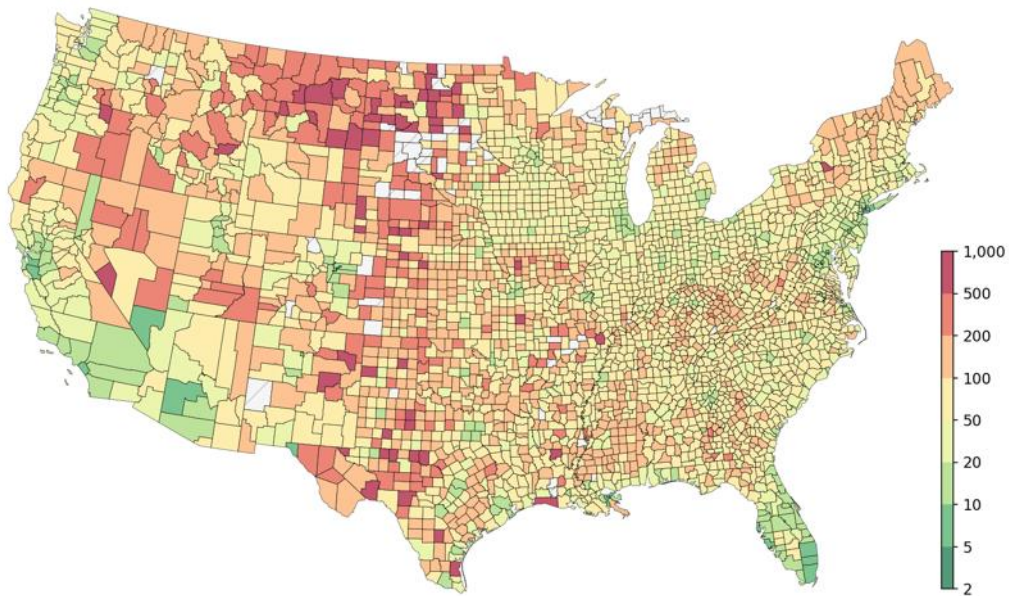


Appendix Figure A6: Prevalence of missing (top) and duplicate (bottom) coordinates in ZTRAX. Percentages are computed in reference to parcel count (left) and parcel area (right) for 131 million parcel polygons linked to assessment data.

**Parcel vs. building centroids: median distance (m)**



**Parcel vs. building centroids: mean distance (m)**

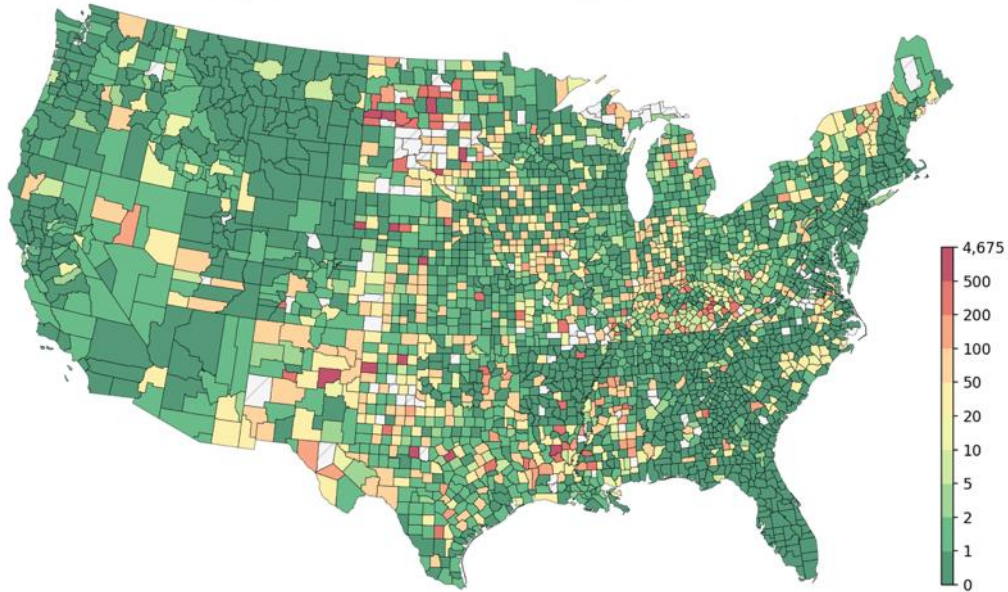


Appendix Figure A7: Median (top) and mean (bottom) distances between parcel centroids and building footprints for parcels with exactly one building footprint.

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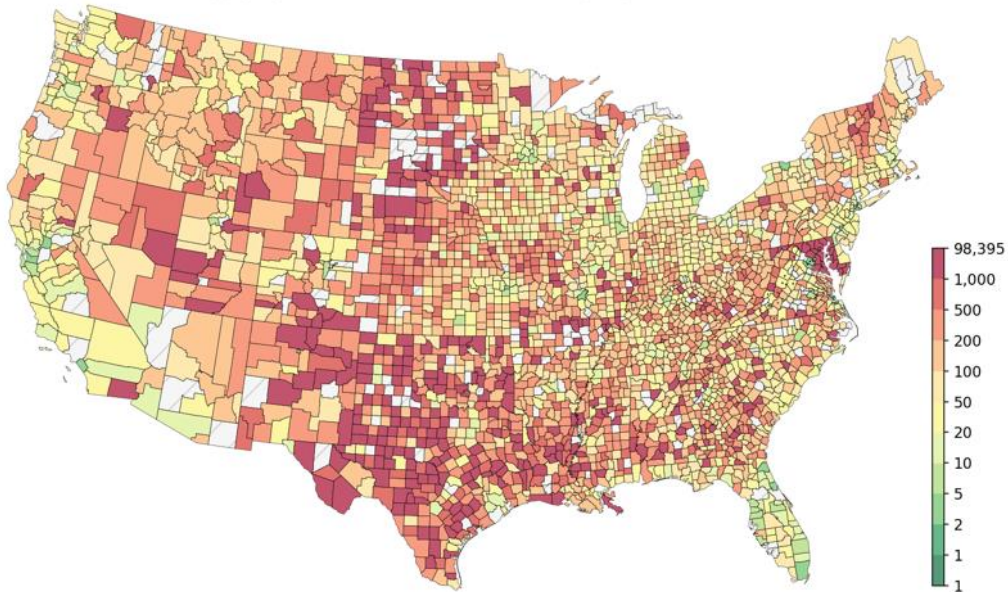
**Parcel centroids vs. ZTRAX coordinates: median distance (m)**

after applying estimated datum and removing duplicate coordinates



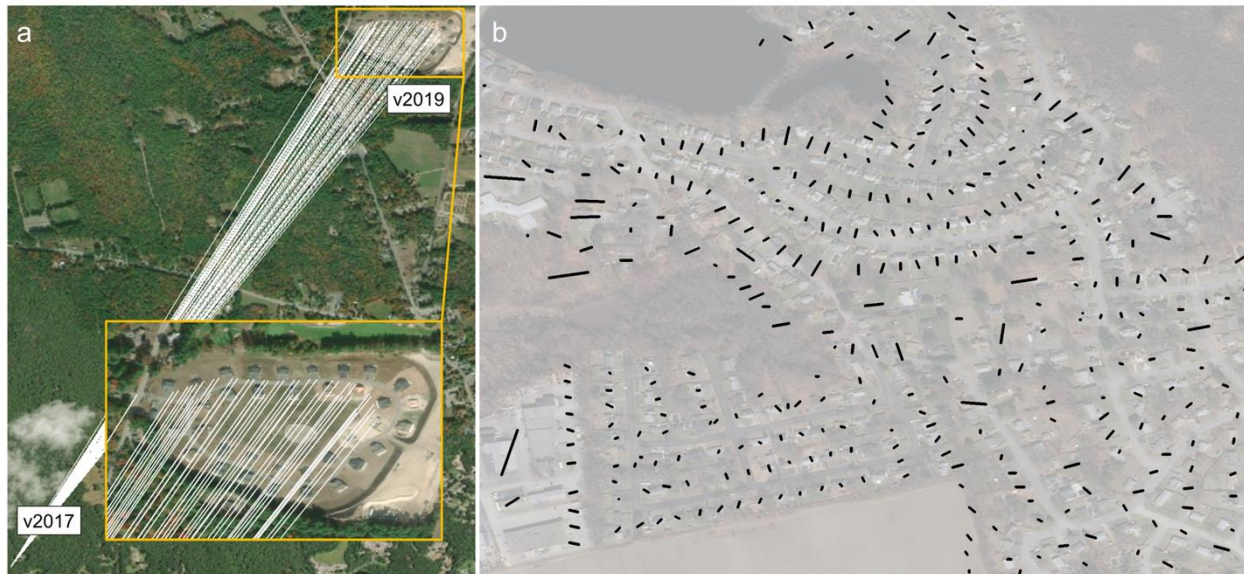
**Parcel centroids vs. ZTRAX coordinates: mean distance (m)**

after applying estimated datum and removing duplicate coordinates



Appendix Figure A8: Median (top) and mean (bottom) distance between parcel centroids and ZTRAX assessment data coordinates for parcels uniquely linked to assessment data records. Distances are in meters and computed in EPSG:5070 projection.

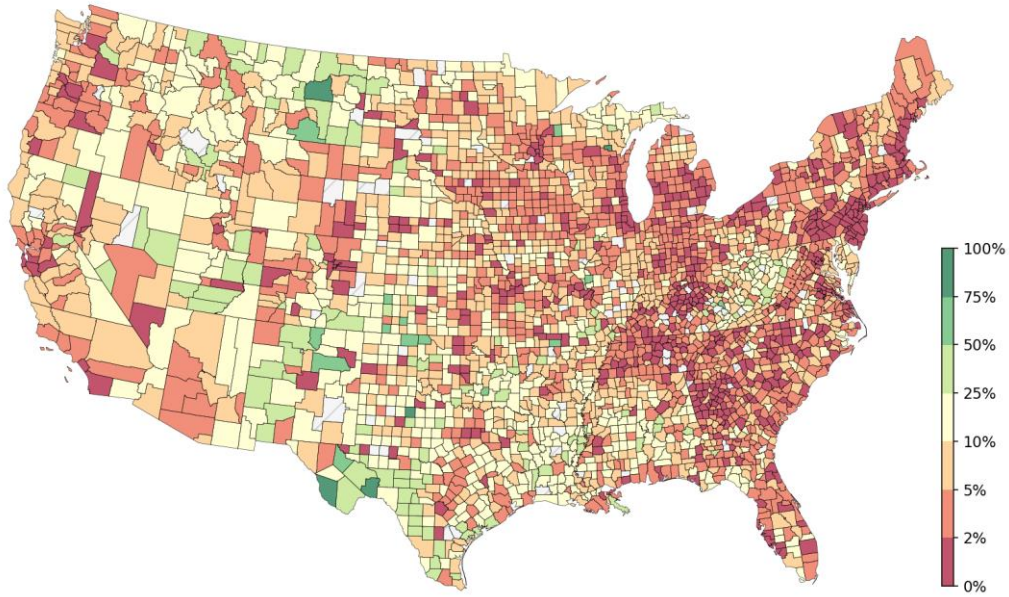
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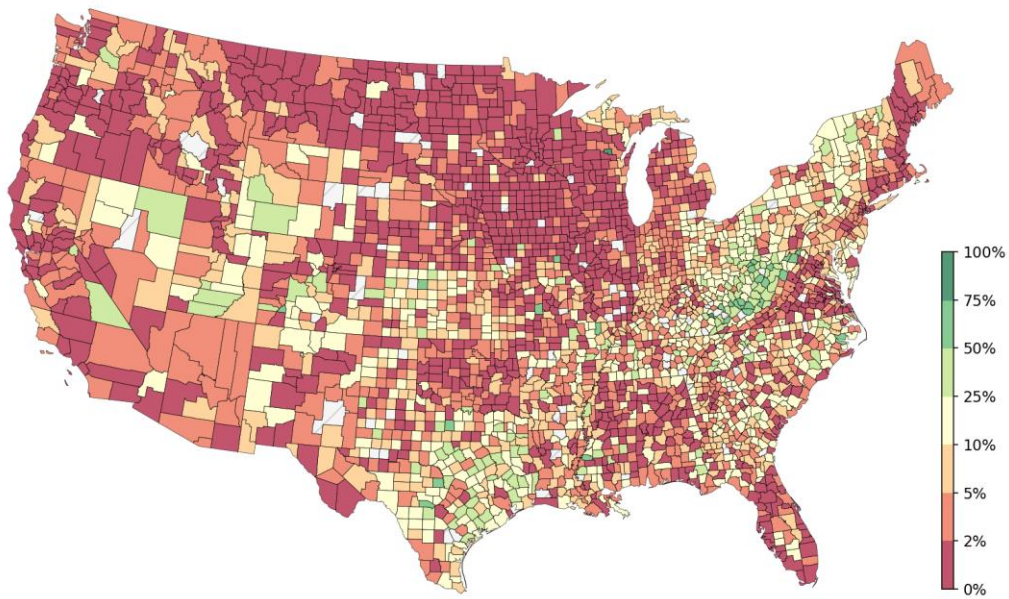
Appendix Figure A9: Illustrative example of observed changes in geo-coordinates between ZTRAX versions downloaded in 2017 and 2019. Panel (a) shows a new subdivision in Rhode Island. In 2017, all properties in the subdivision had identical geo-coordinates, likely derived from the ZIP code centroid. By 2019, each property had its own unique geo-coordinate, likely derived from street addresses. Panel (b) shows minor shifts in coordinates between 2017 and 2019 database version, likely resulting from a coordinate improvement based on building footprints. Imagery source: ESRI

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**Missing geo-coordinates but valid ZIP codes**

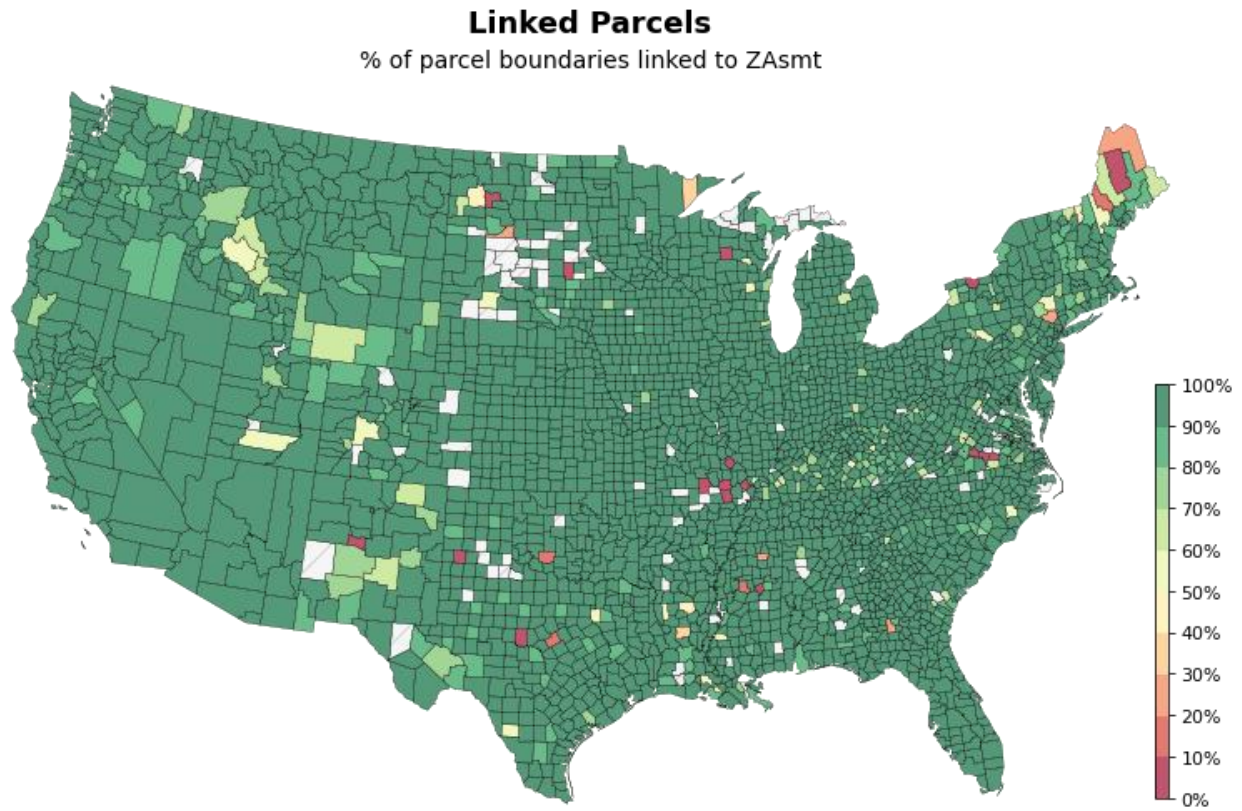


**Missing geo-coordinates but valid addresses**



Appendix Figure A10: Percentage of records for potential improvement of geo-locations using the ZIP code and address information, shown here for a ZTRAX version from 2017.

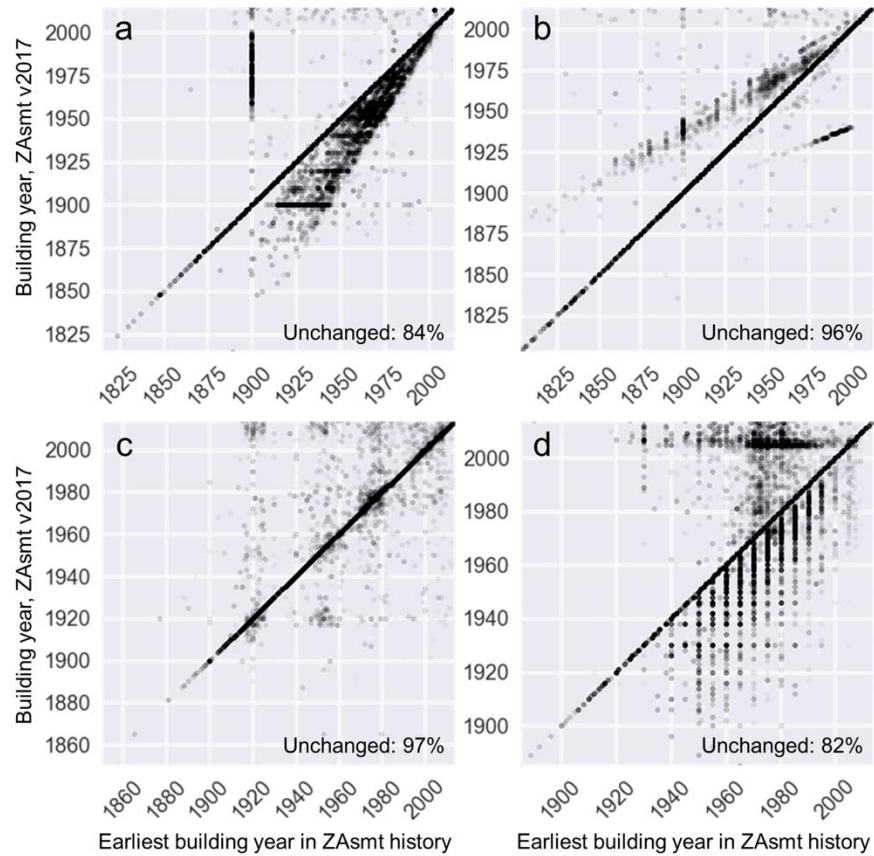
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Appendix Figure A11: Percentage of parcels from digital parcel maps that PLACES lab members could successfully linked to assessment data records using string-pattern matching on assessor parcel numbers and tax account identifiers. Map shows status of PLACES data as of Jun 20, 2021.

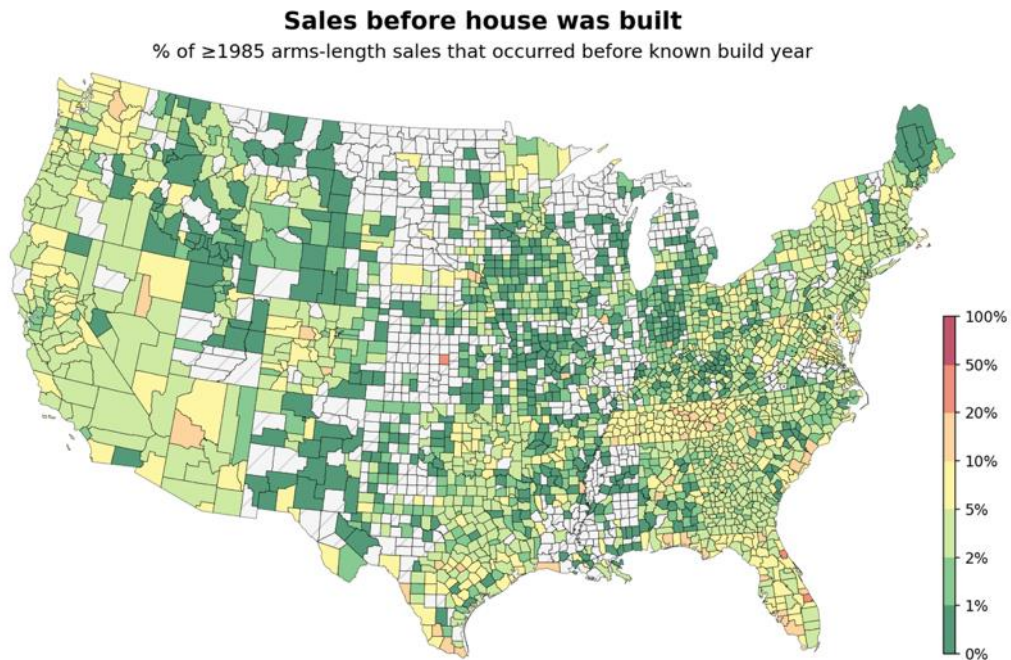
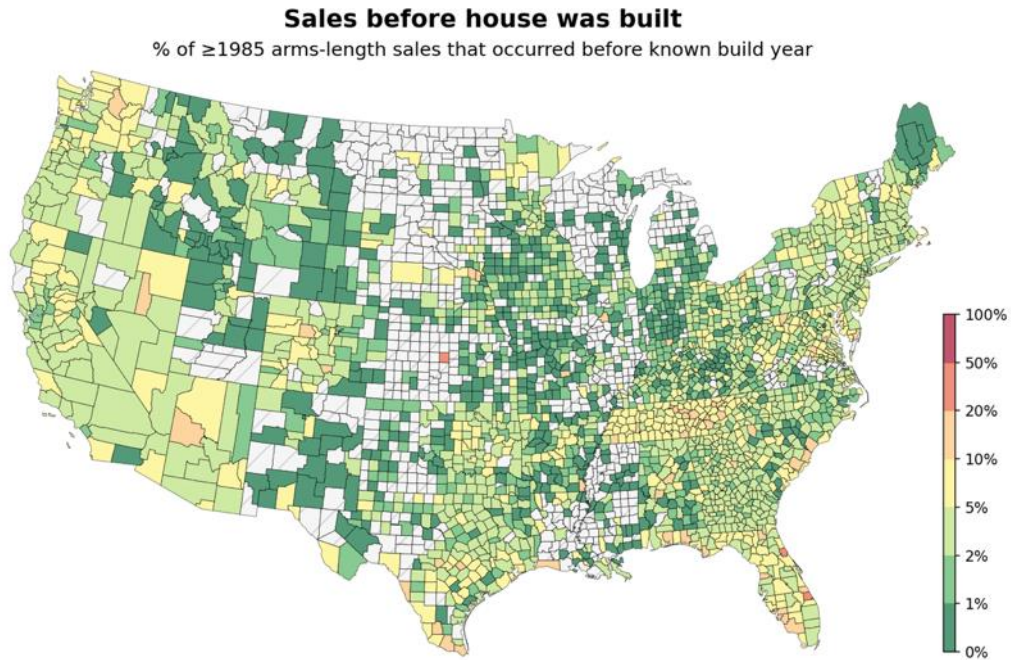


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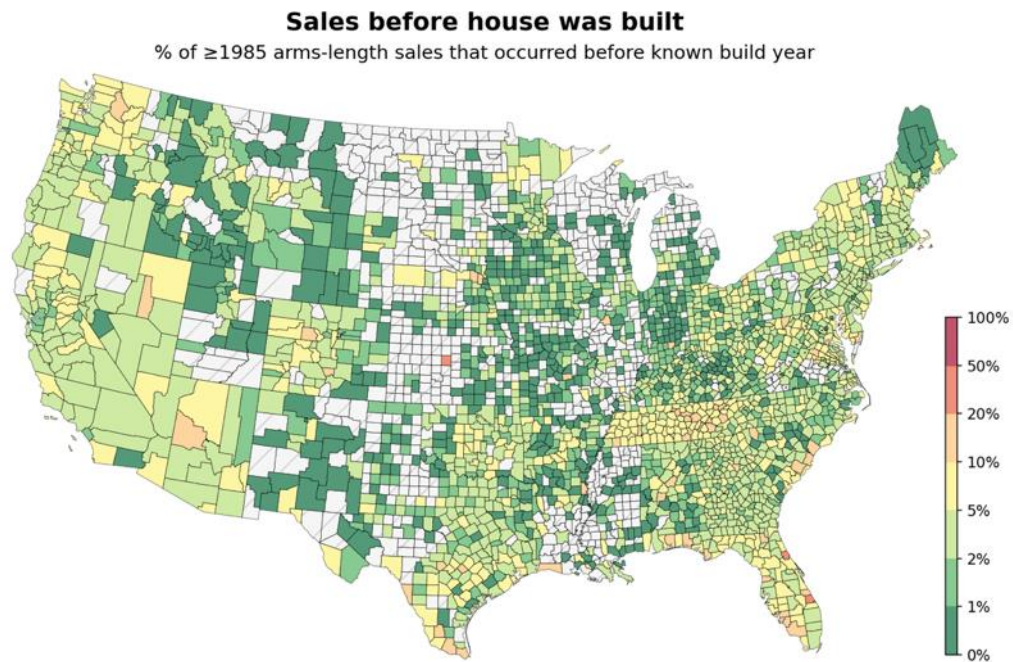
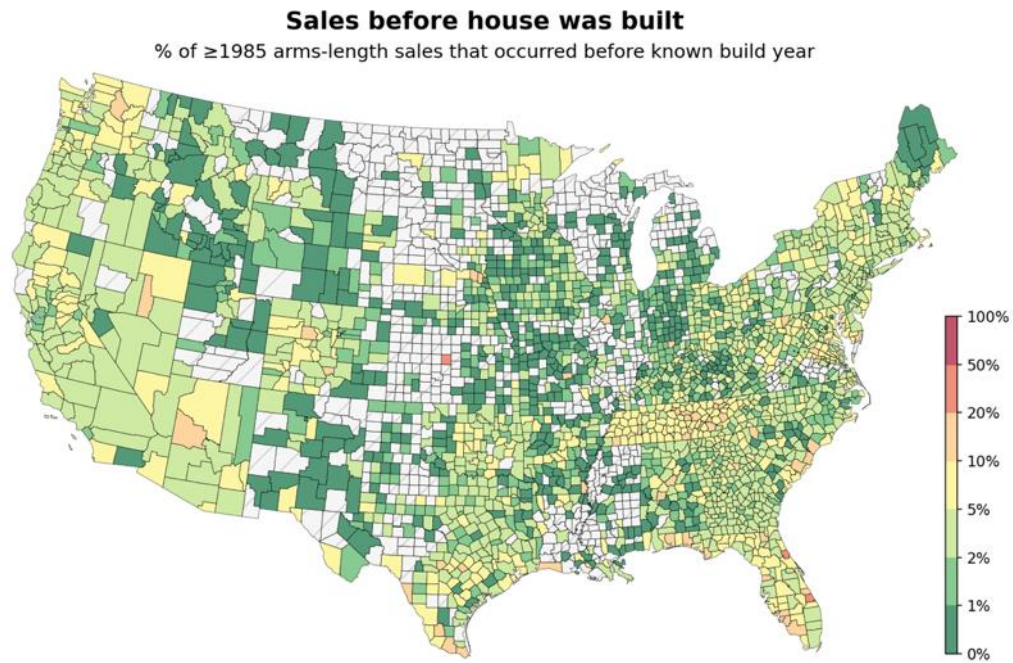
Appendix Figure A12: Differences in building year data for identical properties (matched by "ImportParcelID") between current and historical assessment data in ZTRAX (both downloaded in 2017) for (a) Mercer County (Ohio), (b) Preble County (Ohio), (c) Natrona County (Wyoming) and (d) De Soto County (Florida). Points below the diagonal show records whose building years were backdated, i.e., building years in the historical assessment data were replaced by a more recent year in the assessment data. Note that these changes across database versions are relatively rare (82% - 97% in the examples shown).

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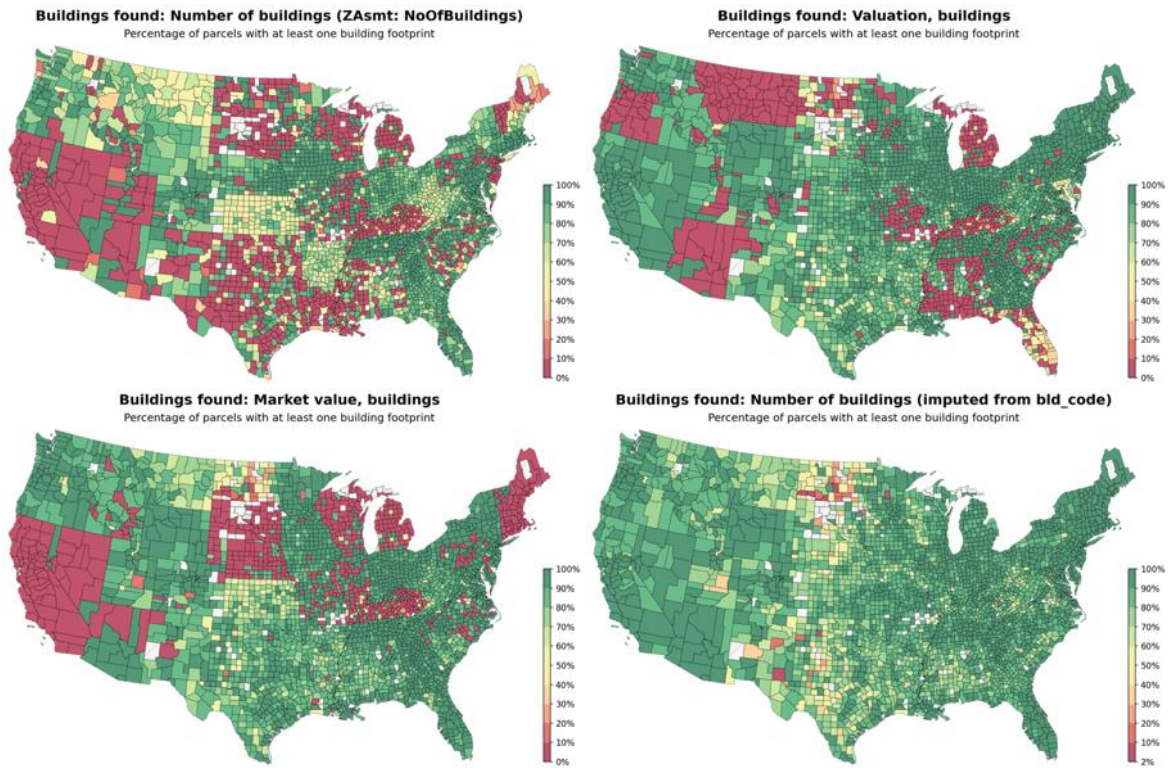
Appendix Figure A13: Percentage of sales observations after 1985 (parcel-linked, arms-length ZTRAX transaction records) that occurred before house was known to be built (top) or known to be either built or renovated (bottom).

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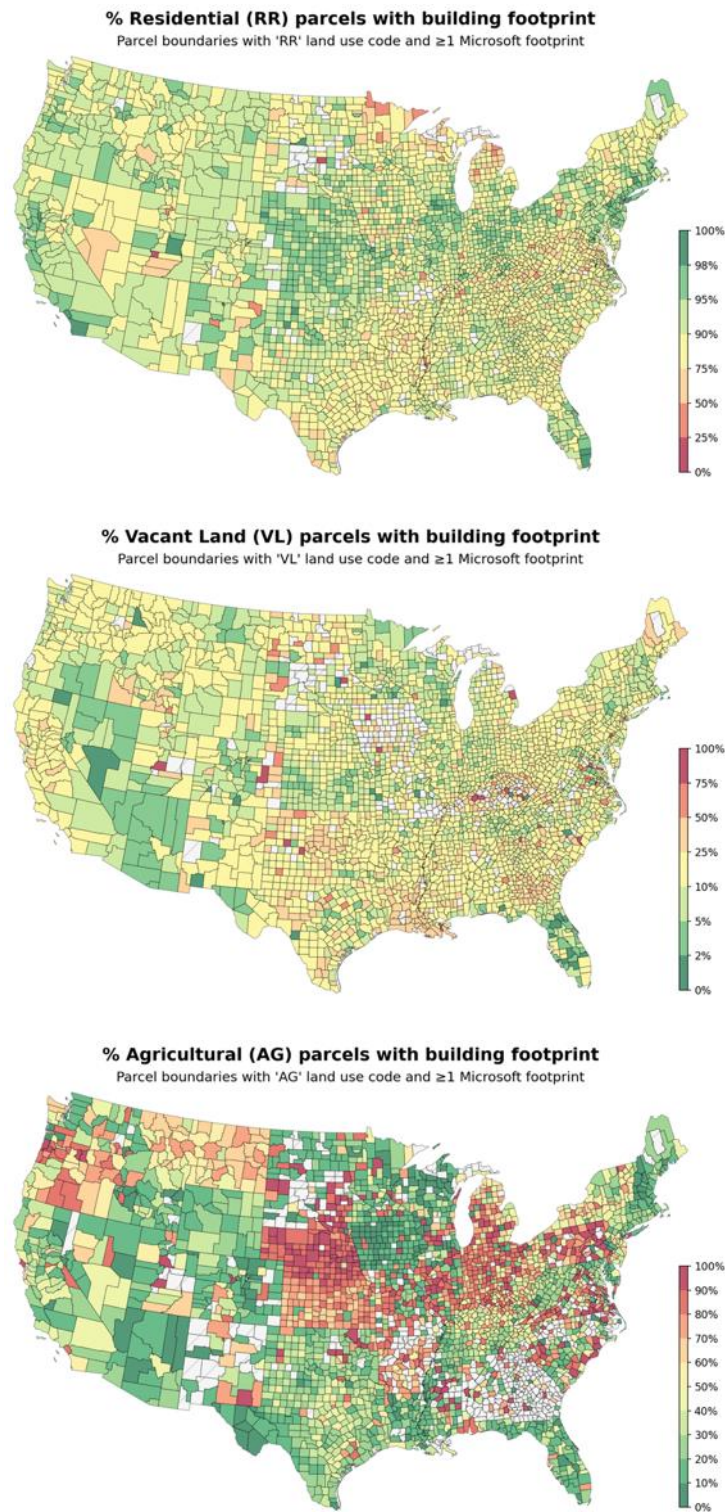
Appendix Figure A14: Discrepancies between building years reported in ZTRAX assessment data vs. most recent change of a pixel inside the corresponding digital parcel boundaries from a "non-developed" to a "developed" class in the LCMAP dataset (U.S. Geological Survey 2019).

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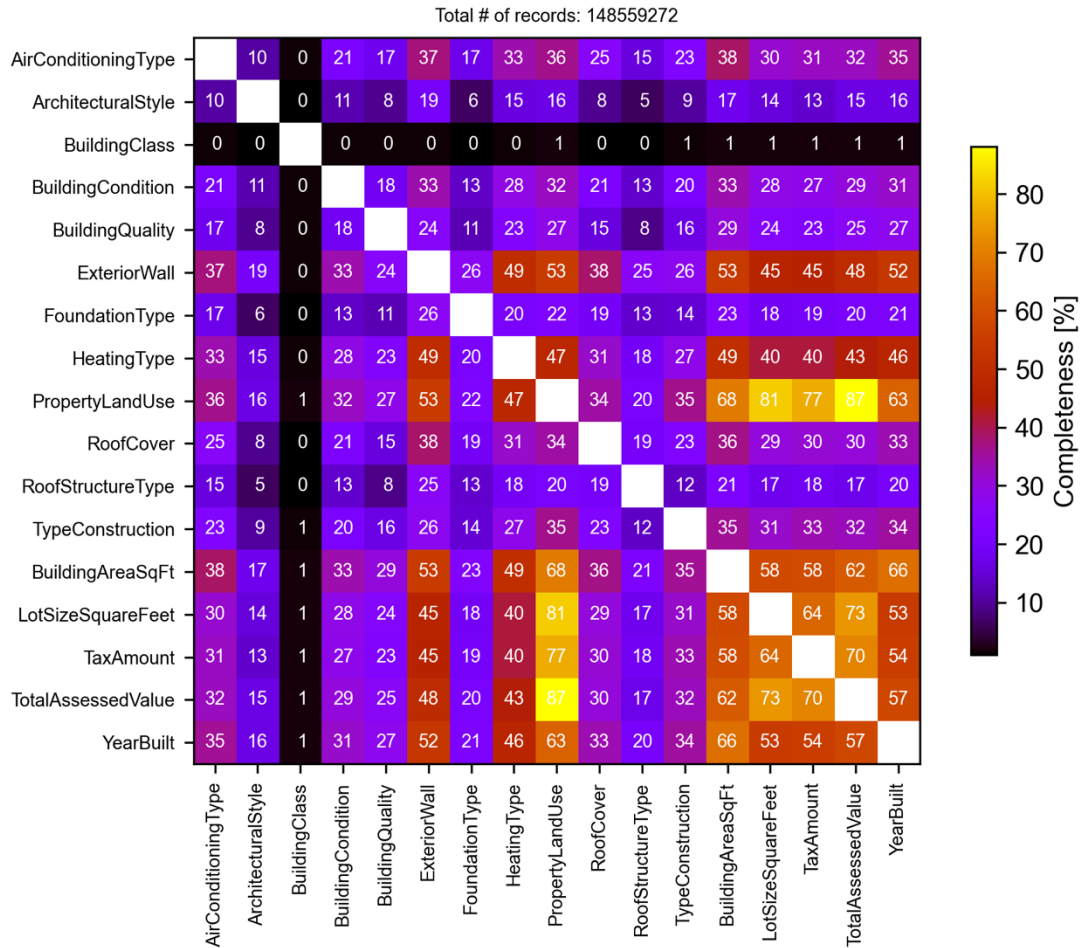
Appendix Figure A15: Percentage of parcels with at least one building footprint that would have been identified as "developed" based on the following four alternative indicators: Number of buildings (top left), positive building valuation (top right), positive building estimated market value (bottom left) and our own indicator of building presence derived heuristically from the standardized land use codes based on their text description (bottom right).

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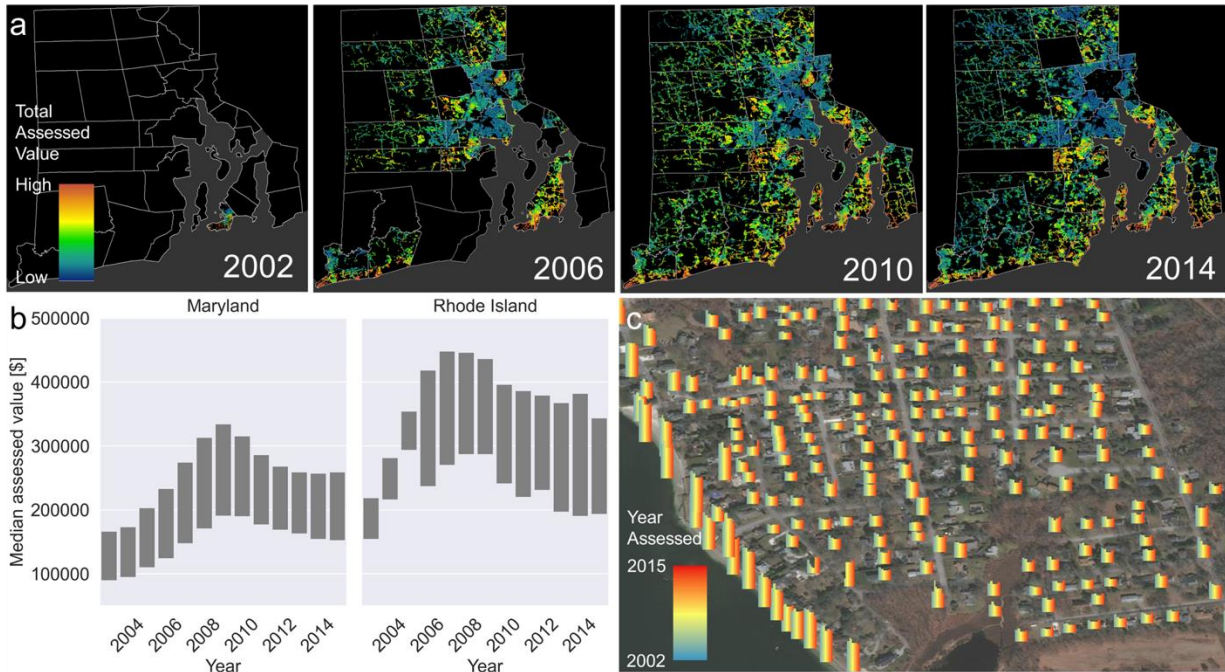
Appendix Figure A16: Percentage of building footprints found on "residential" (top), "vacant" (middle), and "agricultural" (bottom) parcels. The unique scale and direction of each map's color mapping serves to highlight concerns (absence of buildings on "residential" parcels, presence of buildings on "vacant" parcels) and heterogeneity in agricultural parcel definitions between neighboring states (e.g., Nebraska/Kansas vs. Iowa/Colorado)

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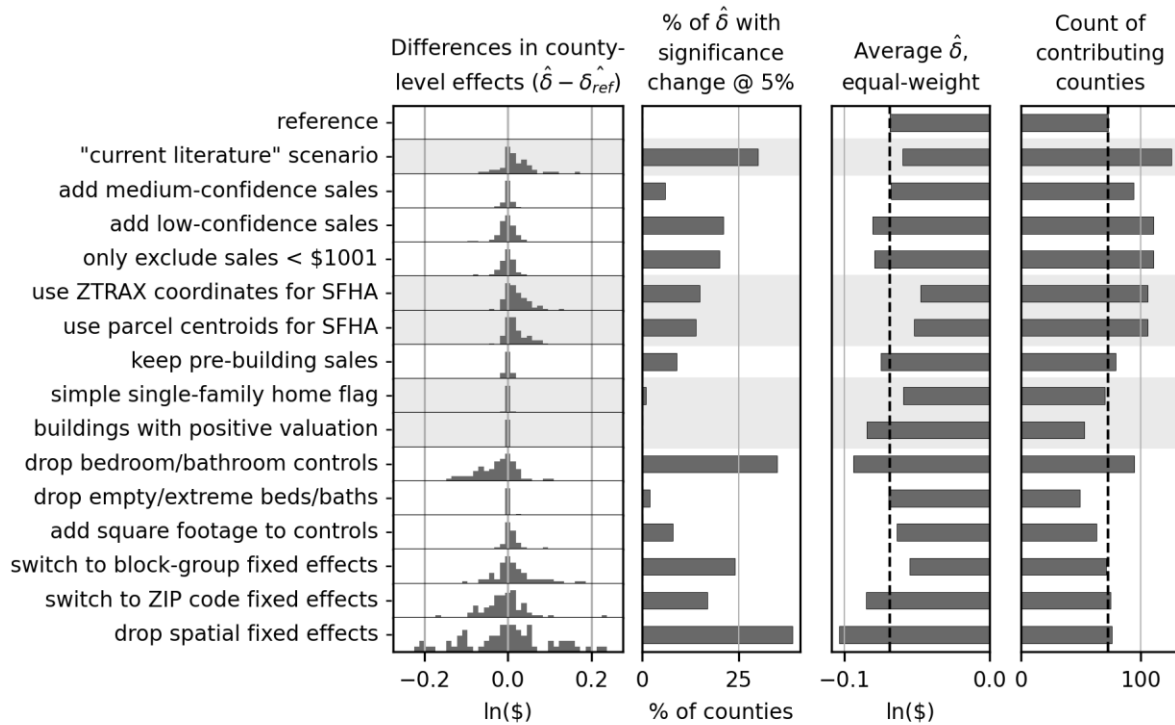
Appendix Figure A17: Mutual completeness of ZTRAX assessment records (measured in % of the total number of ZAsmt records) for selected building and property attributes, illustrating the variability of thematic data completeness across different attributes

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Appendix Figure A18: Illustration of data gaps in historical ZTRAX assessment data by example of the variable "total assessed value". Panel (a): Total assessed value of properties in Rhode Island, shown for different years based on the assessment year attribute, illustrating different updating cycles per town (white). Panels (b) and (c) illustrate exemplary strategies to mitigate effects of irregular updating cycles, such as (b) spatial aggregation (shown here: IQR of county-level median assessed values per state) and (c) interpolation of record-level time series for a subset of Rhode Island. The vertical dimension of the bar charts shows the total assessed value, and the horizontal component of the bar charts shows its variation over time for individual ZTRAX records at the respective locations, after applying forward-filling to the missing values in each record-level time series. Imagery source: ESRI

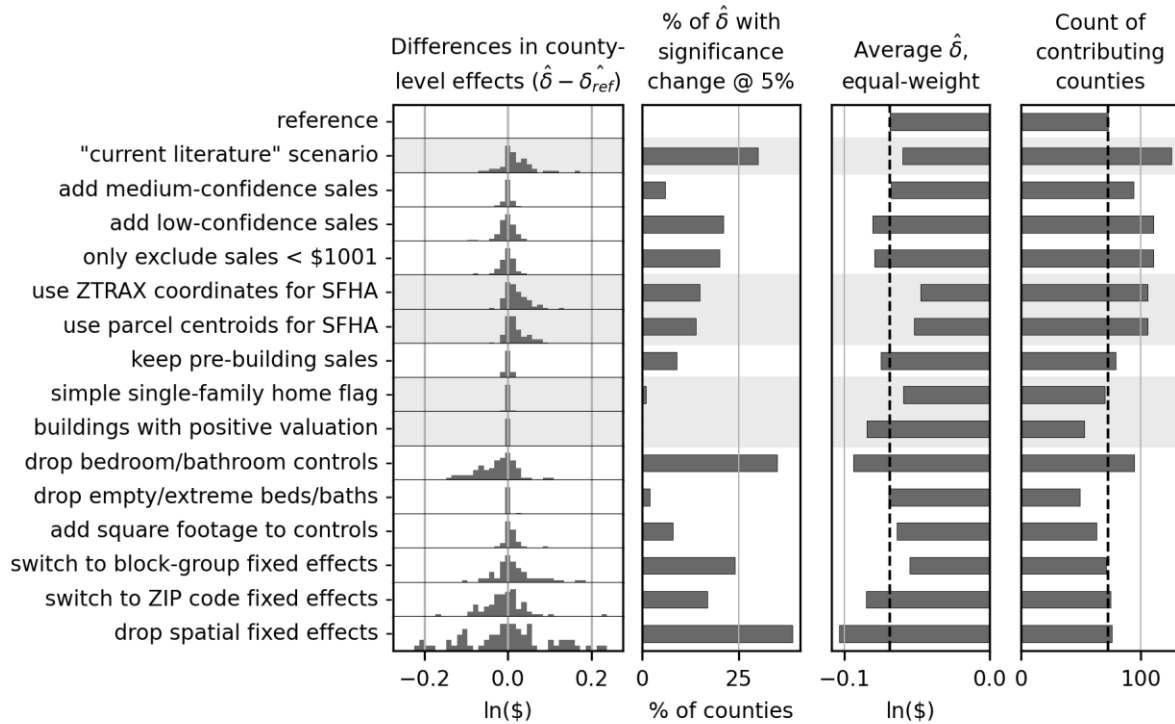
“Data Practices for Studying the Impacts of Environmental Amenities and Hazards with Nationwide Property Data”  
 by Christoph Nolte, Kevin J. Boyle, Anita Chaudhry, Christopher Clapp, Dennis Guignet, Hannah Hennighausen, Ido Kushner, Yanjun Liao, Saleh Mamun, Adam Pollack, Jesse Richardson, Shelby Sundquist, Kristen Swedberg, and Johannes H. Uhl



Appendix Figure A19. Effects of variations in data filtering, processing, and modeling choices on estimated flood zone discounts when including only counties with particularly favorable empirical contexts (defined here as having at least 500 identifying sales observations both inside and outside the flood zone).

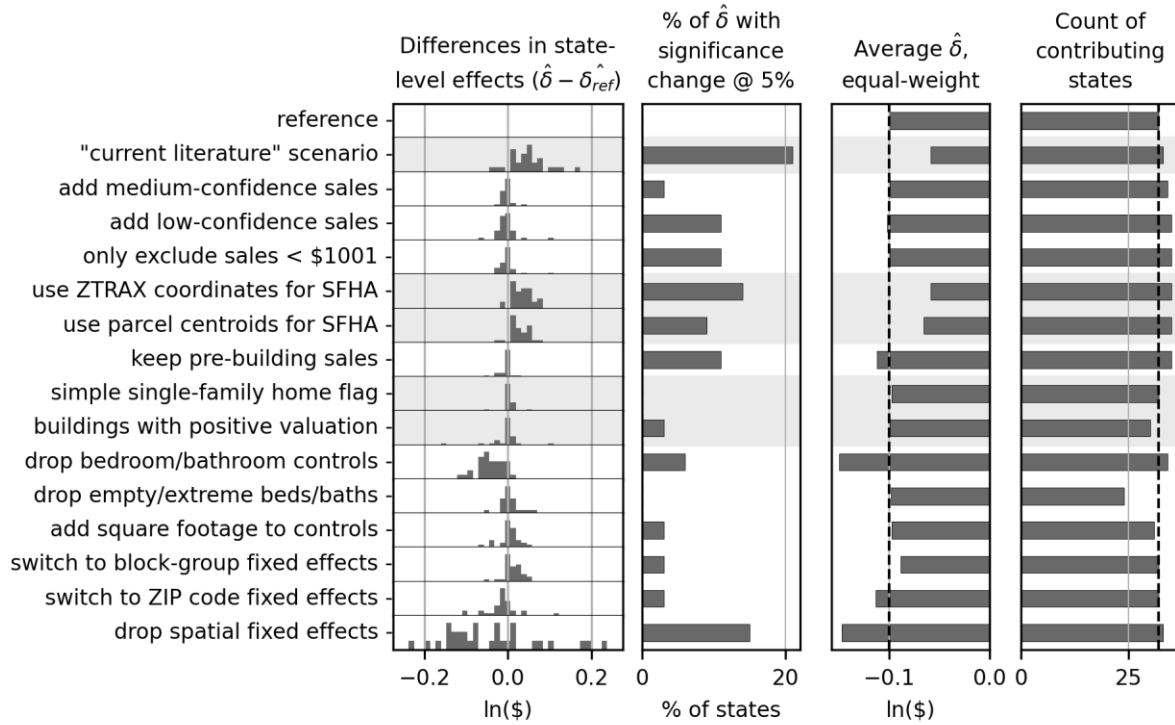


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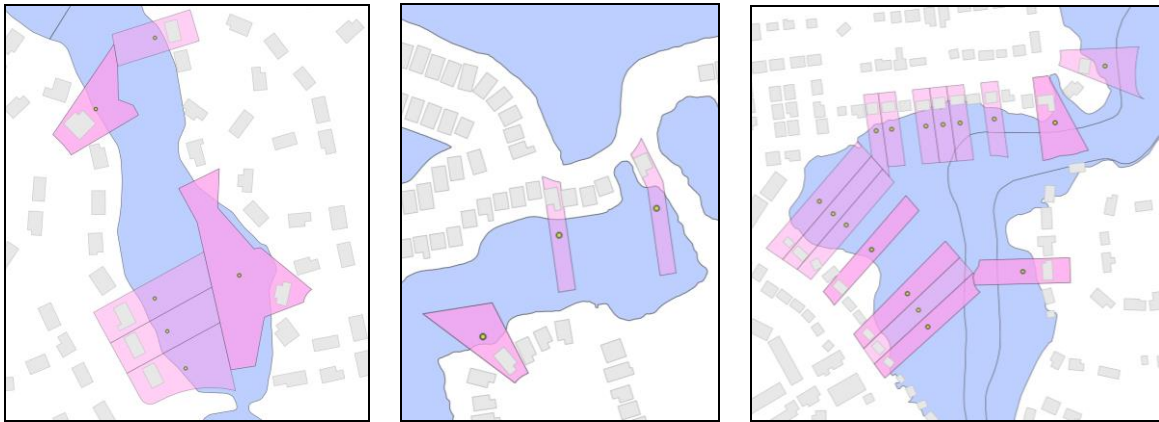
Appendix Figure A20: Effects of variations in data filtering, processing, and modeling choices on estimated flood zone discounts when including only counties whose estimates are relatively stable across variations in fixed effects (defined here as  $|\hat{\delta} - \hat{\delta}_{ref}| < 0.02$  when switching to block group or ZIP code fixed effects).

“Data Practices for Studying the Impacts of Environmental Amenities and Hazards with Nationwide Property Data”  
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Appendix Figure A21: Effects of variations in data filtering, processing, and modeling choices on estimated flood zone discounts when pooling data at the state-level and including only states with particularly favorable empirical contexts (defined here as having at least 500 identifying sales observations both inside and outside the flood zone).

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by Christoph Nolte, Kevin J. Boyle, Anita Chaudhry, Christopher Clapp, Dennis Guignet, Hannah Hennighausen, Ido Kushner, Yanjun Liao, Saleh Mamun, Adam Pollack, Jesse Richardson, Shelby Sundquist, Kristen Swedberg, and Johannes H. Uhl



*Appendix Figure A22: Illustrative examples of misallocations of property sales to special flood hazard areas (blue) when using parcel centroids (green points) instead of building footprints (grey polygons) in Montgomery county, Pennsylvania (left), Polk county, Florida (middle), and Fulton county, Georgia (right).*

## **Appendix Text A1: Deed definitions and proposed categorizations**

*Contributed by: Jesse Richardson, Professor of Law, West Virginia University*

DISCLAIMER: Each state has different customs and usages with respect to the types of deeds used. This document presents general legal principles. Users should consult the law of the particular state to confirm the assumptions and definitions used here.

### **Administrators Deed**

- Also termed a *court-officer’s deed*, an *administrator’s deed* is an affidavit document that conveys property owned by a person who has died intestate. An affidavit of deed confirms delivery and acceptance of a deed by the grantee, and thereby its validity.<sup>1</sup>

This type of deed normally conveys property to an heir at the death of the owner, so does not represent an arms-length transaction.

### **Affidavit**

- An *affidavit* is a voluntary declaration of facts written down and sworn to by a declarant, usually before an officer authorized to administer oaths.<sup>2</sup>

An affidavit can be necessary in a variety of situations, most not involving an arms-length transaction.

### **Affidavit—Death of Joint Tenant**

- A *death of a joint tenant affidavit* is frequently used in lieu of a judicial proceeding to establish fact of death for the purposes of clearing title in the case of a joint tenant’s death. The affidavit describes the property affected and states the recording information as to the prior document establishing affiant's and decedent's interest in the property.<sup>3</sup>

This affidavit is generally used when one joint tenant dies and the remaining joint tenants receive the property through survivorship. This transaction is not a market transaction.

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<sup>1</sup> Administrator’s deed, *Black’s Law Dictionary* (11th ed. 2019), available at Westlaw.

<sup>2</sup> Affidavit, *Black’s Law Dictionary* (11th ed. 2019), available at Westlaw.

<sup>3</sup> Establishing and Reporting Fact of Death: 2 LPI Legal Professional’s Handbook ¶ 1720 (West 2020).

### Agreement of Sale (Agreement for Deed)

- An *agreement of sale* is an agreement that obligates someone to sell and that may include a corresponding obligation for someone else to buy.<sup>4</sup>
- An *agreement for deed* is an installment contract for the sale of land in which the seller (grantor) retains legal title until paid in full. During the contract term, the buyer (grantee) possesses only equitable title.<sup>5</sup> In Florida, an *agreement for deed* is considered a mortgage.<sup>6</sup>

Agreements of Sale can arise in a variety of situations but generally denote an arms-length transaction.

### Assignment Deed

- An *assignment deed* is the instrument used to record the transfer of ownership in a property from one party to another and states that the assigned property will belong to the assignee and no longer to the assignor beginning on a specified date.<sup>7</sup>

Assignment deeds may arise in a variety of situations but usually involve assumption of a debt. These deeds likely do not arise from arms-length transactions.

### Bargain & Sale Deed

- Typically used in foreclosure and tax sales, a *bargain & sale deed* lacks an express covenant about the validity of the title but implies that the grantor holds title to the property and conveys it to a buyer for valuable consideration.<sup>8</sup> Also termed a *bargain-and-sale deed without covenants* or a *deed without warranty*.

Given the lack of covenant with respect to validity of title, these types of deeds are often not used in arms-length transactions. However, in some states bargain and sale deeds are typical and represent arms-length transactions.

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<sup>4</sup> Agreement of sale, *Black's Law Dictionary* (11th ed. 2019), available at Westlaw.

<sup>5</sup> Orange County Property Appraiser, *Deed Types* (last visited Dec. 29, 2020), <https://www.ocpaf1.org/Searches/Lookups.aspx/Code/Deed>.

<sup>6</sup> Fla. Stat. Ann. § 697.01 (West 1838); see also Lulich Attorneys & Consultants, *Florida Agreement for Deed Law: The Same as a Mortgage?* (posted Mar. 25, 2018), <http://www.lulich.com/florida-agreement-for-deed-law-the-same-as-a-mortgage/>.

<sup>7</sup> Deed of Assignment: Everything You Need to Know, UPCOUNSEL (last visited Dec. 29, 2020), <https://www.upcounsel.com/deed-of-assignment>.

<sup>8</sup> Bargain & sale deed, *Black's Law Dictionary* (11th ed. 2019), available at Westlaw.

### **Beneficiary Deed**

- A *beneficiary deed* automatically conveys the property to a designated person upon the property owner’s death. Because it permits the property owner while living to make a grant of real property to the owner’s heirs without effecting a change of ownership, a *beneficiary deed* avoids probate.<sup>9</sup>

Beneficiary deeds convey property upon death and do not represent arms-length transactions.

### **Cash Sale Deed**

- A *cash sale deed* is the sale of property between two parties in exchange for cash and therefore does not require the involvement of a mortgage lender or bank for a line of credit.<sup>10</sup>

A cash sale deed generally results from arms-length transactions.

### **Certificate of Transfer**

- A *certificate of transfer* is the contractually agreed transference of a patent application from one court to another.<sup>11</sup>

This type of deed is not normally used in a land transaction and should be viewed skeptically with respect to representing an arms-length transaction.

### **Commissioners Deed**

- A *commissioner’s deed* is a deed used by a commissioner to convey property in his or her official capacity.<sup>12</sup>

Since this deed arises out of litigation or a forced sale, the transactions would not represent arms-length transactions.

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<sup>9</sup> Beneficiary deed, *Black’s Law Dictionary* (11th ed. 2019), available at Westlaw.

<sup>10</sup> Rochford Law, *Buying Property in a Cash for Deed Transaction* (June 25, 2019), <https://info.rochfordlawyers.com/resources/buying-property-with-cash-deeds>; see also Nicole Manuel, *What is a Cash Deed?* (June 19, 2017), <https://legalbeagle.com/5701773-execute-deed-power-attorney.html>.

<sup>11</sup> Certificate of transfer, *Black’s Law Dictionary* (11th ed. 2019), available at Westlaw.

<sup>12</sup> Commissioners deed, *Black’s Law Dictionary* (11th ed. 2019), available at Westlaw.

## Condominium Deed

- A condominium is created by a *master deed* that governs a condominium unit owner’s rights and defines the common elements of the condominium. Created from the *master deed* are individual *condominium unit deeds*, and the acceptance of a unit deed by each unit owner constitutes an acceptance of the terms of the declaration, bylaws, and rules and regulations of the condominium. Normal rules and principles of the construction of deeds apply to *condominium unit deeds*.<sup>13</sup>

Condominium deeds should generally represent arms-length transactions.

## Contract of Sale

- A *contract of sale* is a sale for the present transfer of property for a price or a contract to sell goods at a future time. Also termed *contract to sell* or a *sale contract*.<sup>14</sup>

Not a deed, but an agreement that results in a deed. Contracts of sale usually result from arms-length transactions.

## Corporation Deed

- A *corporation deed* is a document that transfers ownership of a property from one organization to another individual or organization. The organization that makes the transfer does not need to be registered as a business corporation, and a city government that sells or grants a property may also issue a corporation grant deed.<sup>15</sup>

Unclear as to whether these deeds would represent arms-length transactions. Likely that some would be arms-length and some not.

## Correction Deed

- A *correction deed* is a legal document used to amend errors in an existing property title. While typically used to correct minor errors like misspelled names or basic missing information like marital status, a *correction deed* may also be used to correct defects in the execution or acknowledgment of a property deed. Unlike a *re-recorded deed*, a *correction deed* is essentially a new document that is a duplicate of the original deed save

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<sup>13</sup> 31 C.J.S. Estates § 232 (West 2020).

<sup>14</sup> Contract for sale, *Black’s Law Dictionary* (11th ed. 2019), available at Westlaw.

<sup>15</sup> Eric Novinson, *What is a Corporation Grant Deed?*, SAPLING (last updated Mar. 28, 2017), <https://www.sapling.com/8042679/corporation-grant-deed>.

for the corrected information.<sup>16</sup> Because its only purpose is to explain and correct minor errors, a *correction deed* does not alter the substance of the original deed but merely confirms the conveyance effected by the previously recorded deed.<sup>17</sup>

These deeds should be disregarded as not resulting from arms-length transactions.

### **Court Order/Action**

- A *court order/action* is a proceeding to establish a plaintiff’s title to land by compelling the adverse claimant to establish a claim or be forever estopped from asserting.<sup>18</sup> The proceeding is intended to remove, or “quiet,” a claim or objection to a title by clarifying ownership of a property.<sup>19</sup>

These actions are compelled and do not represent arms-length transactions.

### **Deed**

- A *deed* is the physical legal document by which the ownership rights to a property are conveyed. At common law, a *deed* is any written instrument that is signed, sealed, and delivered and that conveys some interest in property.<sup>20</sup>

Deed is a generic term that in and of itself does not give enough information to know whether the transaction is arms-length.

### **Deed in Lieu of Foreclosure**

- Often referred to as a “deed in lieu,” a *deed in lieu of foreclosure* is a deed by which a borrower conveys fee-simple title to a lender in satisfaction of a mortgage debt and as a substitute for foreclosure.<sup>21</sup>

These deeds do not represent arms-length transactions.

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<sup>16</sup> Goosman Rose Colvard & Cramer, P.A., *Confirmatory/Corrective Deed* (last visited Dec. 29, 2020), <https://www.grcclaw.com/confirmatory-corrective-deed/>.

<sup>17</sup> West Virginia Correction Deed (last visited Dec. 29, 2020), <https://www.deeds.com/forms/west-virginia/correction-deed/>. While the link is to Correction Deeds for West Virginia in particular, the definition of a *correction deed* is fairly ubiquitous across the site.

<sup>18</sup> Action to quiet title, *Black’s Law Dictionary* (11th ed. 2019), available at Westlaw.

<sup>19</sup> Will Kenton, *Quiet Title Action*, INVESTOPEDIA (last updated Nov. 19, 2019), <https://www.investopedia.com/terms/q/quiet-title-action.asp>.

<sup>20</sup> Deed, *Black’s Law Dictionary* (11th ed. 2019), available at Westlaw.

<sup>21</sup> Deed in lieu of foreclosure, *Black’s Law Dictionary* (11th ed. 2019), available at Westlaw.



## Deed of Distribution

- A *deed of distribution* is a fiduciary's deed conveying a decedent's real estate.<sup>22</sup>

These deeds transfer property at the death of an owner and do not represent market transactions.

## Executors/Executrixs Deed

- An *executor's/executrix's deed* is a document that conveys property owned by a person who has died testate. Also termed a *court-officer's deed*.<sup>23</sup>

These deeds transfer property at the death of an owner and generally do not represent market transactions. However, in some instances the will may direct a sale of the property in which the deed would represent an arms-length transaction

## Fiduciary Deed

- A *fiduciary deed* is a deed used by a fiduciary to convey property in a fiduciary capacity. Examples include an *administrator's deed*, *executor's deed*, *conservator's deed*, *guardian's deed*, *personal representative's deed*, and *trustee's deed*.<sup>24</sup>

These deeds transfer property in an official fiduciary capacity and may or may not represent arms-length transactions, depending upon the circumstances.

## Foreclosure Deed/Certificate

- A *foreclosure deed/certificate* is a legal document that transfers legal ownership of a property to the purchaser at a foreclosure sale. The type of *foreclosure deed/certificate* granted depends on whether a judicial or non-judicial foreclosure is followed.
  - In a judicial foreclosure, the judge issues a foreclosure order directing the sheriff's department to hold a foreclosure sale. Following the foreclosure sale, the sheriff's department issues a *sheriff's deed* to the purchaser of the property.
  - In a non-judicial foreclosure, no judicial proceeding is required; instead, a trustee is appointed by the mortgage lender to hold a publicly noticed foreclosure sale. After the foreclosure sale, the trustee issues a *trustee's deed* naming the purchaser at the sale as the new record owner of the property.<sup>25</sup>

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<sup>22</sup> Deed of distribution, *Black's Law Dictionary* (11th ed. 2019), available at Westlaw.

<sup>23</sup> Executors/Executrixs deed, *Black's Law Dictionary* (11th ed. 2019), available at Westlaw.

<sup>24</sup> Fiduciary deed, *Black's Law Dictionary* (11th ed. 2019), available at Westlaw.

<sup>25</sup> Jerusha Hardman, *What is a Foreclosure Deed?*, SAPLING (last visited Dec. 29, 2020), <https://www.sapling.com/8397530/foreclosure-deed>.

Foreclosure sales are forced sales and often result in sales at less than fair market value. These deeds should not be relied on as arms-length.

### **Gift Deed**

- A *gift deed* is a deed transferring ownership of a property in exchange for either a nominal sum or “in consideration of love and affection.”<sup>26</sup>

By their very nature, gift deeds do not represent arms-length transactions.

### **Grant Deed**

- A *grant deed* contains, or has been implied by law, some but not all of the usual covenants of title, especially a deed in which the grantor warrants that he or she (1) has not previously conveyed the estate being granted, (2) has not encumbered the property except as noted in the deed, and (3) will convey to the grantee any title to the property acquired after the date of the deed.<sup>27</sup>

Lacking some of the usual warranties, a grant deed will generally not represent arms-length transactions. However, some states may by custom use these deeds in market transactions.

### **Interspousal Transfer Deed**

- An *interspousal transfer deed* is used in some states to transfer ownership between spouses. A gift given by one spouse to the other during the marriage is considered “separate,” or separately owned, rather than “marital,” or mutually owned, property.<sup>28</sup>

As a deed between spouses, an interspousal transfer deed does not represent an arms-length transaction.

### **Intrafamily Transfer & Dissolution**

- An *intrafamily transfer and dissolution* is a deed that transfers ownership from one family member to another without the property being sold. Dissolution typically refers to divorce, in which ownership is transferred from the couple to just one person, but it may also refer to a change in the trust.<sup>29</sup>

Intrafamily Transfer and Dissolution deeds do not represent arms-length transactions.

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<sup>26</sup> Gift deed, *Black’s Law Dictionary* (11th ed. 2019), available at Westlaw.

<sup>27</sup> Grant deed, *Black’s Law Dictionary* (11th ed. 2019), available at Westlaw.

<sup>28</sup> Editors, *Understanding Your Deed: The Grant Deed, The Quitclaim Deed, and Interspousal Deed*, ESCROW OF THE WEST (July 31, 2018), <https://escrowofthewest.com/grant-deed/>.

<sup>29</sup> § 2:33. Constructive fraud—Common types of transfers—Intrafamily transfers, Fraudulent Transfers, Prebankruptcy Planning and Exemptions § 2:33 (West 2020).

## Joint Tenancy Deed

- A *joint tenancy deed* is a deed whose language expresses that the grantees hold equal shares of the property as joint tenants, usually by providing a *right of survivorship*.<sup>30</sup>

Joint tenancy deeds may or may not represent arms-length transactions, depending on the circumstances.

## Land Contract

- A *land contract* is a written legal contract used to purchase real estate or other real property. Also termed a *contract for deed*, a *land contract* is a form of seller financing similar to a mortgage but rather than make payments to a lender or bank, a buyer makes payments directly to the seller until the purchase price is paid in full.<sup>31</sup> The buyer is considered to possess an equitable title to the property while making payments and the seller retains legal title to the property until the final payment is made. The buyer’s status as an equitable title holder grants them an interest in the property that precludes the seller from selling the property to a third party or creating a lien or encumbrance that would interfere with the buyer’s interest in the property.<sup>32</sup>

Land contracts generally represent arms-length transactions. However, purchasers are often persons who are unable to obtain credit through usual mortgage markets due to various circumstances. Therefore, these contracts have been known to be used in abusive ways. The prices may be higher than true arms-length transactions.

## Land Court (Massachusetts)

- In Massachusetts, the Land Court possesses exclusive, original jurisdiction over the registration of title to real property and over all matters and disputes concerning such title subsequent to registration.<sup>33</sup> After a thorough search and due process is afforded to all interested parties, the Land Court reviews, adjudicates, and decrees the state of the title to register it. Once registered, the state of the title is embodied in a certificate that not only evidences title but acts as a guarantee of title subject only to the statutory exceptions and federal law. Under the Land Court system, each registered property has a numbered

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<sup>30</sup> Joint tenancy deed, *Black’s Law Dictionary* (11th ed. 2019), available at Westlaw.

<sup>31</sup> Everything You Need to Know About Land Contracts, ROCKET MORTGAGE (Sep. 17, 2020), <https://www.rocketmortgage.com/learn/land-contract>.

<sup>32</sup> Kelsey Cooke, *The Basics of Land Contracts*, NOLO (last visited Jan. 2, 2021), <https://www.nolo.com/legal-encyclopedia/the-basics-land-contracts.html>.

<sup>33</sup> Commonwealth of Massachusetts, *Jurisdiction of the Land Court* (last updated Apr. 27, 2018), <https://www.mass.gov/info-details/jurisdiction-of-the-land-court#overview->.

current owner’s certificate of title and is issued a new certificate when the property is sold or transferred. The Land Court supervises all Land Court records, and any documents affecting a certificate of title are referenced in an encumbrance list that accompanies that certificate.<sup>34</sup>

Land court deeds in Massachusetts may be arms-length or may not. More information would be needed to determine the nature of the transaction.

### **Leasehold Conversion with Agreement of Sale**

- A *leasehold conversion with agreement of sale* is the conversion of a *leasehold interest* in a property to a *freehold interest*. Essentially a lease-to-own agreement, a tenant enters into an *agreement of sale* with the owner in fee of a property to pay an agreed upon portion of rent payments toward a down payment in order to purchase the property at some future point of time.<sup>35</sup>

Leasehold Conversion with Agreement of Sale transactions generally amount to arms-length transactions although the terms may include adjustments in the price for an option to purchase in the future.

### **Life Estate Deed/Deed Reserving Life Estate**

- A *life estate deed/deed reserving life estate* is a deed that transfers ownership of a subject property to one or more “remaindermen” while reserving in the grantor a life estate in the property. Typically employed as a way of avoiding probate, title to the property automatically vests in the remainderman/remaindermen upon the life tenant's death. While free of the life tenant’s creditors, a property is still subject to any legally enforceable lien on the property upon transfer.<sup>36</sup>

A deed reserving a life estate often occurs between family members so probably do not amount to an arms-length transaction.

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<sup>34</sup> Norfolk Co. Registry of Deeds, *Filing Requirements and Document Checklists* (last visited Dec. 29, 2020), <https://www.norfolkdeeds.org/support/document-checklist>.

<sup>35</sup> James Kimmons, *Using a Lease Purchase to Buy Property* (last updated July 8, 2019), <https://www.thebalancesmb.com/lease-purchase-for-buyers-and-sellers-of-real-estate-2866975>.

<sup>36</sup> Randy Coleman, *The Problem with Life Estate Deeds*, (July 28, 2014), <https://www.linkedin.com/pulse/20140728165911-7718716-the-problem-with-life-estate-deeds>.

## Limited Warranty Deed

- A *limited warranty deed* is a deed in which the grantor covenants to defend the title against only those claims and demands of the grantor and those claiming by and under the grantor. Also termed a *special warranty deed* and, in a few jurisdictions, a *quitclaim deed*.<sup>37</sup>

Special warranty deeds raise concerns as to whether the transaction is arms-length as special circumstances probably exist. For example, a trustee may use a special warranty deed. Quitclaim deeds usually indicate lack of an arms-length transaction. However, in some states in the Northeast quitclaim deeds are customary in arms-length transactions.

## Partnership Deed

- A *partnership deed* is a document that outlines the rights and responsibilities of all parties to a business operation. A *partnership deed* is designed to guide partners in the conduct of business, including but not limited to how additional capital should be raised, actions to take in the event of a partner’s death or withdrawal, and dissolution of the partnership.<sup>38</sup>

A partnership deed is used in the formation of a business organization and lacks indicia of an arms-length transaction.

## Personal Representatives Deed

- A *personal representatives deed* is a deed used by a personal representative to convey property in the course of administering a decedent's estate. Compare to an *administrator's deed* or an *executor's deed*.<sup>39</sup>

Personal representatives deeds pass property at the death of the landowner, transactions that occur outside of the market.

## Quitclaim Deed

- A *quitclaim deed* is a deed that conveys a grantor's complete interest or claim in certain real property but that neither warrants nor professes that the title is valid. Also termed *deed without covenants* or *deed without warranty*. Compare to a *warranty deed*.<sup>40</sup>

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<sup>37</sup> Limited warranty deed, *Black's Law Dictionary* (11th ed. 2019), available at Westlaw.

<sup>38</sup> Tom Streissguth, *What is the Meaning of a "Partnership Deed"?*, SFGATE (last updated Dec. 2, 2018), <https://homeguides.sfgate.com/meaning-partnership-deed-1519.html>.

<sup>39</sup> Personal representatives deed, *Black's Law Dictionary* (11th ed. 2019), available at Westlaw.

Quitclaim deeds usually indicate lack of an arms-length transaction. However, in some states in the Northeast quitclaim deeds are customary in arms-length transactions.

### Re-recorded Deed

- A *re-recorded deed* is a replacement for a deed that has been either lost, destroyed, or removed. Unlike a *correction deed* that creates a duplicate deed save any corrected information that is filed in addition to the original deed, a *re-recorded deed* replaces the original deed entirely.<sup>41</sup>

The nature of the transaction underlying a re-recorded deed depends on the particular circumstances so no general rule can be set out.

### Redemption Deed

- A *redemption deed* is obtained with property redeemed from a tax sale. In the case of foreclosure for unpaid taxes, the property owner has the opportunity to redeem their property during the “redemption period,” the period of time that occurs after the property is placed on the foreclosure list with the courts. The redemption period varies by states, but payment of taxes, interest, penalty, and costs must be made before the property can be redeemed. In most states, only someone with a legal interest in the property can redeem it. Once payment of delinquent taxes and any additional costs have been made by a person with a legal interest in the property during the redemption period, they receive a redemption deed for the property.<sup>42</sup>

A redemption deed occurs in the case of a tax sale, outside of market circumstances, and is not indicative of market price.

### Referee’s Deed

- A *referee’s deed* is a document that conveys real property sold by court order, especially for a partition or a foreclosure.<sup>43</sup>

Referee’s deeds occur in forced sale situations so lack the elements of an arms-length transaction.

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<sup>40</sup> Quitclaim deed, *Black’s Law Dictionary* (11th ed. 2019), available at Westlaw.

<sup>41</sup> James Bruce Davis, *When’s it OK to Re-record a Deed?*, 20 VLTA EXAMINER 14 (Spring 2014), available at [https://www.beankinney.com/media/publication/340\\_March%202014%20-%20JBD%20-%20When%20it%20ok%20to%20re-record%20a%20deed%2000428292xAC2B5.pdf](https://www.beankinney.com/media/publication/340_March%202014%20-%20JBD%20-%20When%20it%20ok%20to%20re-record%20a%20deed%2000428292xAC2B5.pdf); see also § 19:84.

Rerecording after correction, 2 GA. REAL ESTATE LAW & PROCEDURE § 19:84 (7th ed.) (West 2020).

<sup>42</sup> Julie Davoren, *What is a Redemption Deed?*, SAPLING (last updated Mar. 28, 2017), <https://www.sapling.com/8654881/redemption-deed>.

<sup>43</sup> Referees deed, *Black’s Law Dictionary* (11th ed. 2019), available at Westlaw.

## Sheriff’s Deed

- A *sheriff’s deed* is a deed that gives ownership rights in property bought at a sheriff’s sale.<sup>44</sup>

Sheriff’s deeds occur in forced sales circumstances and do not reflect an arms-length transaction.

## Special Warranty Deed

- A *special warranty deed* is a deed in which the grantor covenants to defend the title against only those claims and demands of the grantor and those claiming by and under the grantor. Also termed *limited warranty deed* and, in a few jurisdictions, a *quitclaim deed*. Compare to a *warranty deed*.<sup>45</sup>

Special warranty deeds raise concerns as to whether the transaction is arms-length as special circumstances probably exist. For example, a trustee may use a special warranty deed.

## Special Warranty Deed with Vendors Lien

- A *special warranty deed with vendor’s lien* is functionally similar to a *warranty deed with a vendor’s lien* but more limited in scope. A *special warranty deed* covenants to the buyer only that the seller has not personally done anything to adversely affect the title being conveyed while the seller has owned the property whereas a *warranty deed* guarantees the property being purchased is free of encumbrances back to the property’s origin.<sup>46</sup> A *vendor’s lien* is a lien in favor of the vendor, or seller of the property. When a *special warranty deed* contains a *vendor’s lien*, it offers more protection to the vendor, or the property seller, than the buyer because the timeframe guaranteed to be free of mortgages or liens that may encumber the property is limited to the time the seller has held title. Used in situations where the buyer is taking immediate possession but paying in installments, a *special warranty deed with vendor’s lien* acts like a specific kind of mortgage in permitting the seller (vendor) to retain the right to repossess the property until the buyer makes the final payment.<sup>47</sup> Until the buyer finishes paying, the seller possesses legal title to the property and the buyer cannot sell the property.<sup>48</sup>

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<sup>44</sup> Sheriffs deed, *Black’s Law Dictionary* (11th ed. 2019), available at Westlaw.

<sup>45</sup> Special warranty deed, *Black’s Law Dictionary* (11th ed. 2019), available at Westlaw.

<sup>46</sup> Special warranty deed, *Black’s Law Dictionary* (11th ed. 2019), available at Westlaw.

<sup>47</sup> John Willis, *What is a Vendor’s Lien Deed?*, SAPLING (last updated Mar. 28, 2017), <https://www.sapling.com/8466182/vendors-lien-deed>.

<sup>48</sup> Pam McCallum, *What is a Texas Warranty Deed with Vendor’s Lien?*, SAPLING (last updated Mar. 14, 2018), <https://www.sapling.com/8796347/texas-warranty-deed-vendors-lien>.

Like a special warranty deed, a special warranty deed with vendors lien raises concerns as to whether the transaction is arms-length as special circumstances probably exist. For example, a trustee may use a special warranty deed.

### Survivorship Deed

- A *survivorship deed* is a deed that creates a right of survivorship in the grantees. Specifically, a *survivorship deed* provides that ownership of a deceased tenant's share is automatically transferred to the surviving tenant.<sup>49</sup>

A survivorship deed may or may not indicate an arms-length transaction. The grantees are generally family members but the grantor may not be related.

### Tax Deed

- A *tax deed* is a deed showing the transfer of title to real property sold for the nonpayment of taxes.<sup>50</sup>

Tax deeds result from forced sales of property so do not reflect an arms-length transaction.

### Transfer on Death Deed

- A *transfer on death deed* is a deed that automatically conveys the property to a designated person upon the property owner's death. Also termed a *beneficiary deed*, a *transfer on death deed* avoids probate by allowing a property owner while living to make a grant of real property to the owner's heirs but does not effect a change of ownership until after the transferor's death.<sup>51</sup> While *transfer on death deeds* allow beneficiaries to avoid probate, they are revocable and beneficiaries will inherit any legally enforceable lien on the property upon transfer.<sup>52</sup>
- As of September 2019, the District of Columbia and the following states allow some form of *transfer of death deed*: Alaska, Arizona, Arkansas, California, Colorado, Hawaii, Illinois, Indiana, Kansas, Maine, Minnesota, Missouri, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Virginia, Washington, West Virginia, Wisconsin and Wyoming. A few states, such as Michigan, have a similar but technically different document, commonly called a *Lady Bird deed*. A *Lady Bird deed* allows a property owner to transfer ownership of the property to another

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<sup>49</sup> Survivorship deed, *Black's Law Dictionary* (11th ed. 2019), available at Westlaw.

<sup>50</sup> Tax deed, *Black's Law Dictionary* (11th ed. 2019), available at Westlaw.

<sup>51</sup> Beneficiary deed, *Black's Law Dictionary* (11th ed. 2019), available at Westlaw.

<sup>52</sup> What is a Transfer on Death Deed?, ROCKET LAWYER (last visited Jan. 2, 2020), <https://www.rocketlawyer.com/article/what-is-a-transfer-on-death-deed.rl>.



while retaining the right to hold and occupy the property and use it as if the grantor were still the sole owner.<sup>53</sup>

Transfer on death deeds convey the property to beneficiaries at the death of the landowner and do not reflect an arms-length transaction.

### Trustees Deed (foreclosure sale transfer)

- A *trustee's deed (foreclosure sale transfer)* is a deed used by a trustee to convey trust property.<sup>54</sup> Under a trust deed, a trustee acts as a third party to a lender and lendee (buyer), holding legal title to the property for the lender as security against the loan. If the buyer fails to repay the loan (and, if in a state that requires it, the *deed of trust* contains a “power of sale” clause), the trustee may proceed with a nonjudicial foreclosure and foreclose on the property directly and sell it to pay back the loan. Upon sale, the purchaser receives a *trustee's deed*, which conveys full ownership but comes with no guarantees that the title is clean.<sup>55</sup>

Foreclosure sales occur as the result of a forced sale and likely do not reflect market conditions.

### Trustees Deed (non-foreclosure)

- A *trustee's deed (non-foreclosure)* is a deed used by a trustee to convey trust property.<sup>56</sup>

A trustee's deed occurs in a variety of circumstances and may or may not reflect an arms-length transaction.

### Vendors Lien Deed

- A *vendor's lien deed* is functionally similar to a *warranty deed with vendor's lien*. Common to Texas, deeds often reserve an express *vendor's lien* to the seller in order to secure payment of a purchase money promissory note.<sup>57</sup> The seller and buyer agree in advance that there an interest retained by the seller in the property until the vendor is paid

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<sup>53</sup> Edward A. Haman, *Understanding the Transfer on Death Deed*, LEGALZOOM (last updated Sep. 26, 2019), <https://www.legalzoom.com/articles/understanding-the-transfer-on-death-deed>.

<sup>54</sup> Trustee's deed, *Black's Law Dictionary* (11th ed. 2019), available at Westlaw.

<sup>55</sup> *Understanding a Trustee's Deed Upon Sale*, WESTERN RESOURCES TITLE (July 25, 2014), <https://wrtca.com/understanding-a-trustees-deed-upon-sale/>.

<sup>56</sup> Trustee's deed, *Black's Law Dictionary* (11th ed. 2019), available at Westlaw.

<sup>57</sup> § 28.22. Effect on innocent purchasers of re-recording of deeds, 5 TEX. PRAC., LAND TITLES AND TITLE EXAMINATION § 28.22 (3d ed.); see also 44 Fla. Jur 2d Records and Recording Acts § 158.

in full.<sup>58</sup> Similar to a mortgage, the transfer of legal title does not occur until the buyer completes payment of the purchase money but *vendor’s lien deeds* are not executory.<sup>59</sup>

Vendors Lien deeds are used in a variety of circumstances. These deeds are not inherently arms-length or not.

## Warranty Deed

- A *warranty deed* is a deed containing one or more covenants of title, especially a deed that expressly guarantees the grantor's good, clear title and that contains covenants concerning the quality of title, including warranties of seisin, quiet enjoyment, right to convey, freedom from encumbrances, and defense of title against all claims. Also termed *general warranty deed* or *full-covenant-and-warranty deed*.<sup>60</sup> Compare to *quitclaim deed* and *special warranty deed*.

Warranty deeds generally indicate an arms-length transaction but may also be used in some transactions that are not arms-length.

## Warranty Deed with Vendors Lien

- A *warranty deed with vendor’s lien* is an instrument used to transfer title of property with all the assurances of a *general warranty deed* but with a built-in protection for the “vendor,” or seller of the property. A *warranty deed*, or *general warranty deed*, provides the most protection to buyers because it is a guarantee that title to the property is free of any mortgages or liens that could encumber the property, granting buyers recourse if that turns out not to be the case. A *vendor’s lien* is a lien in favor of the vendor, or seller of the property. Used in situations where the buyer is taking immediate possession but paying in installments, a *general warranty deed with vendor’s lien* permits the seller (vendor) to retain the right to repossess the property until the buyer makes the final payment. This type of deed is common where the buyer borrows the purchase price from the seller, which grants the seller with a vendor’s lien the same rights as an institutional lender if the buyer fails to make scheduled payments. Until the buyer finishes paying, the seller possesses legal title to the property and the buyer cannot sell the property.<sup>61</sup>

Like warranty deeds, warranty deeds with vendors liens generally indicate an arms-length transaction but may also be used in some transactions that are not arms-length.

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<sup>58</sup> John Willis, *What is a Vendor’s Lien Deed?*, SAPLING (last updated Mar. 28, 2017), <https://www.sapling.com/8466182/vendors-lien-deed>.

<sup>59</sup> § 28.22. Effect on innocent purchasers of re-recording of deeds, 5 TEX. PRAC., LAND TITLES AND TITLE EXAMINATION § 28.22 (3d ed.); see also 44 Fla. Jur 2d Records and Recording Acts § 158.

<sup>60</sup> Warranty deed, *Black’s Law Dictionary* (11th ed. 2019), available at Westlaw.

<sup>61</sup> Pam McCallum, *What is a Texas Warranty Deed with Vendor’s Lien?*, SAPLING (last updated Mar. 14, 2018), <https://www.sapling.com/8796347/texas-warranty-deed-vendors-lien>.